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Governance and Value Creation in Blockchain Platforms for Financial Inclusion

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Research full-length paper

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Abstract

Blockchain platforms for financial inclusion refer to systems that leverage Blockchain technology to offer financial services to unbanked and underbanked populations. The World Bank recognizes the potential of these platforms to reach an estimated 1.4 billion adults worldwide. Effective Blockchain governance is crucial for the success of these platforms. This paper explores the influence of Blockchain governance on value creation within such platforms. Through a case study of a crowdlending platform aimed at financial inclusion, we identify three mechanisms by which governance can enhance value creation: by minimizing investment risk through the implementation of a smart contract-driven compensation scheme; by bolstering trust and transparency via a decentralized decision-making process; and by encouraging initiatives that promote sustainability and growth within the communities they serve.

Keywords: Blockchain Platforms, Blockchain Governance, Value Creation, Financial Inclusion.

1 Introduction

Blockchain platforms represent a shift in how information is stored and shared, and how value is created for the platform participants. These platforms offer a decentralized ledger system that enables secure, transparent, and immutable transactions without the need for traditional intermediaries (Lacity, 2018). The scholarly discourse on Blockchain platforms often revolves around their potential to disrupt existing economic and social systems by facilitating peer-to-peer interactions and automating trust through smart contracts (Tapscott & Tapscott, 2018). As such, Blockchain platforms are not merely technological constructs but socio-technical systems, with the academic literature covering beyond their technical underpinnings to encompass their implications for industries, governance, and impact on society (Rossi et al., 2019). The governance of Blockchain platforms involves technical, organizational, and regulatory dimensions that collectively influence the platform's integrity, security, and adaptability (Beck et al., 2018).

Blockchain platforms hold significant promise for advancing financial inclusion by providing unbanked and underbanked populations with access to financial services. The decentralized nature of Blockchain allows for the creation of secure, low-cost financial products that are accessible via mobile technology, bypassing traditional banking infrastructure (Chen, 2019). This democratization of finance through blockchain can empower individuals with tools for savings, payments, and credit, which are otherwise inaccessible due to systemic barriers or high costs (Zohar, 2015). As such, blockchain plat-

forms are poised to play a transformative role in achieving financial equity and inclusion, as they offer a scalable solution to bridge the financial divide (Muneeza et al., 2018).

In the context of digital platforms, governance plays a key role in value creation by establishing the rules and mechanisms that shape the interactions among users, developers, and stakeholders. Effective governance structures are essential for fostering trust, ensuring quality, and facilitating transactions, which are key drivers of value on digital platforms (Parker, 2016). Moreover, governance determines the allocation of value captured, influencing the incentives for participation and contribution (Rochet et al., 2003). For instance, platform governance that emphasizes transparency and equitable sharing of revenues can attract a larger base of content creators, thereby enhancing the platform's value proposition (Boudreau & Hagiu, 2009). Conversely, overly restrictive governance policies may stifle innovation and limit the platform's growth potential (Hagiu & Wright, 2015). Thus, the design of governance mechanisms is critical to the value creation process in digital ecosystems.

The purpose of this paper is to explain how Blockchain governance can facilitate value creation in platforms for financial inclusion. We aim at answering the research question *"how does the governance of Blockchain platforms for financial inclusion impact on the value creation process?"*. We followed a case study of a Blockchain-based crowdlending platform for financial inclusion, analysing its governance and its value creation process. Our results show that three governance mechanism influenced the value creation process: minimizing the risk of investment with the creation of a compensation scheme driven by smart contracts; increasing trust and transparency with a decentralized decision-making process; and promoting activities to foster sustainability and growth in the communities they serve.

The structure of the paper is the following. The next section presents the theoretical background by reviewing the literature on Blockchain governance and value creation. Then, section 3 describes the research design, including data collection and analysis. Section 4 is the core of the paper, describing main results. We show the governance dimensions of the platform under study, explain its value creation process, discuss the interplay between governance and value creation. We close the paper with the concluding section.

2 Theoretical Background

The term "Blockchain" is used to describe distributed digital ledgers (Lacity, 2018). These ledgers possess certain features that enable the implementation of technical solutions, which facilitate transactions without the necessity of the presence of central authorities between different parties with disparate interests, including lenders and borrowers or suppliers and customers (Liu et al., 2023; Tschorsch & Scheuermann, 2016)). The use of consent protocols in digital ledgers enables the creation of a single agreed version of the truth, ensuring the immutability of the digital ledger due the impossibility to change the voices recorded (Schuetz & Venkatesh, 2020), moreover, providing decentralized compute and storage infrastructure (Liu et al., 2023).

2.1 Financial Inclusion

Financial inclusion is defined by the World Bank as "a critical factor in combating extreme poverty and promoting shared prosperity" (Mhlanga, 2023; World Bank, 2022). To reach populations that have been previously excluded or underused by the financial system used for financial inclusion digital tools. This approach enables the delivery of a range of formal financial services tailored to the specific needs of these populations, while ensuring that these services are provided responsibly and at an affordable cost to customers. Consequently, the process of integrating currently excluded and disadvantaged populations into the traditional financial system is identified as financial inclusion (Mhlanga, 2020). In addition, greater financial inclusion is incentivized by businesses through the spread of more

inclusive methods for international money transfers and cross-border payments, allowing the application of blockchain technology in various industries (Pilkington, 2016; Saberi et al., 2019). In particular, the adoption of cryptocurrencies through smart contracts has been a significant factor facilitating different types of transactions, even beyond the simple transfer of cryptocurrencies (Abdulhakeem & Hu, 2021; Beck et al., 2018; Mhlanga, 2023; Tschorsch & Scheuermann, 2016).

Recent studies have confirmed the role of Blockchain technology in promoting financial inclusion in several contexts including the financial sector, with the potential to reach an estimated 1.4 billion adults worldwide (World Bank, 2022). The development of more innovative, interoperable, borderless and transparent decentralized financial services, facilitated by Blockchain, has the potential to transform the structure of contemporary finance. As a result, decentralized financial services generate a nascent sector in the field of financial technology that has the potential to transform the structure of contemporary finance (Chen, 2019). Furthermore, the potential impact of Blockchain technology on the growth of crowdfunding was highlighted, indicating that the advent of these new digital financial technologies represents a promising path to reach economically disadvantaged individuals and communities (Mhlanga, 2023; Muneeza et al., 2018).

2.2 Blockchain Governance

The Blockchain economy alters our understanding of governance dimension (Beck et al., 2018). The existing literature on open-source software projects (OSS) provides a useful starting point (Lindman, 2017) due to similarities between Blockchain projects and OSS projects. The involvement of external parties, such as organizations, industries and entrepreneurs, is a common aspect of the two projects (Lindman, 2017). A further similarity concerns the political motivations behind these projects. This is evidenced by the ongoing debate between free software advocates and those who support commercial software, as well as the ongoing debate on the blockchain regarding decentralization and centralization (Lindman, 2017). Further insights into the governance of blockchain technology can be gained from the literature on IT governance (Beck et al., 2018; Liu et al., 2023; Pelt et al., 2021; Weill, 2014).

Several studies have addressed the issue of Blockchain governance from an IT governance perspective, considering three dimensions of IT governance (decision-making rights, responsibilities and incentives). The dimension of decision rights is of paramount importance, in fact, the distribution of decision rights within a Blockchain project determines the degree of decentralization of the blockchain itself. For this reason, it is crucial to identify both the roles, capabilities and priority interests of the actors involved in the blockchain project and determining how decisions are taken and monitored (Beck et al., 2018; Ellul et al., 2020; Katina et al., 2019; Pelt et al., 2021; Yeoh, 2017; Yeung & Galindo, 2019). Integrity and transparency in the Blockchain projects are provided by the dimension of the concept of accountability, defining the roles and responsibilities of all parties involved in the blockchain ecosystem. The implementation of on-chain smart contracts and off-chain legal agreements determine the achievement of accountability is dependent on (Beck et al., 2018; Katina et al., 2019; Liu et al., 2023). The final dimension to be considered is that of incentives, which can influence the success of a blockchain initiative. Incentives are motivational factors influencing the participants' behaviour with the aim of guiding the collective decisions of stakeholders (Beck et al., 2018; De Filippi & Loveluck, 2016; Mattila & Seppälä, 2018; Pelt et al., 2021). These governance dimensions are rooted in agency theory, also known as principal-agent theory (Moldoveanu & Martin, 2001) serves as a framework for evaluating the allocation of decision-making rights, determining accountability, and assessing how incentives can mitigate divergent objectives (Fama & Jensen, 1983). The primary goal is to address issues arising from agents having conflicting desires, objectives, or risk attitudes (Akerlof, 1970; Beck et al., 2018; Eisenhardt, 1989; Jensen & Meckling, 1976)).

Ziolkowski et al. (2020) (Ziolkowski et al., 2020) examine Blockchain as a component of IT governance, identifying a number of decision-making challenges specific to blockchain governance, particularly in public and permissionless blockchain systems. The study identifies six dimensions of govern-

ance issues across four types of blockchain applications: cryptocurrency, intellectual property rights management, land registry, and supply chains. The first-dimension concerns demand management, where the characteristics of change, immutability, and decentralization inherent in blockchain are affected. The second dimension of governance issues concerns data management. This encompasses data preservation, which is influenced by the consensus algorithm and technical accuracy, and data entry, which pertains to the variability in data quality. The third dimension pertains to the design and development of system architecture. Here, change, immutability, and decentralization play a pivotal role, with developers representing the primary stakeholders. The remaining three dimensions pertain to blockchain-specific challenges. Such issues include instances of membership, ownership disputes, and the transaction reversal (Liu et al., 2023; Ziolkowski et al., 2020).

The extant literature distinguishes between two principal types of Blockchain governance: "On-chain governance" encompasses processes and structures that are integrated directly into the blockchain (decentralized autonomous organization (DAOs)). This method places a strong emphasis on decision-making processes and structures that are integrated directly into the blockchain, thereby ensuring that all interactions adhere to predefined code rules. While the term "off-chain governance" encompasses processes occurring outside the blockchain that can influence its development and operation (Arribas et al., 2020; Jia et al., 2021; Liu et al., 2023; Wright, 2019).

The implementation of governance can facilitate the decentralization Blockchain, thus maintaining its resistance to censorship (Liu et al., 2023). Further key aspect of governance is the identification of the relevant stakeholders involved in Blockchain governance. These include: the project team shall be responsible for the supervision and technical implementation of the blockchain. Developers are responsible for maintaining the blockchain platform code and implementing updates. In addition, a leader is required to make decisions (Ellul et al., 2020; Erbguth & Morin, 2018; Finck, M., 2018; Howell et al., 2019; Hsieh,Vergne and Wang, 2017; Pelt et al., 2021). Instead, the generation and inclusion of new blocks, through the consensus mechanism that ensures the security of the system is the responsibility of the node operators, i.e. the miners (Allen & Berg, 2020; Baudlet et al., 2020; DiRose & Mansouri, 2018; Hsieh, Vergne and Wang, 2017; Mattila & Seppälä, 2018; Mosley et al., 2020). Those who provide feedback to the project team represent the third category of users who may not even be the end users (Fan, Chai and Zhong, 2020; Finck, 2018; Merrill et al., 2020; Mosley et al., 2020). A key role is also played by application providers as they are responsible for the development and implementation of blockchain-based applications (Allen & Berg, 2020; De Filippi, Mannan and Reijers,2020; Nabilou, 2020). The existence of regulatory bodies, such as government departments, judicial authorities and third-party auditors, allow for ensuring that decisions and activities related to blockchain technology comply with relevant legislation and regulations (De Filippi, Mannan, and Reijers, 2020; Ellul et al., 2020; Trump et al., 2018). Furthermore, indirect stakeholders include the media, researchers, and environmentalists who exert influence or contribute to blockchain governance decisions. The media and environmentalists exert social pressure, while researchers conduct academic studies that help shape models of governance (Allen & Berg, 2020; De Filippi, Mannan and Reijers,2020; Liu et al., 2023; Nabilou, 2020; Pelt et al., 2021).

In this article, we follow the picture provided by Van Pelt et al (2021) (Pelt et al., 2021). The existence of numerous studies in which the complex phenomenon of governance has been divided into dimensions has prompted by the authors to create a Blockchain framework through a synthesis matrix that incorporates the individual governance concepts identified during the literature review. The following six dimensions are considered. *Formation and Context* provides an analysis of the structural and contextual factors that influence the operation of the various governance dimensions. The *Stakeholder Roles* of the various actors within the governance structure are identified, including those of foundations, developers and miners. The roles within the three levels of governance are specified. *Incentives* examine the motivational factors influencing roles at the three levels of governance. *Membership* focuses on the management of participation and membership in available roles. *Communication* examines the formal and informal ways in which stakeholders in a Blockchain communicate with one an-

other, including the available communication tools such as coordination and monitoring systems. Finally, *Decision-making* examines the processes by which decisions are taken, monitored and agreed at the three levels of governance, as well as the establishment of decision-making processes.

These dimensions provide a comprehensive framework for the understanding and analysis of governance within Blockchains, which breaks it down into more manageable and analysable components. The second key element considered by Van Pelt et al. (2018) (Pelt et al., 2021) for the design of framework is the set of levels of blockchain governance distinguish between levels of governance in their framework, identifying layers as: off-chain community level (governance encompassing wider community of project), off-chain development level (process of software development), and on-chain protocol level (including the decision making processes, voting mechanisms and rules of interaction encoded directly into the infrastructure of the Blockchain).

2.3 Value Creation

Regarding value creation, the seminal work on Porter's value chain (1985) (Porter M., 1985) has analysed value creation at the organizational level, identifying those activities that have economic implications. Porter defines the value as "the amount buyers are willing to pay for what a firm provides them. Value is measured by total revenue ... A firm is profitable if the value it commands exceeds the costs involved in creating the product' (Amit & Zott, 2001; Porter, 1985:38).

Innovation is considered by Schumpeter (Schumpeter J., 1934) as a source of value creation capable of transform industrial markets and economic development. In addition, organizations are able to contribute to value creation through the combination of resources and capabilities are able to contribute to value creation (RBV) (Amit & Zott, 2001; Barney, 1991; Penrose, 1959).

Today, the digital revolution is influencing the emergence of a more complex ecosystem, determining and changing the rules not only within industries but also in terms of business models and value creation (Pagani, 2013). Various definitions of value creation have emerged on strategic management literature (Brandenburger & Stuart, 1996; Mol, Wijnberg, and Carroll, 2005; Porter, 1985). A definition based on the utility provided to both goods and services to end users, distinguishing between value creation and value capture (difference between revenues and costs) is provided by Bowman and Ambrosini (2000) (Bowman & Ambrosini, 2020). Another definition considers the total value creation, based on the contractual power of each participant (Brandenburger & Stuart, 1996; Brandenburger, 1996; Pagani, 2013; Mol, Wijnberg and Carroll, 2005; Porter, 1980; Teece, 1987). Normann and Ramirez (1993)(Normann & Ramirez, 1993) in their definition offer a vision in which they do not distinguish between services and products but combine them into "offerings" that allow customers to create value for themselves. The complexity of these "offerings" increases the need for relationships to realize them. As a result, the organization will strategically reconfigure new capabilities and integrate new customers, creating value through a coalition of different economic actors. Brandenburger and Stuart (1996) (Brandenburger & Stuart, 1996) finally see the creation of value as the total created, i. e., the addition of the values brought by each party involved in a transaction. Amit and Zott (2001) (Amit & Zott, 2001), based on this vision, come to consider the "value" as the total created, regardless of who benefits from it, whether it is the company or the customer or any other actor involved in the transaction.

According to Amit and Zott (2001)(Amit & Zott, 2001), value mechanisms are how value can be created not only to the organization but also for all stakeholders (Arenas et al., 2019). Based on their concept of value, the authors identify four main mechanisms of value creation: novelty, efficiency, complementarity and lock-in (Arenas et al., 2019). New ways of conducting a profitable exchange by bringing together previously unrelated parties, connecting participants to transactions in new ways, or designing new transaction mechanisms, creates value and is the novelty mechanism. The value created through the process of streamlining transactions and coordination activities is considered the efficiency mechanism. Identifying and exploiting complementary resources/capabilities between partners, so

that together they create a source of value that one partner could not create alone, is the complementarity mechanism. Finally, lock-in is expressed, for example, in switching costs, which are strategically designed to prevent customers and partners from migrating to competitors. Thanks to lock-in, customers engage in repeat transactions and partners have incentives to maintain and improve their relationships (Amit & Zott, 2001; Arenas et al., 2019).

Furthermore, the creation of intangible and/or tangible value can lead to specific economic and social outcomes (Allee, 2003; Granovetter & Swedberg, 2001). In addition, transformation and value enhancement are important elements of value creation for intangibles (Allee, 2008). Value transformation involves the transformation of one type of value input into another type of output, for example from a financial to a non-financial aspect or vice versa. Adding features that make the output of unique value is considered value enhancement (Arenas et al., 2019).

3 Research Design

To answer our research question of how Blockchain governance impact on value creation in Blockchain platforms for financial inclusion, we conducted a case study on *AlphaLending*[1], a Blockchain-based crowd-lending platform that enables unbanked farmers to access capital at low interest rates.

AlphaLending was launched in 2018 and it has successfully intermediated over four million Euros, supporting more than 600 families across five countries. The platform facilitates connections between farmers and lenders, showcasing farmer projects along with the required funding amounts. Lenders have the opportunity to provide capital to farmers or to stake collateral on their behalf using *AlphaToken*, the platform's proprietary coin, to secure the loans. The platform has established itself as a frontrunner in the industry, earning prestigious awards such as the 2022 Financial Innovation Awards (FIA) for the fintech with the greatest impact and sustainability. Furthermore, *AlphaLending* was nationally recognized with the FinTech 2018 Award and internationally recognized with the “Blockchain4Humanity” award for the best blockchain project in the Financial Inclusion category. Recently, the International Association of Trusted Blockchain Applications (INATBA) named *AlphaLending* the "Most Exciting Regenerative Finance Project" of the year. This impressive track record motivated us to select the platform as the focus of our case study.

The case study approach is particularly effective for exploring "how" questions due to its descriptive nature (Yin, 2013). Additionally, case study design is well-suited at extracting anecdotal evidence (Graebner & Eisenhardt, 2013), a characteristic valuable in understanding the platform's evolution, governance, value generation process, and stakeholder roles interactions. Qualitative data about the platform was collected from several sources: *AlphaLending*’s web page, *AlphaLending*’s discussion forum, public documents about the company, interviews with the three founders, and notes taken from a meeting organized by the company, all totalling 157 pages of archival data. Appendix 1 includes the questionnaire used during interviews with the founders. All interviews were transcribed, and data was coded for analysis with the assistance of NVivo 14.

For data analysis, we employed the techniques of thematic coding (Boyatzis, 1996) and grounded theory (Urquhart, 2022). As a first step in the analysis, thematic coding was employed using the Blockchain governance framework proposed by van Pelt et al. (2021) to analyse deductively the collected data to identify main governance dimensions. Then, we employed grounded theory method to inductively determine the value generation process followed by the organization, and the relation between

[1] The case is based on a real platform, which in this article we have given the name *AlphaLending* in order to protect its anonymity. Its associated coin has been called *AlphaToken*.

governance and value generation. We employed grounded theory as our analytical method due to the absence of pre-existing theories in the domain of value generation. This approach enabled us to inductively develop a theory directly from the data collected. Following the conventions of grounded theory, data analysis proceeded in three steps: open coding, selective coding, and theoretical coding (Urquhart, 2022). In open coding, we attach codes to the data in an open way, indicating the main themes and properties mentioned in the interviews. In selective coding, open codes are clustered around categories that are important for the research problem. Finally, in theoretical coding, core codes are identified and relations among them are derived (Hernandez, 2009).

The result of the thematic coding served as the starting coding structure for the grounded-theory analysis. Additional codes were created as specific themes or recurring issues were identified, which centred on stakeholder roles, benefits for stakeholders, sustainability of the platform, creating communities, managing utility tokens, transparency and open votes, among other topics. In total, we generated 67 open codes. In selective coding, open codes were clustered in 11 selective codes, including managing risk in investment, automating collateral with smart contracts, sustainability of the token, managing regulations, transparency, decentralization in decision-making, increasing participation, affordable financing, improving farming communities, and sustainability goals. As the last step, it emerged three theoretical codes related to minimizing the risk of investment, decentralization in decision-making, and fostering sustainability and growth in farming communities.

We utilized the principle of constant comparison during the whole process, continuously comparing codes between interviews with the topics considered in the discussion forum, and the codes emerging form the analysis to the company documents.

4 Results

4.1 The Governance Dimensions of *AlphaLending* Platform

As mentioned previously, the governance framework proposed by van Pelt et al. (2021) includes seven dimensions over three governance layers. In this part, we present each of the dimensions for the case of *AlphaLending*. In addition, following (Liu et al., 2022) we added a dimension about compliance to regulation and legal aspects.

4.1.1 Formation and Context

This dimension captures relevant information about the nature of the company, purpose, and the role that Blockchain plays in the company.

AlphaLending was conceptualized to address the financial exclusion of smallholder farmers, particularly those who are unbanked and lack access to traditional financial systems. It is a social enterprise that connects small farmers with the financing needed to work their land and sell their crops to direct markets. The platform aims at providing affordable financing in a sustainable win/win model, allowing farmers to break free from the poverty cycle. According to company documents, their purpose is *"to improve these small farmers' living standards through increased productivity and a more equitable supply chain*." The crowdlending platform aims to create a de-risking system to reduce the perception of risk when investing in smallholder farmers in emerging economies. As mentioned by one of the founders of the company:

> *"[AlphaLending]arises with the objective of "breaking the boundaries of money" and correcting the global economy's current dysfunctions and the world financial and monetary system. The price of money in the world is not uniform. While these farmers pay interest above 100% per annum, we hardly receive any return on our*

> *savings deposited in a checking account in other parts of the world. And isn't this extraordinarily paradoxical when we all live on the same planet?"*

The company started as a smart contract-based crowd-lending platform, connecting small farmers in need of capital with global investors. After operating for three years, the platform evolved to include crowd-collateral investments, a compensation scheme to minimize the risk associated with investing in smallholder farmers. It operated with *AlphaToken*, the utility token designed to generate crypto incentives to boost proper behavior among all stakeholders and align their interests.

Blockchain technology has played a central role in the development and evolution of *AlphaLending* by providing a decentralized and secure framework for financial transactions. On one side, Blockchain's inherent features of transparency and traceability ensure that all financial transactions within *AlphaLending* are secure and verifiable. In addition, Smart Contracts have enabled the creation of a crowd-collateral system that reduces the perception of risk when investing in smallholder farmers, system that relies on *AlphaToken* and enables a trustful environment for impact investing. The vision of the company in relation to the use of Blockchain is manifested in the following note from its Web page:

> *"[AlphaLending] is a benchmark in the use of blockchain technology applied to financial inclusion with impact, optimizing the growing crowdlending industry significantly, enabling a small group of people to collectively contribute different amounts of money to finance agricultural projects on the other side of the world."*

4.1.2 Stakeholder Roles, Incentives and Responsibilities

These dimensions identify the different stakeholder roles present in the organization, the incentives for each stakeholder role, and his/her responsibilities, as described below.

- **Farmers:** Smallholder farmers are the primary beneficiaries of *AlphaLending*'s ecosystem, receiving loans to low interest rate. The platform aims to onboard as many farmers as possible and they are incentivized to improve their living standards through their own productivity. Farmer's main responsibilities include improving their living standards, contributing to improving the standards of their own communities, and to pay back the received loan.
- **Investors:** Investors provide working capital to fund farmers' loans. The platform distinguishes two types of investors: lenders and stakers. **Lenders** are risk adverse investors who provide working capital by means of stablecoins and they are covered by a pre-established compensation scheme. **Stakers** are high risk investors who provides collateral in the form of *AlphaToken* tokens to minimize the perceived risk associated with lending capital to smallholder farmers. The main responsibility of investors is to provide funds for farmers, starting with contributions as low as 20 Euros. There are two main incentives for investors: on one hand, the rewards obtained from investing in farmers; on the other one, the perceived satisfaction obtained from investing in social-responsible projects, helping to farmer communities in the Global South.
- **Loan Originators:** Individuals or entities in direct contact with smallholder farmers responsible for generating projects for the lending platform. They are not financial intermediaries but farmers' service providers, and thus, an instrumental part of a sustainable supply chain. Originators are responsible for locating communities of farmers who may want to join in the platform, as explained in the web page:

  > *"[Loan Originators] explain AlphaLending's work to them [farmers], organize group of small producers, and act as the "human factor" in an environment of technological disruption, ensure that investors' money is used in the indicated productive tasks"*

Originators also have to stake collateral in the form of *AlphaToken* tokens equivalent to a percentage of the amount they want to borrow for their selected communities. The main incentive for originators is to contribute to the community they are working on by helping their farmers to get access to funds via *AlphaLending*.

- **Auditors:** Entities with a proven reputation (e.g., agri-tech accelerators, NGOs, development agencies) that are in direct relation with actors working with smallholder farmers in developing countries. They refer and audit trustworthy loan originators that align with *AlphaLending*'s values and comply with its onboarding requirements. Among the responsibilities of auditors, they need to stake *AlphaToken* as collateral on behalf of their referred loan originators in exchange for a fee in each loan. Their main incentive is the perception to contribute to social-responsible projects, helping to farmer communities in the Global South.
- **Platform Owner/Managers:** These are the founders and personnel from *AlphaLending*, who created the Blockchain platform, and operate the platform on daily basis. As mentioned by the founders, their aim is *"to improve small farmers' living standards through increased productivity and more equitable supply chain. … we can provide them with access to working capital, with very affordable interests rates".* They are responsible for maintaining the platform and their sustainability.

4.1.3 Membership and Communication

The membership dimension focuses on the way participation and membership are managed by the available stakeholder roles, and the communication dimension captures the formal and informal way of communication between the stakeholder roles. Both dimensions are considered key in the governance of open source and collaborative projects (Izquierdo, J. L. C., Cabot, 2015), common characteristics of Blockchain projects (van de Pelt et al., 2021).

The platform announces that *"anyone can lend at AlphaLending, but borrowing is only by invitation"*. So, any person can invest in the platform, but those interested in being loan originators need to submit a project proposal that should be aligned with *AlphaLending*'s values, and it must be backed by an approved auditor. Loan originator's proposals are approved by the community of investors in the platform discussion forum.

In relation to communication, *AlphaLending* uses a variety of communication channels to engage with its stakeholders. Their website is the primary communication channel, where stakeholders can find detailed information about the company's mission, projects and impact. *AlphaLending* keeps its communicated updated through an online newsletter, which provides updates on new projects, impact stories, and other relevant news. The company maintains a strong presence in several social media platforms, used to share updates, engage with the community, and promote *AlphaLending*'s work. In particular, there is the company's community forum, implemented on the Discourse discussion platform, which facilitates discussion among members of the community, and it is used for voting proposals and approval by members of the community.

4.1.4 Decision Making

The company has a decentralized decision-making system, where some aspects of the management of *AlphaLending* are discussed with the community, and a decision is taken after a review and voting periods. The aspects that are decided in a decentralized way include the selection of loan generators, and hence farming projects to be funded, and the management of collaterals and incentives related to the use of the *AlphaToken* coin.

The decentralized decision-making process consists of four steps: (i) submission of the proposal in the discussion forum of the company; (ii) review of the proposal by the investors community, including feedback and discussion about the proposal; (iii) voting by members of the community; and (iv) im-

plementation of the decision by the company managers. This process distributes the power of decision across the investors rather than centralizing it in the hands of the founders. It also empowers the community to directly influence which projects are worthy, ensuring that the decisions reflect their preferences.

4.1.5 Compliance to Regulation and Legal Aspects

AlphaLending manages regulation and legal aspects by adhering to the legal frameworks of the jurisdictions in which it operates. As a platform that connects investors with small farmers through crowdlending on a peer-to-peer basis, the company must navigate various regulatory environments, especially since it involves financial services and the use of blockchain technology. Below, we describe some ways in which the company addresses regulatory and legal challenges.

First, in relation to scope and restrictions, the company's services may not be contracted by citizens, residents, or tax residents of certain jurisdictions where contracting services through virtual currencies is illegal[2]. *AlphaLending* ensures that its operations comply with local laws and regulations related to financial services and crowdfunding. This includes adhering to anti-money laundering (AML) and know your customer (KYC) regulations. Second, in relation to regulatory risks, the company emphasizes in the platform's term and conditions that users must recognize and accept the financial, regulatory, and reputational risks involved in contracting services of collaborative loans via blockchain technology. This includes the possibility that certain jurisdictions may apply existing regulations or introduce new regulations addressing Blockchain technology-based applications. This level of transparency is crucial for legal protection and user awareness. Finally, the company engages with regulatory authorities to ensure that its approach to finance is in line with current laws and to advocate for regulations that support decentralized financial services, collaborating with INATBA, the International Association for Trusted Blockchain Applications.

4.2 Value Creation in *AlphaLending* Platform

AlphaLending creates value for its stakeholders through a collaborative ecosystem that connects all the stakeholders, and generate social, economic, and environmental values. We followed a value flow approach, indicating how value is created for each of the company's stakeholders.

- **Farmers:** *AlphaLending* provides smallholder farmers with access to affordable financing to work their lands and sell their crops in direct markets. The platform also provides farmers with access to added value markets, so they are no longer the weakest link in the supply chain. This improves their productivity and living standards, contributing to improve their communities. *AlphaLending* encourages agricultural practices that are environmentally friendly. With access to more affordable financing, farmers can invest in organic inputs and growing techniques that decrease dependence on chemical pesticides and fertilizers, resulting in less water and soil pollution.
- **Investors:** Investors have the opportunity to invest collaboratively in profitable agricultural projects, contributing to socio-economic and environmental impact in small farming communities. Economic value is generated for the investors through an investment model that offers an annualized return of between 8% and 10%. Investors can diversify their investments in different projects, financing field work and the export of exceptional products from small farmers.

[2] It includes the following countries, among others: Canada, China, the United States of America, Puerto Rico, and the Virgin Islands.

- **Loan Originators:** *AlphaLending* creates value for loan originators by allowing them to access liquidity to finance agricultural projects. Loan originators must have "skin in the game" by staking collateral in the form of *AlphaToken*, which is equivalent to a percentage of the amount they wish to borrow. This collateralization system not only improves trust in the platform, but also incentivizes originators to maintain a high-quality standard in the projects they generate. By repaying the loans, they improve the value of the token once the debt is paid, benefiting all token holders.
- **Auditors:** *AlphaLending* offers auditors a combination of financial benefits, governance influence and reputation enhancements, allowing them to generate value for both themselves and the broader ecosystem. Auditors who post collateral on behalf of loan originators earn 2% of repaid loans. This provides them with a direct financial incentive to select and audit reliable loan originators and high-quality projects. The tokens staked by auditors contribute to making the compensation system stronger and more secure. By increasing system security, auditors help maintain investor confidence and platform stability. As token holders, auditors can participate in the decentralized governance, allowing them to have a say in important decisions that affect the *AlphaLending* ecosystem. By partnering with *AlphaLending*, auditors can enhance their reputation and credibility in the decentralized finance and social impact sector, which can lead to career growth and new business opportunities.
- **Platform Owners/Managers:** The platform has demonstrated constant growth, with more than four million euros of total capital invested and a community of more than 2000 investors. This growth attracts more investment and increases the value of the company. By pioneering the use of Blockchain to improve the life of farming communities around the world, *AlphaLending* positions itself as a leader in the decentralized finance and social impact sector, potentially increasing brand value and attracting more users to the platform.

4.3 Interplay between Governance and Value Creation in *AlphaLending* Platform

The governance model followed by *AlphaLending* plays a crucial role in its value creation process. In our analysis, three mechanisms emerged as key in the interplay between governance and value creation, which correspond to the theoretical codes generated from our data analysis: *minimizing the risk* of investment with a compensation scheme driven by smart contracts, *increasing trust and transparency* with a decentralized decision-making process, and *fostering sustainability and growth* in the farming communities they serve.

The mechanisms of minimizing the risk of investment includes the selective codes of managing risk in investment, automating collateral with smart contracts, sustainability of the token, and managing regulations. The company has designed a compensation scheme to minimize the risks associated with investing in smallholder farmers and operates with *AlphaToken*, the utility token that generates crypto incentives to promote proper behaviour among all stakeholders. The scheme has three levels of security. At the first level, it involves staked *AlphaToken* from the originator (20%), auditor (20%), and stakers (60%), which collateralizes 100% of the lent capital. This collateral cannot be withdrawn before the loan is paid back. The second level of security corresponds to a compensation reserve, which sells *AlphaToken* for stablecoins to cover expected returns if the originator's *AlphaToken* are insufficient. Lastly, *AlphaToken* staked by stakers act as a third level of guarantee if the first two levels are not enough to cover a default. All these levels of security are programmed as smart contracts, automating the management of collaterals. With the governance mechanism in place, the compensation scheme creates a virtuous cycle that increases demand and value for *AlphaToken*, while providing security and trust in the platform's ecosystem.

The mechanism of increasing trust and transparency included selective codes transparency, decentralization in decision-making, and increasing participation. The decentralized decision-making process of

AlphaLending increases trust and transparency by allowing open participation of all token holders in proposals and voting, promoting a sense of shared ownership. Proposals are discussed in the company's discussion forum, ensuring that all changes are transparent and subject to community debate before implementation. Decentralization of power prevents concentration and potential abuse, while Blockchain technology ensures an immutable and verifiable record of all decisions and transactions. Additionally, the platform's incentive mechanisms, such as the compensation scheme, align the interests of participants with those of *AlphaLending*, incentivizing decisions that benefit the ecosystem as a whole, and resulting in a governance model that is open and equitable.

The last mechanism included the selective codes affordable financing, improving farming communities, and sustainability goals. *AlphaLending* fosters sustainability and growth in the farming communities it serves by providing affordable financing to smallholder farmers, enabling them to improve their productivity and break out of the cycle of poverty. By connecting complementary economic regions, the lending platform generates benefits for both investors and borrowers in a synergistic win-win relationship. Again, the compensation schemes act as a vehicle promoting responsible behaviour in loan originators and auditors, helping to the sustainability of the platform and its ecosystems, including farming communities.

5 Conclusions

The objective of this paper is to investigate the relationship between governance and value creation in Blockchain platforms for financial inclusion, and in particular how governance impacts on the value creation process. Platforms for financial inclusion aims to prevent poverty and promote shared prosperity, so these goals need to be considered in the governance of the platform. Using the Blockchain governance framework proposed by Van Pelt et al (2021)(Pelt et al., 2021) as our theoretical lens, we analysed the governance of the *AlphaLending* platform. Our results show a governance model characterized by a decentralized decision-making process that exploits Blockchain features to minimize the risk of investments, increase trust and transparency, and foster sustainability and growth within farming communities.

Contrasting the identified governance model with other models proposed by the literature, *AlphaLending* governance is characterized by a semi-decentralized governance model that includes elements of liquid authority (Krisch, 2016). Liquid authority is characterized by informal norms and practices with the potential for change and adaptation over time, rather than formal biding rules. Key decisions for the platform and the company are taken by the community in a decentralized way, resulting in a governance model that is open and equitable.

The three mechanisms from the governance identified as impacting strongly in value creation depend strongly on the designed *AlphaLending* compensation scheme, with the *AlphaToken* utility token playing a central role in the sustainability of the ecosystem. The compensation scheme incentivises token holders to stake their tokens, receiving a daily yield that can be withdrawn at any time.

The work presented in this paper contributes to the emerging literature on Blockchain governance by illustrating how the interrelation between several governance elements propels the creation of value in Blockchain platforms, especially in platforms for financial inclusion.

One of the limitations of this research is that personal interviews were held only with the founders of the company. We are in the middle of interviewing other stakeholders, focusing on the challenges in the governance of Blockchain platforms, especially in relation to compliance and regulatory norms. We are also analysing other Blockchain platforms, so that we can contrast various governance elements.

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Appendix 1.

Questionnaire for interviews with company founders.

Formation and Context
• Could you explain your business model? • What is the goal of your company? • How is the company using Blockchain technology? • How are you using Smart Contracts? • What is the goal of the token you have launched? • Could you explain how did the launch of the token associated with the business go? • What kind of regulation is the token under?
Roles
• Could you explain the hierarchical structure of the company?

Incentives
• What benefits do they get by participating in the business? • Are there benefits that are not necessarily monetary? • What kind of collateral do individuals/entities acquiring tokens have?
Membership
• Who are your main stakeholders? • What responsibilities do the stakeholders involved in the business have?
Communication
• How was the token promoed among the community? • What kind of communication channels were used?
Decision making
• Are token owners involved in the company's decision-making process in any way?
Additional Information
• Any additional points you'd like to highlight? • We would appreciate if you could provide us with any additional information that could complement your answers, information such as company reports, white papers, etc.