WeTrust Whitepaper Table of Contents

George Li, Patrick Long, Ron Merom, Tom Nash, Mivsam Yekutiel

www.wetrust.io

Abstract

WeTrust is a collaborative savings, lending and insurance platform that is autonomous, agnostic, frictionless, and decentralized. WeTrust utilizes the Ethereum blockchain to create a full-stack alternative financial system that leverages existing social capital and trust networks, eliminating the need for a "trusted third party", allowing for lower fees, improved incentive structures, decentralized risks, allowing a greater amount of capital to reside among the participants, and ultimately improving financial inclusion on a global scale.

WeTrust's first product is a Trusted Lending Circle (TLC) platform, inspired by the ~1 billion people around the world who are using informal TLCs or Rotating and Saving Credit Associations (ROSCAs) to lend/ borrow, and support each other financially within their communities. On top of Trusted Lending Circles, WeTrust plans to build future products that include sovereign credit identities, trusted direct lending, mutual insurance, and more.

Vision

WeTrust's vision is to leverage social capital, trust networks, and blockchain technology to create a financial system that has aligned interests with all of it's participants. 2 billion adults[1] in this world do not have a bank account and the existing financial system has many contradictions. One cannot get an affordable loan without having well-paying job and good

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[1] Demirguc-Kunt, A., Leora K., Dorothe S., and Van Oudheusden, P. "The Global Findex Database 2014: Measuring Financial Inclusion around the World" (2015).

credit, while legitimate insurance claims directly reduce an insurance firm's profits. The un-banked and un-insured are most hurt from this lack of access and misalignment of interests, and are always in search of alternative financial solutions.

We believe that today's banks and insurance companies play an important role in society. However, in contrast to other industries where undifferentiated products result in low margins, they thrive because of their important role as a "trusted third party". Yet, our research shows that there is an alternative to this dependency on a "trusted third party", one which can help reduce the friction necessitated by centralized intermediaries and result in a more inclusive financial system where everyone has access to fair, market-priced credit and insurance.

A fundamental building block we plan to use in creating an alternative already exists via a tradition used globally by over 1 billion people -- Trusted Lending Circles (aka Rotating and Saving Credit Association or ROSCA). This grassroots organization leverages personal reputation and social ties -- and draws upon 2,000 years[1] of resilience and effectiveness in offering credit and insurance to communities around the world.

Our first product is a Trusted Lending Circle platform powered by the blockchain - one which enables the creation of social safety nets that address economic uncertainty and provides opportunity for growth. It is the first of a series of products that include credit identities and scores, lending, mutual insurance, and much more -- all of which leverage the untapped social capital and trust networks that already exist.

In this whitepaper, we propose a plan to implement our vision to amplify the strengths of social capital and reputation based networks, while addressing their weaknesses: scalability, fraud, and lack of innovation.
Naturally, our products and research are always a work in progress. We welcome comments, questions and ideas for improvement from our community. Please contact us **here** with you thoughts.

Market Review

Social safety nets have functioned among humans for millennia since prehistoric times, starting from hunter gatherer societies[2]. In modern times, there are three primary forms of social safety nets: Government, Commercial, and Reciprocal.

Government aid can come in the form of Social Security, Unemployment, Medicare, etc... Unavailable for most global citizens, government aid is also underfunded where currently

offered (US, countries in the EU, Japan, etc…), according to leading economists[2]. While most people in developing countries already experience the lacking nature of Government Aid, many in the developed countries are starting to realize that as well.

Commercial aid comes in the form of purchased insurance or emergency loans, and is often laden with high operating costs, especially for those who need it the most. More importantly, commercial aid has a shareholder-first mentality, often to the detriment of policyholders/ borrowers, and has a precedent of taking risks that endanger the financial system (see AIG bailouts in 2008[3]). Lastly, this form of safety net is simply inaccessible to two billion adults and their dependents, ~40% of the global population.

The third option is Reciprocal Aid. Simply put, it is any organization where voluntary participants play the role of both aid giver and receiver depending on the circumstance. They exist in many forms around the world including Rotating Savings and Credit Associations (referred to as Trusted Lending Circle from here on in this document, also known by different local names globally), mutual insurance groups, fraternal organizations, religious groups, and professional societies. In these organizations, participants receive, by average, what they contribute over the life of their membership, and self-reliance is a core attribute. Their decline in recent years is due to inability to scale efficiently, lack of transparency relative to Commercial aid, and the increased role of Governmental Aid.

While these organizations play an important role in their respective communities and are currently used by billions of people globally across developing and developed economies, Reciprocal Aid is **not** a panacea. Instead, WeTrust views reciprocal aid as a critical leg to the three legged stool of protection against uncertainty, and serves a complementary role along with Government and Commercial aid. Furthermore, WeTrust believes that the Social Capital and Trust Networks found in traditional Reciprocal Aid organizations can be leveraged and blended with characteristics found in Commercial organizations, to create entities that result in: lower default rates, better rates for both savers and borrowers, lower expense ratios and lower fraudulent claims for insurance.

Lastly, while many countries that rely upon Reciprocal Aid have low rates of financial inclusion, some institutions have attempted to address the lack of financial inclusion by facilitating access to outside capital via peer-to-peer lending (P2P)[4], such as those offered by Kiva.org. Kiva.org is a well known non-profit that has brought P2P loans to developing countries, but it's penetration and usage has been limited and is in some cases controversial[5] due to high fees, multiple transaction steps, and lack of transparency. WeTrust believes there is a way to improve financial inclusion via a reciprocal aid approach that is transparent, requires low fees, and promotes sustainable growth.

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[2] Fischer, W. and Sard, B. "Chart Book: Federal Housing Spending is Poorly Matched to Need". *Center on Budget and Policy Priorities* (2016); Biggs, A. "Are State and Local Government Pensions Underfunded by $5 Trillion?" *Forbes* (2016); Cohen, R. "Congress Debates and then Grossly Underfunds Federal Safety-Net Programs". *NonProfit Quarterly* (2015).

Trusted Lending Circle, a simple reciprocal aid organization:

Savings and lending is a foundational building block of modern society, serving as both funds in times of financial need and fuel for funding economic growth. Access to capital can have impact of historical proportions. Without access to capital, Columbus's expeditions to the Americas may not have occurred, and perhaps nor would the subsequent explorations of the "New World". Without proper financing mechanisms, neither the Industrial Revolution nor the tech boom in Silicon Valley would have spread at such rapid speed. Both national and local economies are affected by the ease or difficulty to access capital.

For thousands of years, people around the world have created mechanisms within the communities to save money, lend and borrow from each other and create financial safety nets.

One of the most widespread communal financial institutions in the developing world are Trusted Lending Circles.
A Trusted Lending Circle is "a group of individuals who agree to meet for a defined period in order to save and borrow together, a form of combined peer-to-peer banking and peer-to-peer lending."[6] Trusted Lending Circles are commonly built along clan, geographical, social, or professional networks. In countries around the world, these organizations have a variety of different names such as: *susus* (Ghana/ Caribbean Islands), *tandas* (Latin America), *hui* (China), *chit funds* (India), *cundinas* (Mexico), etc...[7]

Here is an example of the detailed mechanics of a Trusted Lending Circle in action:
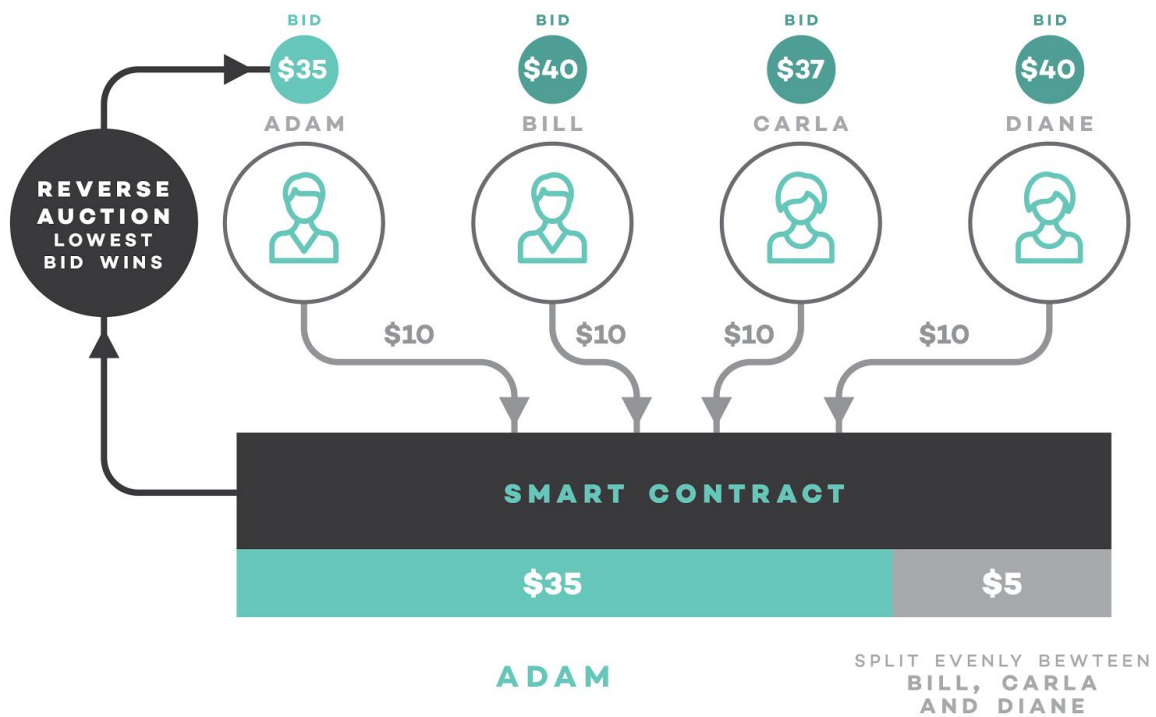
Figure1.1: Trusted Lending Circle mechanics in a single round

Here is an example of the detailed mechanics of a Trusted Lending Circle running through a full epoch.
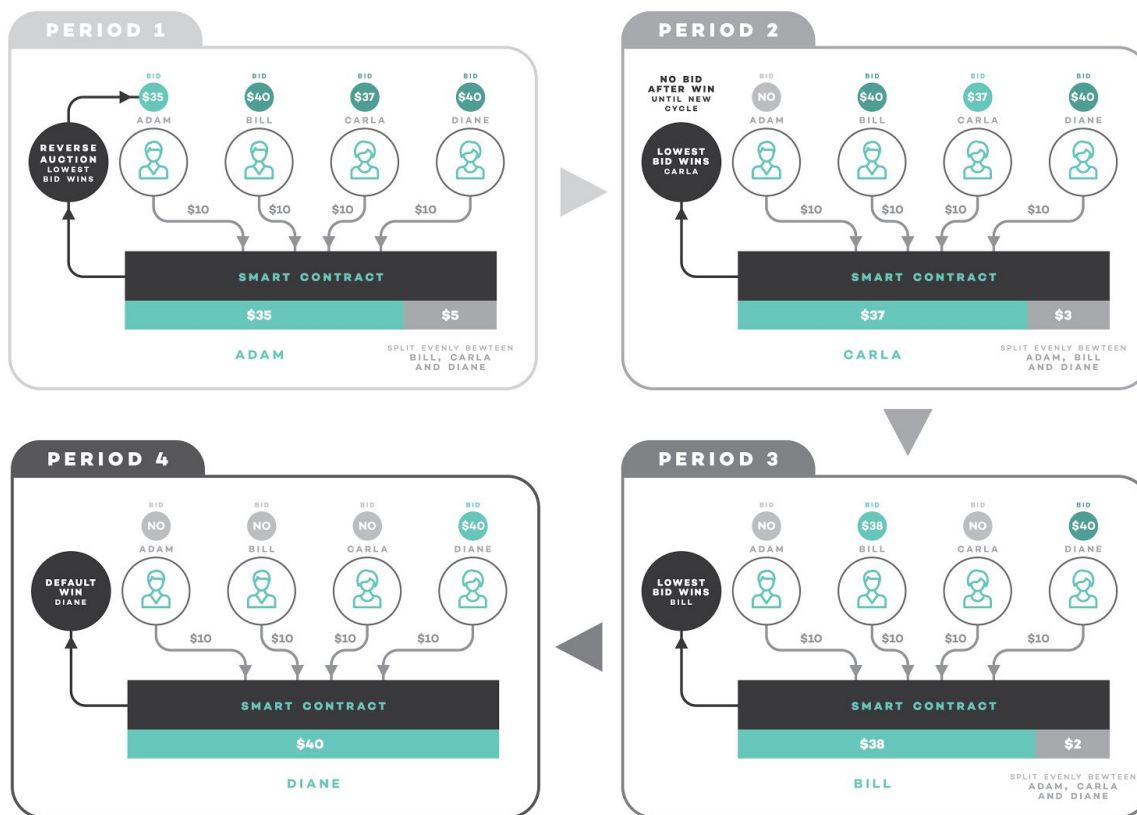
Figure1.2: Trusted Lending Circle mechanics in a full Epoch

In a Trusted Lending Circle, individuals contribute a fixed amount for a set duration at regular intervals, and the money is distributed each interval to individuals via a lottery, a bidding process, or other method as decided by participants (the example above shows bidding, whereas a lottery is a random selection). Some researchers[3] claim that these groups produce results where all participants are individually better off[8] (or no more worse off) than not participating in the group (pareto efficient[9]).

Each Trusted Lending Circle has a foreperson, who is organizing the Circle and is responsible to collect funds from all participants. Trusted lending Circles are created among people with close and trusting relationships and social capital is the driving force for continuous participation.

[3] Agegnehu, B.,Karantininis, K., and Li, F."Are there Financial Benefits to Join RoSCAs? Empirical Evidence from Equb in Ethiopia". *Procedia Economics and Finance* **1,** 229-238 (2012).

Trusted Lending Circles have their own set of pros and cons compared to modern banking institutions:

Some advantages include:
- Reduced interest rates that are spread between savers and borrowers.
- Communal proprietorship – a financial institution that's owned by its users.
- Group saving has been shown to be more effective in achieving individual savings goals due to accountability - akin to group exercise programs
- Lack of bureaucracy, less fraud, lower default rates, and non-profit motive for the platform

Community benefits from using Trusted Lending Circles:
- Facilitates reciprocation of credit disbursal. The give-and-take interaction helps increase social bonds, as borrowing and returning money is a significant sign of trust.
- Avoids exorbitant interest and fees that are funneled towards fragile centralized institutions thousands of miles away, and keeps capital within the community, encouraging growth in the local economy
- Encourages community participation in other fields of development – the participatory approach of informal initiatives is easily replicable to a wide range of community development issues.

Disadvantages of Trusted Lending Circles
- Informal groups are sub-scale and difficult to increase in size due to the need for in-person interaction - resulting in less efficient lending supply/demand matching.
- Informal groups have zero tracking or credit-building outside the immediate organization, therefore no additional financial products can be built on top of one's successful credit history interacting with a siloed Lending Circle.
- High setup and handling fees charged by state-run Lending Circles (e.g., 5% flat fee plus additional interest to access credit is typical in India; Kerala State Company employs thousands and has billions in operational costs[10])

WeTrust Products

WeTrust is developing a novel financial platform powered by social capital, trust networks, blockchain technology, and includes Trusted Lending Circles, Trusted direct lending, mutual insurance and community-based building of credit history.

WeTrust's first product is the Trusted Lending Circle, a platform for Rotating Savings and Credit Associations (ROSCA), which consists of a smart contract which automates the savings and lending process. This encompasses contributions, bidding, assigning funds at the end of

each round, and withdrawing funds. We plan to package this within a mobile web application which an individual can use to manage their participation in one or multiple Trusted Lending Circles. The product has built-in network effects, and incentivizes users to invite trusted associates, which helps seed the network. We believe group based borrowing and lending provides greater social incentives for all participants[11], and a customizable framework allows groups to operate according to their particular needs and circumstances.

A Trusted Lending Circle uses technology to *amplify the strengths and address the shortcomings of traditional ROSCAs by enabling scalability, automating record keeping, and reducing the potential for fraud.*

In parallel with developing Trusted Lending Circles, we will also integrate the use of stablecoins. These tokens have the transactional qualities of cryptocurrencies and are critical for widespread adoption as they are pegged one to one with fiat currencies and resistant to day-to-day volatility. Our end goal is to have users be able to use our platform without having to understand the underlying complexity.

WeTrust's second product is distributed, sovereign credit identities. Credit identities will be created based on several factors: adherence to Lending Circle terms and the quality of tethered social media accounts. Responsible individuals will be able to build up a strong credit identity, which will enable greater trustworthiness and eventually more powerful features such as the ability to vouch for other members and potentially build trust with individuals formerly outside their social circle. In addition, upon request, credit identities could be shared with external entities (such as traditional banks) to show proof of credit history. Identity is a critical component that enables Lending Circles to scale and become larger savings groups, thus enabling improved credit supply/demand matching and better interest rates for the marketplace.

WeTrust's third product is a Trust Network Powered Lending and Borrowing platform that connects borrowers and savers, and allows for direct loans with minimal fees.

This product is different from existing market solutions due to our ability to leverage the credit identities created previously, the concept of trust inference (social graph), legal contracts and deterrents, and loan guarantees where trusted members vouch and earn fees for taking on reputation risk and partial responsibility for others' loans. While this concept is in the early stages of development, prior WeTrust products form the foundation that enables a more insightful way to quantify risk and create proper checks/ balances that deter against potential fraud, so that lending and borrowing can extend beyond one's immediate social circle in a safe and efficient manner.

WeTrust's fourth product is a Mutual Insurance platform which involves smart contracts that evaluate whether or not a set of non-subjective criteria was met (i.e. a drought, or low rainfall) and pay out accordingly. As all criteria for payouts would be public and governed by smart contracts, the process will require minimal fees. However, there are many forms of insurance that do require detailed auditing and reviews. For these, WeTrust plans to create a mechanism

that enables a decentralized process flow which incentivizes both policyholders and auditors to arrive at fair outcomes and payouts with significantly reduced friction. Although the insurance platform benefits from the existence of large Trusted Lending Circles, participation in those groups will not be required for individuals to join a mutual insurance pool.

App Token

In the spirit of crowdfunding, Trustcoin (TRST) tokens are the currency for services performed by WeTrust as well as other service providers in the WeTrust ecosystem. The coin is a reward to any actor that *facilitates* trust and is paid by any actor that *uses* the Trust Network. Market forces and Supply and Demand will dictate the amount of "Trustcoin" per transaction. *WeTrust plans to generate fees in TRST from products such as Trusted Lending Circles, Trusted Direct Lending, and Mutual Insurance in order to support development costs.*

App Token usage within Trusted Lending Circles

In the case of our first product, Trusted Lending Circle, while the lending circle itself may be managed in any currency the group chooses (e.g. ETH, BTC, stablecoins, Trustcoin, etc...), the services rendered by the foreperson are paid for using TRST tokens.

While creating a Trusted Lending Circle, the foreperson defines the fee in [% of total pot] that they want to charge, and they get remunerated in TRST. Here is how it's done:
Consider the following example: a 5 participant, $100 contribution per person Trusted Lending Circle, a 2% fee (defined by the foreperson) + 0.3% platform fees[4] would come down to 5 * $100 * 2.3% = $11.5 per round. The platform fees are to support WeTrust's operations and future product development.

At the end of every round, when fees are secured from the contributions, TRST coins will be automatically bought in the exchanges and be held in escrow by the Trusted Lending Circle contract. When the epoch ends, the foreperson's fees, as well as WeTrust's, are released to them in TRST.

Note that while participants will be able to use the cryptocoin of their choice to run Trusted Lending Circles, WeTrust will charge a significantly lower fee for Circles that use TRST as the unit of value, due to the operations being more streamlined. Future products, such as credit scores, mutual insurance, and direct lending, will also involve fees that are represented in TRST.

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[4] Note that, in the future WeTrust may offer forepersons the ability to select an alternative fee structure, where only those who receive interest payments in excess of their deposits are charged a fee on the interests received.

TRST as collateral in the absence of reputation
In a Trusted Lending Circle, the foreperson receives their full fees only if there were no delinquencies. When some participants are delinquent, the foreperson gets penalized by reducing the fees that they earn.

To increase the the participants' confidence in the foreperson's abilities to gather a group of trusted associates, the foreperson may put down a collateral, in TRST, that will be distributed to good-standing participants in case of delinquencies.
As WeTrust builds additional products that involve other roles in the network, they may also be incentivized to put down collateral in order to perform services (e.g., insurance claims agent).

Trusted Lending Circle fee schedule
The preliminary Trusted Lending Circle Fee schedule for Forepersons and WeTrust is as follows:
- Forepersons set a fee quoted in Trustcoin (equivalent to 0-5% of distributions)
  - In every round, fees are deducted for contributions already secure (adjusting for delinquencies), converted to TRST (by buying from the market) and reserved for foreperson. This further incentivizes the foreperson to collect all contributions.
  - At end of an Epoch (i.e. after everyone wins a round), the contract releases the TRST reserved to the foreperson.
  - To further increase the the participants' confidence in the foreperson's abilities (e.g. in the case they don't know her well beforehand), the foreperson may choose to put down a collateral, in TRST, that will be distributed to good-standing participants in case of delinquencies.

- WeTrust plans to charge 0% fees for small Trusted Lending Circle groups of 5 people or less
  - For groups larger than 5 people, a tier-based, fee schedule will be used. Initial fees start at 0.3% for running operations and future product development.[5] The 0.3% fee will be reduced for a given foreperson's Trusted Lending Circles as cumulative transaction volumes increase on the Trusted Lending Circles they manage.
  - WeTrust is also exploring other fee structures that forepersons can select, such as charging fees on the amount of distribution that is in excess of contributions.

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[5] This number was determined according to current models. WeTrust may change this later depending on market conditions.

Scaling up Trusted Lending Circles:

Trusted Lending Circles are built on trust and familiarity. A mechanism to scale up an existing Trusted Lending Circle, while maintaining trust between its participants is suggested in this scenario:
Suppose a group of people run successful Trusted Lending Circles multiple times and have trust in one another. Another person they know less, and thus trust less, wants to join and benefit from this existing group. WeTrust's product will allow the new participant to join in a "saver-only" mode, where they will be able to collect their funds only in the last round (with any additional interest received during the running of the Trusted Lending Circle).
In this case the group gets a guarantee that the newcomer will pay on time, whereas the newcomer relies on the group past reputation of paying on time.

Trustcoins allocation:

Prior to reaching a steady state where platform resources can be supported through fees, a token sale may be utilized to acquire necessary funds to build out the platform. Subsequently, the WeTrust team expects to utilize funds in the following areas:

- **Research.** This includes research in mathematics, game theory, statistical and actuarial models, and computational simulations that will ensure that the proper incentives are in line for all parties.

- **Software Development.** This includes budgets for software development, smart contract development, security reviews and developing a seamless user experience.

- **Business Development**: This includes expenses for building partnerships with NGOs, forming and growing Trusted Lending Circle communities, and hiring community managers to help evangelize around the world.

- **Marketing**: This includes all expenses related to: Educating the public about our platform, travel and admission expenses to blockchain conventions, sponsoring blockchain events / conferences / hackathons, driving users to our platform, developing the WeTrust brand, and relaying our message to Trusted Lending Circle users.

- **External Costs.** This includes the token sale structure, security audits, tax/ legal advisory, regulatory compliance, bug bounties and other fixed costs (office spaces, telecommuting equipment) associated with technology and development.

100 Million Trustcoins (TRST) will be issued once the crowdsale is concluded. Of the 100 Million Trustcoins:

- 80 Million Trustcoins will be sold to the token sale participants
- 10 Million Trustcoins will be reserved for the WeTrust team (vesting over 2 years)
- 8 Million Trustcoins will be used to future expenses, marketing, additional team members
- 2 Million Trustcoins will be used for token sale bounties

WeTrust Challenges and Solutions

WeTrust offers a novel and innovative product, and faces diverse challenges. WeTrust platform's first product is a Trusted Lending Circle on the blockchain, and this will help bootstrap the community and social graph. Next, WeTrust's credit scoring algorithm will allow basic Trusted Lending Circles to scale and grow/merge with Trusted Lending Circles that have common connections/trust circles. As such, a large and growing user base is the foundation for future WeTrust products, such as lending and mutual insurance. **Key challenges to growth include: usability and cryptocurrency volatility, anti-fraud measures, and defensibility of the platform.**

Addressing usability and cryptocurrency volatility through Stablecoins: The MVP version of Trusted Lending Circles currently supports usage of Ether and is built on Ethereum, as it is currently the most mature blockchain to implement smart contracts. Trustcoin and additional tokens such as stablecoin will be supported in the future as well.

Stablecoins are crypto-tokens whose value is tied to a fiat currency, which we believe is a requirement for users who do not want to deal with cryptocurrency volatility. Several stablecoins are under development or are in active usage, including MakerDAI, String Labs Phi, and Tether. Colu and Waves also are working on projects that enable the support of digital tokens that are linked to fiat value. WeTrust will integrate stablecoins into its platform as it is critical for large scale adoption and is an important step in abstracting blockchain/ cryptocurrency from customers.

Addressing fraud through incentives and legal measures: A critical foundation of security and well-designed incentives are required in any financial ecosystem that intends to deter bad actors. Governance tools such as legal contracts, collateral risk, loan guarantees, mediation, and more will be available for each organization to utilize as they see fit. See more information here.

Addressing defensibility through open and close source strategy: WeTrust operates in an open-source and decentralized economy, where much of the technology stack is public and auditable by the community. In this spirit, advantages developed within businesses and technology will be openly shared with the community. However, in order to ensure sustainability in our ability to continue dedicating resources to improving the platform, we will open-source the smart contract to keep WeTrust products transparent and secure and close-source the frontend to create a barrier to simply forking the project.

Road Map (assuming max funding)

Timeline	Features
Feb 2017	*Essential Trusted Lending Circle functions* - create, join a Trusted Lending Circle - contribute, withdraw funds - bidding logic, safety hatch
Q2 2017	*Intermediate Trusted Lending Circle functions* - add support for more tokens - improved UI/ UX - improved dashboarding on group performance - implement fees (for foreperson, referral partners, WeTrust)
Q4 2017	*Advanced Trusted Lending Circle and Basic Credit Profile* - built-in legal contracts - enable account profile details - incentivize tethering off-chain data to account
Q1 2018	*Integrate Stablecoin* - explore and build partnerships with Stablecoin issuers - enable usage of Dapp without knowledge of crypto currency
Q1 2018	*Credit Score* - develop and implement algorithm for credit scoring, based on account information, Trusted Lending Circle participation - users decide whether to keep information private, or share with approval
Q3 2018	*Large scale Trusted Lending Circles* - support merging of Trusted Lending Circles composed of weak ties - add features such as co-signing/ guarantees to foster trust - multiple winners per Trusted Lending Circle round - organization management tools for communications, decision making
Q1 2019	*Direct Borrowing/ Lending platform* - customized lending/borrowing marketplace - configure and customize safeguard features for lending - build APIs and SDKs that enable developers to build on our platform

Q1 2019	*Insurance* - develop initial insurance products - integrate insurance products into Trusted Lending Circle framework

Blockchain Benefits

Why choose the blockchain as infrastructure?

A blockchain-based financial-social platform reduces the friction (high fees, low liquidity, accounting records, potential fraud from organizers) and automates an existing concept already proven in communities worldwide. We foresee that blockchain technology will impact the financial sectors in the following core areas:

1. **Efficiency and Automation**. Smart contract technology enables end-to-end automation of payments, efficient risk model estimation, and decentralized claims processing. This substantially lowers operating costs.

2. **Greater Access for the Underbanked/Underserved.** A more connected world will enable those in developing markets, low-income businesses, and new product verticals to leapfrog into cutting edge technology. For example, in Kenya, M-PESA[12] has created a simple banking system on feature phones, completely bypassing the need for brick and mortar bank branches.

3. **All-Inclusive Digital Identity.** Digital identities on Blockchains create opportunities for individuals to transact across international borders without the hassles of conflicting governance.

4. **Transparency.** On most blockchains, transparency is a platform-level feature. All data in a smart contract based system is publicly auditable and can be freely analyzed by third parties, while preserving privacy as required.

5. **Experimentation.** With open source code, permission-less usage, wide array of customization options, and ease of accounting, groups of trusted associates can experiment and create unique structures/rules according to their circumstances. Groups with a common cause, ranging from university alumni groups, volunteer groups, veterans associations, social activists, political groups, religious groups, etc… can use a simple app to leverage and engage their respective communities with tangible financial impact.

Rotating Savings and Credit projects outside of the blockchain

Several companies have tried to create tools and software similar to a Trusted Lending Circle, including eMoneyPool, Puddle, Monk, and Savemates. However, these solutions integrate with the traditional banking system, and require the use of bank accounts, which are typically only usable within a single jurisdiction. Some other drawbacks include:

- Most current participants of Trusted Lending Circles do not have access to banking services, which are a prerequisite to these tools and software
- Existing software providers prevent savers from earning a return on their deposit. This shortcoming takes away from the spirit of the Rotating Savings and Credit group, which thrives on the supply/demand dynamic that benefits both savers and borrowers.
- Smaller markets and jurisdictions suffer from lack of attention and do not benefit from these apps that are being developed.

By building a decentralized application on the blockchain, we are able to eliminate costs associated with transfers to/from bank accounts, and can reach populations who do not have access to bank accounts. The application can be used in any jurisdiction, and Trusted Lending Circles can be formed among trusted associates across borders. This enables the creation of a more accurate social graph and trust inference data that can be used for a safer and rewarding experience for users. Lastly, unlike existing solutions, the WeTrust dApp is decentralized, funds are controlled by the users, and each Trusted Lending Circle can determine their own rules for distribution, maximum interest rates, and policies according to their local needs and traditions.

Potential Market Size

To estimate the potential market size for a financial-social platform one needs to take into account the different community-based financial infrastructure in play globally today, and future demands that might arise due to the emergence of WeTrust as an alternative financial solution.

The global ROSCA and informal banking industry is responsible for money flows over 10% of GDP in many countries, despite significant handling/transaction costs. An estimated >$500B flow through Trusted Lending Circle type groups each year, as detailed below.
In addition, social capital powered Trusted Lending Circles have potential compete in consumer loans, where the US market represents over $3.2 Trillion in outstanding consumer credit[13]. Globally, the P2P Lending market is growing rapidly and has a market size of over $70B/ year (also, detailed below). Finally, WeTrust plans to deliver insurance services built on the Trusted

Lending Circles, which can be seen as the foundation for a mutual insurance framework. The insurance industry[14] generated over $1.1 Trillion in premiums in the United States in 2015.
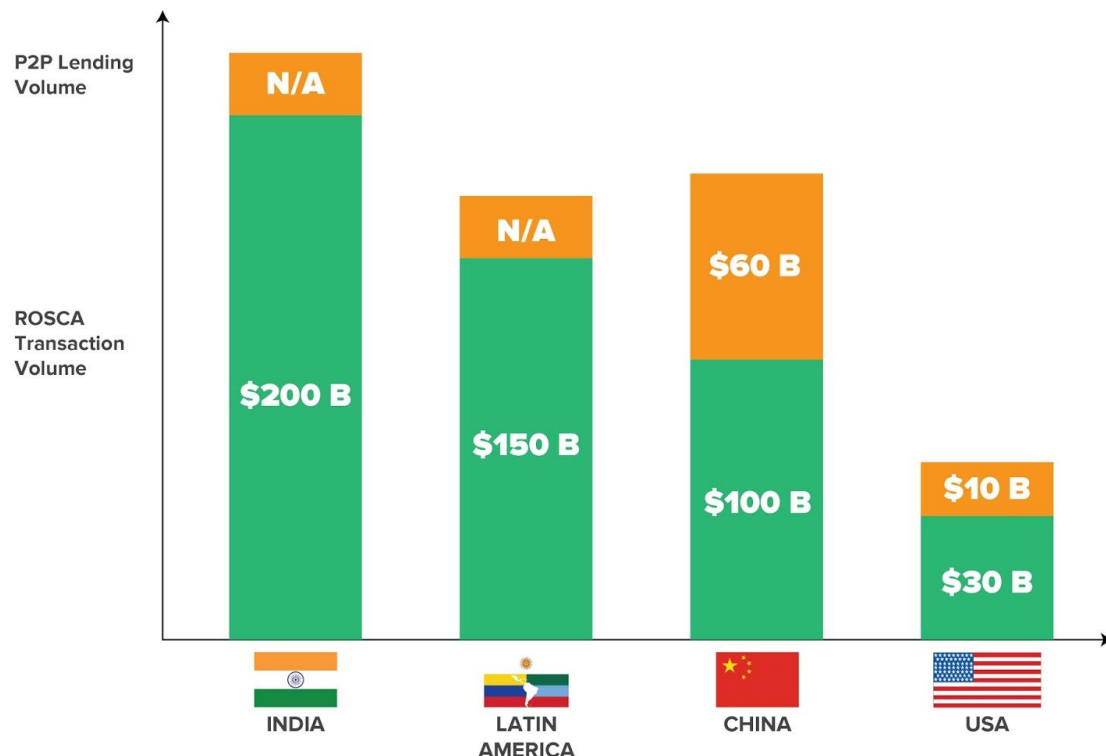

Figure 2: A conservative estimate of the ROSCA-Trusted Lending Circles and P2P lending markets size globally.

India: Formal banking institutions reach only ~15% of the population, and over $200 B is distributed via regulated and unregulated ROSCAs, known as Chit Funds, where over 15,000 are registered entities, with a significantly larger unregulated Chit Fund sector[15]. Fees range from 5-10% of distribution, with thousands employed in the industry[16] and scams costing over $10B in recent years[17]. P2P lending is still in its infancy with over 30 companies[18] currently offering competing services.

China: A vast amount of lending is conducted via informal networks, with tech enabled P2P lending exceeding $60B/ yr[19] and conservative estimates of overall unregulated lending at over $2T/ year with at least 5% going through ROSCA-like entities and Lending Circles[20].

Latin America: Trusted Lending Circles are used across Mexico (*cundinas*), Brazil (*pandeiros*), Peru, and Argentina. Estimates of informal bank lending volumes exceed $150B/ yr[21].

USA: while accurate estimates are not available, anecdotal evidence shows 50-80% of recent immigrants from Latin America[22], Asian and West Indies communities participate in some form of informal lending and Trusted Lending Circle type arrangements[23]. ROSCAs and Trusted Lending Circles have transaction volume exceeding $30 B/ yr and online P2P lending exceeds ~$10 B / yr[24].

According to the 2015 FDIC National Survey of Unbanked and Underbanked Households,[25] 7.0% of households in the United States were unbanked in 2015. This proportion represents approximately 9.0 million households. An additional 19.9% of U.S. households (24.5 million) were underbanked, meaning that the household had a checking or savings account but also obtained financial products and services outside of the banking system.

In general, there is increasing interest in alternative financial companies in the United States, as evidenced by Lemonade Insurance company in New York City (lemonade.com), a P2P insurance company that recently raised $13m in Aug 2016 and an additional $34m in Dec 2016[26].

Technical Aspects

WeTrust is characterized by three key operational pillars: ***autonomous, frictionless and decentralized.***

Autonomous: Smart contracts run the business logic autonomously, and we will utilize these features for fast, secure and reliable processing of the detailed product processes. This will reduce the friction currently observed due to the numerous fees and operation costs imposed by middlemen, such as financial institutions.

Unlike existing centralized platforms and services, WeTrust's transactions are publicly verifiable, viewable, self-operated, and not subject to the risk of mishandling by organizers. Our system is a finite-state machine. Each transaction (i.e. create a fund, contribute, bid, and disburse...) will transform the system to a defined and predictable state. Our smart contract functions do not produce non-deterministic behaviors.

Frictionless: Traditional Trusted Lending Circle processes have been cumbersome and manual, resulting in high fees, and occasional fraud in the Lending Circle industry. The WeTrust platform focuses on delivering good and friendly experiences to our end-users and developers.

We design and build an abstraction layer on top of the underlying blockchain so that developers and customers do not even know they are running on decentralized servers and blockchain technology. Furthermore, we introduce SDK's in different programming languages to help users integrate with our platform, create and manage funds easily. Here is an example of how one could create a Trusted Lending Circle fund in JavaScript:

```javascript
var TrustedLendingCircle = require('TrustedLendingCircle');
var options = {
    name: 'example1',
    startDate: 2016-10-10,
    endDate: 2016-11-10
};
var fund = TrustedLendingCircle.initFund(options);
fund.addUser(TrustedLendingCircle.findUser('#abc')); // User #abc is a member of TrustedLendingCircle platform
fund.addForeperson(TrustedLendingCircle.findUser('#xyz')); // User #xyz is a member of TrustedLendingCircle platform
fund.start();
```

Decentralized: Traditional online businesses with centralized structures are subject to hacking and onerous overhead costs. Decentralized fund management, auction arbitration, contribution tracking, and distribution of funds enables elimination of reliance on payment processors, reduces costs associated with fees and bureaucracy, and protects against fraud. Building on top of an Ethereum platform, our entities are based on 'Smart Contracts'. The detailed architecture of the platform is further described in the diagram below.
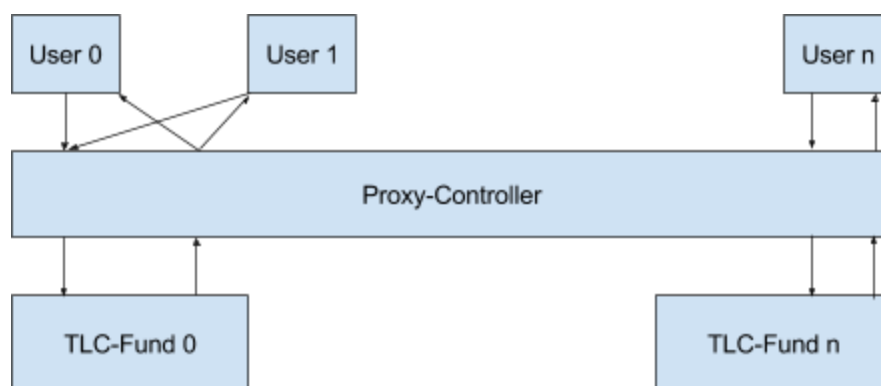

Figure 3: Trusted Lending Circle (TLC) dApp Architecture
User: A smart contract that stores the user's information and history of Trusted Lending Circle the user participates in. These records will help determine the credit score of the user and/or match him/her with available public Trusted Lending Circle funds. **Proxy-Controller:** A smart contract to manage users of the Trusted Lending Circle platform and their interactions with the Funds. This contract mostly contains authentication and authorization logic as well as permissions management. **TLC-Fund:** A smart contract that store all the states of a Trusted Lending Circle fund (e.g., Foreperson, members, term, conditions, status, contributions) and contain business logic to operate the fund (e.g., manage the contribution, bidding and disbursement)

Security

Since users' hard earned money is at stake, security is treated with the highest priority at WeTrust. In order to ensure that underlying smart contracts that move funds are secure and working as intended, the WeTrust team commits to subjecting its platform to a comprehensive security audit and bounty programs prior to launching the platform to the public. We will hire the most reputable security experts to conduct security audits prior to our public launch, release all results of the audit and fix any flaws that are identified.

In addition, WeTrust will build a dedicated server to monitor all transactions on our platform anonymously. This server will detect and address suspect behaviors and fraudulent activities. Alert notifications will be automatically set up and will alert developers around the world to fix any known incidents.

Sybil Attack Prevention

Because WeTrust is a community-based platform that relies on its users' performance in products such as Trusted Lending Circles and P2P lending to generate credit scores, it is important for us to preserve the integrity of the scores by thwarting Sybil Attacks from automatically created fraudulent accounts. It would be detrimental to our platform if one person created fake profiles and Trusted Lending Circles to generate a legitimate credit score. WeTrust offers some potential solutions:

1. Require users to provide identity information from off-blockchain sources such as: Facebook, Twitter, or Cell Phone (activated through two-factor authentication).
2. For each account, we will allow a limited number of "free" Trusted Lending Circle funds. Any additional Trusted Lending Circles will require a small fee. Further, Trusted Lending Circles will be required to be of a minimum size. This would require individuals with malicious intent to actually contribute into a fund and pay the service fees.

The first dApp - Trusted Lending Circle (aka ROSCA):

The WeTrust Trusted Lending Circle is powered by smart contracts and blockchain technology. This savings and credit platform allows users to lend and borrow from each other at self-determined interest rates with minimal friction. The immediate purposes that the WeTrust Trusted Lending Circle will serve:

- *As an affordable path for the two billion "unbanked" to obtain and track savings & credit*
- *Create a competitive alternative asset class for savers*
- *Facilitate group savings as a more effective way to reach individual saving goals*[27]

This product will serve multiple audiences. The main audiences are a) the unbanked who need access to credit and b) those who do have access to formal financial institutions, but desire alternative solutions to saving and credit.

Why start with Trusted Lending Circle as WeTrust's first dApp?

Marketplaces can succeed if there is a balance between supply and demand and critical mass is required from day one if users are to find usefulness in the WeTrust Platform. This begs the inevitable "chicken and egg problem" in which a strong network is essential before users join and vice versa. To overcome this problem, we believe a Trusted Lending Circle product is the ideal vanguard dApp as it facilitates network effects and leverages existing networks/ behavior norms.

Product design: high level summary
When users first visit the Trusted Lending Circle (ROSCA) dApp, they would be prompted to create an account. After this they can create a ROSCA in which they are the foreperson and invite participants (e.g., via whatsapp, email), or join a ROSCA they were invited to. Invitees are also required to create an account before they can join a ROSCA and become active participants. It should be noted that both parties (forepersons and participants), must access the dApp using a compatible browser, which is connected to funded Ethereum accounts.

Once a ROSCA has been created, and participants have joined, the foreperson can deploy the ROSCA smart contract onto the blockchain. This action solidifies the details of the ROSCA, and no further edits can be made after this point. Once the smart contract has been deployed, the foreperson can begin the ROSCA on or after the predefined start date.

Both participants and foreperson participate in the ROSCA by submitting transactions to the contract. These transactions take the form of starting the round (foreperson only), contributions, bids and withdrawals. Each transaction must originate from the address with which the user joined or created the ROSCA. ROSCA participants are able to see a complete list of these transactions, up to and after the end of the Trusted Lending Circle-ROSCA epoch.

Deposits and Withdrawals

Users will deposit from their own wallet to the unique address of the ROSCA smart contract during each round. Any withdrawals are initiated with a transaction, and sent to the address which originated said transaction.

Trusted Lending Circle-ROSCA dApp walkthrough

The following is a walkthrough of the Trusted Lending Circle-ROSCA MVP as of whitepaper publication date, and will be updated in the future. This represents a proof of concept, and the UI/ UX will undergo continuous improvement based on community feedback and input.

The current Trusted Lending Circle product will be accessible through the web. Upon visiting the site, users will be presented with an explanation about what a Trusted Lending Circle is, and how the blockchain brings advantages to traditional Trusted Lending Circles. Once logged in, users are presented with their dashboard, which consists of three lists of ROSCAs: ROSCAs they have created; ROSCAs they have joined as a participant; and ROSCAs they have been invited to.
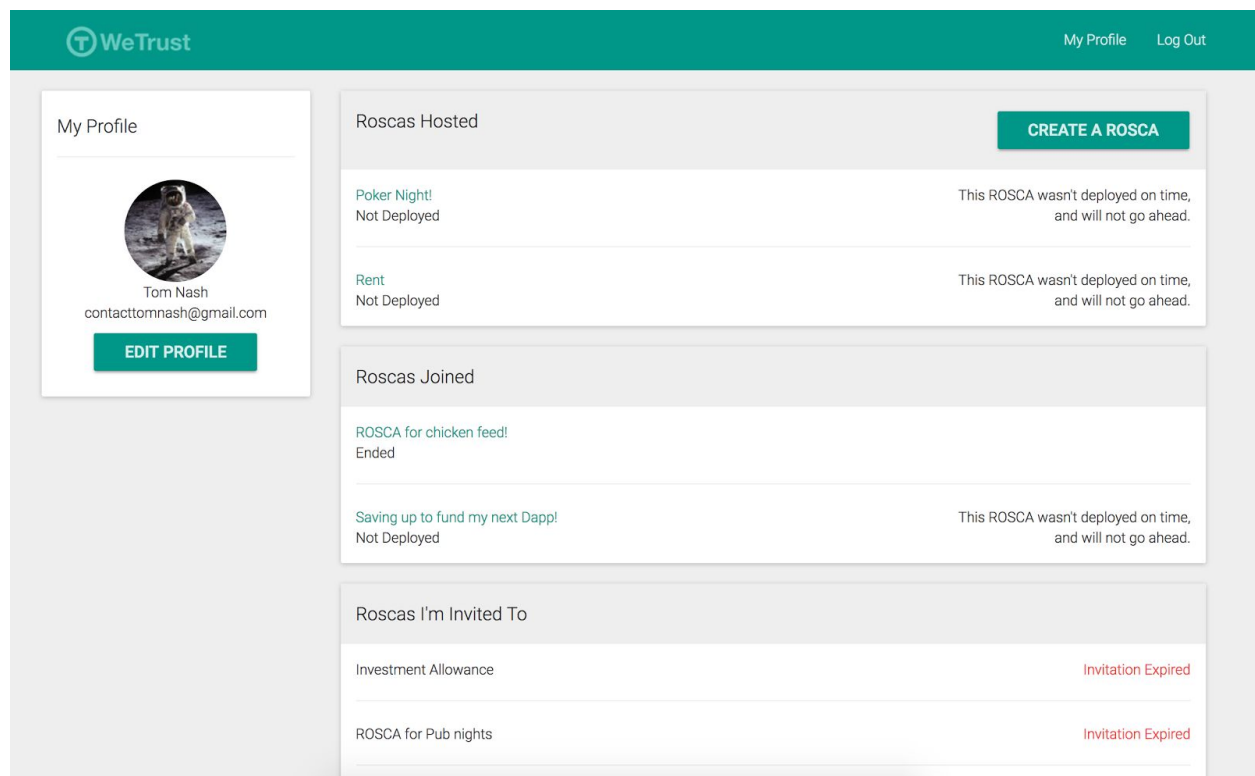
Figure 4: Trusted Lending Circle-ROSCA Dashboard

'Create a ROSCA': *If you want to organize and create a Trusted Lending Circle* for you and your friends, start here. We will call the initiator the 'foreperson'. Creating a new Trusted Lending Circle allows the foreperson to specify the terms of the Trusted Lending Circle, detailed as follows:

1. *ROSCA Name:* This is a name given to identify the Trusted Lending Circle, for ease of use.

2. ***Number of Participants:*** The number of other participants that the foreperson is going to invite. After entering this number, fields appear where the user can enter the email addresses of the other participants.
3. ***Payment Frequency:*** The frequency of the payments made by all participants. In the future we plan to open this up to be more flexible. Each round lasts for the amount of time specified here (e.g. a weekly payment frequency would result in week-long rounds).
4. ***Payment Amount:*** The amount in Ether which all participants must contribute each round. The MVP supports only Ether, WeTrust is planning to enable use of other tokens in the future
5. ***Start Date:*** The date on and after which the ROSCA can be started. It should be noted the ROSCA must be deployed at least three full days before this date, to protect against blockchain timestamp discrepancies.

Enter ROSCA Name

Savings for Upcoming Gigs

Enter Number of Other Participants

2

myfriend@gmail.com

Please enter the user's email address

Payment Frequency:

○ Daily
◉ Weekly
○ Monthly

Enter Payment Amount (ETH)

5

Enter Start Date (mm/dd/yyyy)

01/03/2017

BACK TO MY PROFILE   CREATE

Figure 5: Trusted Lending Circle Creation Form.

After clicking 'Create', the user is prompted to select one of their connected Ethereum accounts with which they will participate in the Trusted Lending Circle.

Account Select

Please note, upon selecting an address you will bind that address to your participation in this ROSCA.

You will only be permitted to contribute, bid and withdraw from the selected address.

If you can't see the correct address here, try switching accounts in MetaMask, or authorising them in Mist.

0X388686DD3A10B6074942D5C574DFBC9C0E98FF1E

0XFB9F0320BAE28BD4ED9139CA8AD36FE2D65AF38D

0X33F899C4F379193826E6E8196BCB43F0182289F0

0X43F88F209589B1B90427CC2D33F5F52B65103ECC

0X935924207C36D85EDBC63D5BA702BC7BE013004D

CANCEL

Figure 6: Account Select

Viewing a ROSCA: Clicking on the name of a ROSCA that a user is either hosting or a participant in will show the detailed view of that ROSCA.

Joining a ROSCA: Clicking on a ROSCA that you have been invited to will bring you to a similar view to Figure 7 below. Users will be presented with an option to join the ROSCA, and prompted to select an account with which to participate, similar to Figure 6.

Figure 7: ROSCA View

1. **'Deploy'**: Deploys the ROSCA to the blockchain. This action is only available to the foreperson, and will prompt a transaction which creates the ROSCA smart contract.
2. '**Edit this ROSCA**': Allows the foreperson to change any details of the ROSCA, including inviting extra users and removing existing participants. This option is only available prior to the user deploying the ROSCA.

After deploying the ROSCA and reaching the defined start date, the foreperson is given an extra option '**Start ROSCA**' which will begin the first round of the ROSCA.

After the ROSCA has been deployed and at least one round has been started, another view is presented which aims to summarise as much necessary information as possible.

Figure 8: Active ROSCA View

1. '**Contract**': The address of the deployed ROSCA contract. This is a link to the relevant contract page on Etherscan.io.
2. '**Participants Up to Date**': A list of participants who have contributed their share to the ROSCA to date.
3. '**Lowest Bid**': The user who currently holds the lowest bid, and the amount of their bid.
4. '**Participants Not Up to Date**': A list of participants who have not contributed their share to the ROSCA to date.
5. **'Contribute'**: Opens a popup, which details how much the user has left to contribute this round, and allows the user to enter an amount to contribute. Multiple contributions can be made per round.
6. '**Withdraw**': Allows the user to withdraw any positive balance they have in the contract. Positive balance can come from many things, including but not limited to: over-contributing, winning a round and receiving a round discount.
7. '**Bid**': Opens a popup, which details the current lowest bid (if any), how much the user is allowed to bid at the current time, and which allows the user to enter an amount to bid. Multiple bids can be made per round.
8. '**Next Round**': Foreperson only. Allows the foreperson to advance the ROSCA to the next round. Only visible when the next round is ready to start.

As well as the summary of the current round at the top of the page, each user is able to see the ROSCA history, which details most events, including contributions, bids, withdrawals, and who won the ROSCA round.
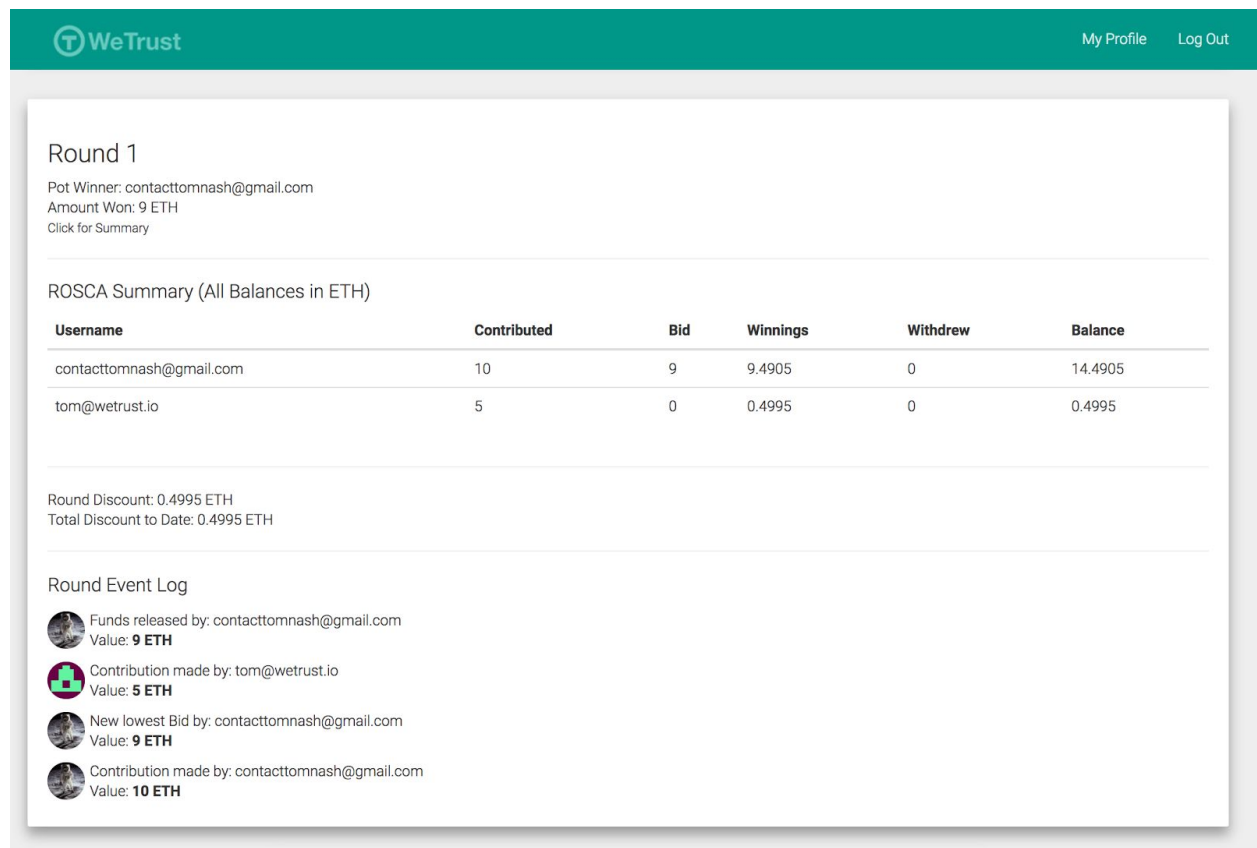
Figure 9: ROSCA History

Budget and funding

The BTC and ETH raised during crowdfunding will be used by Finclusion Labs to build out the WeTrust Platform products Trusted Lending Circles, Credit Identity and Reputation, Trusted Direct Lending, and Mutual Insurance.

The amount of financing received would vary significantly between the minimum and the maximum financing (cap). The roadmap is a full vision to be completed if the cap is reached. WeTrust should be considered an R&D project involving bleeding-edge technologies.

Although the progress we have already made while developing the Trusted Lending Circle MVP proves the validity of utilizing blockchain to create decentralized and scalable digitized financial

entities, there is significant work ahead. The WeTrust team is fully committed but the roadmap and pace of development is also dependant upon the level of success achieved from the crowdfunding.

In the minimum financing scenario, basic versions of Trusted Lending Circles, Credit Identity, and Direct Lending/ Borrowing will be created. The ultimate deliverable is enabling users to create and find 'circles of trust' that can be relied upon as a fair marketplace for access to credit.
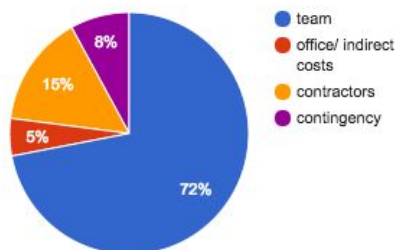
The maximum financing scenario enables delivery of a much more advanced version of the above products, and also enables creation of more sophisticated payout terms that resemble insurance. Close integrations with ongoing blockchain efforts, and investment into global partnerships will also enable maximum distribution of the services we create. This then enables a virtuous cycle where the fees generated on the platform will be expected to support the efforts made by Finclusion Labs, as well as our ability to make grants to organizations that have a similar vision. Finally, if the funding cap is reached in the crowdfunding, the WeTrust team will also be able to create specific integrations useful to the entire community.

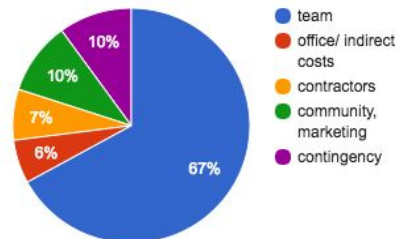| Functionality vs Funding		
products	min financing (+)	additional features (++, +++)
Trusted Lending Circle	- support of ETH, BTC, TRST - integration with status.im - dashboarding to manage participation in more than 1 Trusted Lending Circle - fees implemented for foreperson and WeTrust - develop built-in legal contracts for select jurisdictions - develop ability to use digital collateral	- support usage of stablecoins (++) - built-in legal contracts for majority of jurisdictions (++) - co-signing to extend credit and trust (++) - support merging of ROSCAs composed of weak ties (++) - multiple winners per ROSCA round (++) - build apis and sdks that enable developers to design custom organizations bult on Lending Circle foundation (++)
Credit Identity	- develop simple algorithm for basic credit scoring, based on account information, ROSCA participation - users decide whether to keep information private, or share with approval	- integrate credit identity with efforts ongoing (e.g., uPort) (++) - advanced reputation system incorporating off-chain activities (++) - enable tethering of off-chain identities (++)
Direct Lending/ Borrowing	- develop simple marketplace for lending products - incorporate features/capabilities developed for Trusted Lending Circle	- support usage of stablecoins (++) - advanced loan guarantees (jr/sr debt) to extend credit and trust (++) - enable physical collateral (+++)

		- bounties marketplace for unfulfilled contracts and agreements for regions with weak legal frameworks (+++)
Mutual Insurance	- basic insurance product, with payout rules and audits enforced by participants - audits and payouts based on manual voting	- sophisticated organizational management tools to facilitate nuanced decision making (e.g., messaging, voting) (++) - open platform for open source actuarial tables based on insurance product, region, etc... (+++) - design and implement claims process using 3rd party auditor mechanism (+++)
Legend		
(+) min	1000 BTC (~$1M)	
(++) midpoint	3500 BTC (~$3.5M)	
(+++) max	6000 BTC (~$6M)	

Budget structure

WeTrust Team consists solely of employment costs. We assume that with maximum financing we will be able to finance a team up to 20 people (mostly developers) for a period of 4 years.

Office and indirect costs includes costs of offices in San Francisco Bay Area, as well as other indirect, employment-related costs.

Contractors covers all third parties we will need to work with. This includes security audits, legal, and accounting services.

Community, Marketing, and Partnerships are related to WeTrust's expansion plan. This includes both communication and marketing efforts to get new communities involved, supporting (financing or co-financing) third party integrations with WeTrust, and building partnerships with external partners that WeTrust depends on for customer acquisition, and building brand equity.

Contingency fund is calculated as ~10% of the total budget

Team

Core members have deep expertise in entrepreneurship, engineering, business development, finance, compliance, and marketing.

Core Members

George Li | *co-founder, Product*
George is an ex-Googler who previously co-founded CottonBrew, a Stanford StartX computer vision and ecommerce company. Prior, he held roles in Corporate Strategy and Infrastructure at Google, and was a consultant at McKinsey. He holds a M.S in Management Science Engineering from Stanford and B.S. in Electrical and Computer Engineering from Rutgers University.

Patrick Long, CPA | *co-founder, Strategy & Operations*
Patrick previously worked in Finance at RMS, and Ernst and Young in Assurance Services where he earned his CPA. In his spare time, he manages a crypto-currency fund raised from friends and family and is always scouting for new opportunities. He holds a B.A. in Economics from UC Berkeley.

Ron Merom | *co-founder, CTO*
Ron previously worked at Google as a Software Engineer, where he specialized in voice recognition, emerging markets and social interactions. Ron is passionate about blockchain technology and wants to use his technical expertise to make a social impact on the lives of those less fortunate. He holds a M.Sc. in Computer Science from the Weizmann Institute of Science and a B.Sc. in Computer Science and Environmental Science from The Hebrew University.

An Zheng | *Principal Engineer*
An previously worked at Sandora as a Senior Software Engineer. An holds a M.S. and B.S. in Systems Engineering from a highly ranked, world renowned university.

Tom Nash | *Front-end Developer*
Tom previously worked at Hydrant as a Web Developer, but recently has taken a sabbatical to travel the world and work on freelancing. He is a quick learner, an ambitious individual who is passionate about blockchain, capable of taking on any task thrown at him, and wants to create social impact through technology. He holds a B.S. in Computer Science from Lancaster University.

Shine Lee | *Smart Contract Developer*

Shine is a entrepreneur at heart. After graduating from UC Davis about a year ago, he created his own Ethereum mining farm which generates enough passive income for him to be self-employed. He joins WeTrust as a developer working on Solidity smart contracts and brings his cryptocurrency domain experience. He holds a B.S. in Computer Science from UC Davis.

[Mivsam Yekutiel, Ph.D](#) | *Research and Global Partnerships Manager*
Mivsam has Ph.D. in Quantum Chemistry from the Otago University in New Zealand and did some post-doc work in renewable energy at Tel Aviv University. In the last 20 years, teaching and volunteering has always been a part of Mivsam's life and she cares deeply about the social impact she has as a person.

Leon Di | *Product Marketing Manager*
Leon Di has 9 years of experience in Silicon Valley technology firms in Hardware Engineering and Technology Marketing roles. As a Product Manager, he has managed accounts with Intel, Apple, and other major tech companies. He holds MS and BS degrees in Electrical Engineering.

[Maggie Deng](#) | *Head of Business Development*
Maggie is a Statistical Programmer (*8 years at Amgen and Novartis*) with a love for entrepreneurship. While working full time at Amgen, she founded a Precious Metals Trading company which provided wholesale services for banks in China. Maggie holds a B.A. in Finance and M.S. in Economics from the State University of New York at Buffalo.

[Justin Zheng](#) | *Marketing Associate*
Justin is a marketing guru. He was one of the marketing masterminds behind FirstBlood.io's record breaking $6 million crowdfunding campaign that was completed in less than 15 minutes. We welcome him as part of our marketing machine to make WeTrust known to the greater public.

[Jessica Aharonov](#) | *Graphic Designer*
Jessica is a graphic designer with extensive experience in branding, editorial design, and motion graphics. She created Arodesign Studio, an international graphic design agency that has worked on projects spanning the globe, including United States, Singapore, UK and New Zealand.

Advisors

[Emin Gün Sirer](#) | *Security Advisor*
Emin Gun is an Associate Professor in Cornell whose research spans operating systems, networking and distributed systems. He is an outspoken member of the hacker community ([@el33th4xor](#)), runs a technology blog called [Hacking Distributed](#) that questions current practices, and is a co-director at [IC3](#), The Initiative for Crypto-currencies and Contracts. He holds a B.S.E. in Computer Science from Princeton University and a Ph.D. in Computer Science from the University of Washington.

[Michael Casey](#) | Public Relations Advisor
Michael Casey is a Senior Advisor for the Digital Currency Initiative at MIT's Media Lab and a partner at Agentic Group. A writer and researcher in the fields of economics, finance and information technology, most of Casey's career was spent as a journalist at the *Wall Street Journal.* He has authored four books,

including *The Age of Cryptocurrency,* which he co-wrote with Paul Vigna. He holds a B.Comm from the University of Western Australia and an M.A. in Asian Studies from Cornell University.

Michael Hexner | *Business Strategy Advisor*
Michael Hexner is a seasoned entrepreneur and investor with over 40+ years of experience running companies in both the retail and technology space (Wheel Works, SmartPillars, Fundamental Capital, etc.). He is an expert in creating businesses from scratch by identifying real world problems and creating a crystal clear vision to lead his organization. He holds a B.S. in Political Theory from Williams College and a M.S. in Conflict and Dispute Resolution from Creighton University.

Benedict Chan | *Blockchain Advisor*
Benedict is the Platform Lead at BitGo and has vast experience in creating blockchain and wallet platforms. He created Ether.Li - first multi-signature web wallet. Ben advises the team on smart contracts, wallets, and security matters. He holds a B.S. in Computer Science from University of New South Wales, Australia.

Fennie Wang | *Legal Advisor*
Fennie works at MONI Limited as General Counsel and was previously an associate at Wilmer Hale. She is passionate about microfinance and tools that address financial inclusion. She holds a B.S. in Business Administration and Legal Studies from UC Berkeley and a J.D. from Columbia University.

Daniel Cawrey | *Marketing Advisor*
Daniel previously worked at Velocity as Chief Communications Officer and ZapChain as Chief Operating Officer. He brings marketing and strategy expertise from years of experience running crypto-currency projects. He holds a B.S. in Information Science from Central Michigan University.

Glossary

- **Rotating Credit and Savings Association (ROSCA):** Also known as a Trusted Lending Circle, a ROSCA is a group of individuals who act as an alternative financing institution through regular contributions and withdrawals from a common fund. The name Rotating Credit and Savings Association, comes from the type of transactions that occur in these associations in which members contribute on a regular basis (e.g., once a month) and are allowed a chance at the pot each contribution period.
- **Epoch:** A full cycle of contributions, where the Epoch timeframe is equal to
  - [# of participants]* [regular contribution interval]

  For example, if there are 6 members, and the contribution is weekly, then one Epoch is equal to 6 weeks. Typically a member wins the pot once in each Epoch.
- **Foreperson**: The Foreperson is the individual who initiates the 'ROSCA Fund'. It is this person who will input the fund's specifications, input contact information, and be responsible for educating participants about the process, and eventually make sure the contributions are made.

- **Foreperson Fee**: This is the agreed upon rate that the group wants to pay the Foreperson for organizing the group.
- **Platform Fee:** This is the fee that will be collected by the platform to cover operational costs and development costs, with excess fees going to grants, scholarships, and other non-profit pursuits.

Appendix

ROSCAs Around the World

Trusted Lending Circles-ROSCAs have existed for many years now. In Japan, the earliest records of ROSCA - with contributions in money - date back as far as 1275[28], in Korea they may even go back to the 9th century[29].

ROSCAs are currently popular in regions where there are a lack of sophisticated investment options and where there is difficulty in accessing loans through formal institutions -- typically because credit scores either do not exist or do not play a meaningful role in an individual's financial health. In India and China for example, it is common for alumni from a common university, colleagues from the same company, or simply friends from the same city to create informal ROSCAs as a way to save and invest. Research indicates that informal ROSCAs have similar or lower default rates for loans when compared to formal institutions, and offer competitive returns on investment for savers. ROSCAs are increasingly also being used to address the continuing phenomenon of low interest rates and uncertain strength of centralized institutions.

Trusted Lending Circles exist in various incarnations around the world. Here are some examples:
- As "*Chit Funds*": In **India**, each State has a regulatory agency for "*Chit Funds*" that are responsible for setting rules such as: maximum fees, capital reserve requirements, fund registration, insurance/ bonded requirements, etc. [Kerala](#) [State](#) [Financial](#) [Enterprise](#) is a government-owned ROSCA fund of Kerala State and is one of the largest funds in India. They employ over 6,000 employees and in fiscal 2015, have substantial operational costs. Currently, financial enterprises in India are large and sophisticated; however, WeTrust believes our technology can reduce costs, yet still preserve transparency, compliance with regulators, and safety. [5,10]
- As "*Tanda*": In Latin America and **United States**, particularly amongst the migrant worker community from Latin America, workers are employing this group saving concept to help save for their retirement. According to Jeffrey Cheung, President and CEO of OneCalifornia Bank, "[*Tandas*] really does hit on the fundamental of lending. Is the person you are lending money to someone you can trust? Someone who is honorable, someone who you think will pay you back?"[30] "[*Tandas*] are a worldwide phenomenon for poor people whose access to capital is limited. [*It*] easiest way to do it is to pool your resources," said Carlos Vélez-Ibáñez, Anthropologist at Arizona State University[31].

- As "*Hui*" or "*Shadow Banks*": Earliest mention of Hui is found in the Han Dynasty[1]. Since the Tang Dynasty in **China,** during the spread of Buddhism, the Chit fund tradition also spread from India. Currently, there is a booming "shadow banking" sector in which over $14.5 trillion yuan ($2.2 trillion dollars) are managed informally. This equates to roughly a quarter of all total loans originating in China and is worrying regulators because these loans are often highly leveraged and borrowers are typically less credit-worthy. Again, similar to the case in India, China is another huge market that will benefit from the transparency, auditability and safety the Blockchain can provide[32,33].

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