SANE Mutual Credit System - Light Paper

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1. Introduction

A mutual credit system is a form of economic exchange system whereby participants lend and borrow credits from each other, instead of exchanging conventional money. The credits represent IOUs that can be redeemed for goods and/or services within the network.

The SANE mutual credit system builds on this by creating a community-driven financial network that employs an alternative currency based on the stable value of a local product. This system enables individuals to exchange goods and services without traditional currency, using mutual credits which represent a fraction of the chosen item's value.

This system is key to the grassroots, bottom-up component of a SANEconomy emerging, it acts both as a decentralized bioregional economic driver but also plays a key role in the tokenomics of the overall SANEconomy. (More on this in Section 5).

The mutual credit system is directly tied to the market value of the most common and stable locally made item within a bioregion. This item is made of 100% local materials, and 100% of the production comes from the local bioregion. In the lower Andes, for example, a red brick could be used. If the price of a brick is historically quite stable, a brick can serve as a benchmark for the value of goods and services. The credits within the system would then be tied to the fluctuation of the brick price index.

Let's say Person A offers a massage service to Person B and asks for 7 bricks in return. If Person B agrees that the massage is worth the value of 7 bricks, the two parties conduct a transaction. To do this, Persons A and B would enter the agreed-upon number (7 in this case) into a mutual credit application on their respective cell phones. By bringing their phones together, a sound plays to confirm the transaction. If they are not in the same physical location, a verification system for acceptance of the transaction is introduced, and the application adjusts their credit totals accordingly, making the process user-friendly and immediate. No physical exchange of money occurs. The transaction is purely digital, and the mutual credits are simply accounting entries that reflect the debt and credit in the system.

In essence, Person A's account would be credited with 7 bricks' worth of mutual credit, while Person B's account would be debited by the same amount. This exchange is based on the mutual trust that the credits represent a real value that can be redeemed for goods or services within the community at any time.

As the market price of the brick changes, the value of the mutual credits would adjust in tandem, ensuring that the credits remain representative of a consistent value over time.

This mutual credit system relies on a community of users who agree to accept the mutual credit as a valid form of exchange for goods and services, creating a closed-loop economy that is somewhat insulated from the fluctuations of the broader money market.

To ensure that no participant accumulates significant debt, the system's algorithm actively searches for cycles of exchanges that can neutralize outstanding balances. For instance, if Person A provides a service to Person B, and Person B to Person C, and then Person C to Person A, with all services valued equally, the algorithm nullifies their debts, bringing each account to a zero balance.

This new mutual credit system fosters a self-balancing economy where value is exchanged based on trust and mutual agreement, insulated from the volatility of global markets. It champions local production, strengthens community bonds, and promotes economic sustainability.

2. Time Stamp

To encourage active participation and prevent perpetual debt, the system imposes a time limit for each transaction to be settled by the algorithm. If a participant accrues a debt by receiving a service (such as the above-mentioned massage valued at 7 bricks) and does not offer their own equivalent service or goods within 60 days, they are considered in default of their debt. This mechanism incentivizes participants to engage in the system, and contribute their own services or goods to balance or negate their debt before the deadline.

The system's sophisticated algorithm prioritizes transactions that settle debts approaching the 60-day limit. It actively seeks out exchanges that can balance the most urgent debts, fostering a dynamic and fluid economy where services and goods circulate efficiently, and credit does not remain stagnant.

Through the SANE mutual credit system, community reliance on traditional currency is reduced, local production is supported, and economic activity is stimulated within a framework of trust and mutual accountability. The system is designed to be scalable, handling thousands of users and transactions, and ensuring that participation is both a necessity for and a responsibility of all members.

3. User Rating

By incorporating both user-generated ratings and an algorithmic rating system a multifaceted approach to maintaining trust and encouraging responsible participation is ensured.

User Generated Ratings: After each transaction, participants rate each other based on the quality of the goods or services exchanged, punctuality, and overall experience. This subjective feedback reflects personal interactions and satisfaction levels, similar to reviews on platforms such as Airbnb.

Algorithmic Rating: In parallel, an algorithmic rating system monitors and evaluates each participant's financial behavior within the system. Key metrics for this objective rating include:

- **Debt Ratio:** The proportion of credits a user owes (debt) compared to the credits they've earned.

- **Debt Age:** The amount of time a debt has remained unpaid, with particular attention to debts nearing or surpassing the 60-day limit.
- **Default Frequency:** How often a user has failed to settle their debts within the allotted time frame.
- **Transaction Frequency:** The regularity with which a user engages in transactions, contributing to the liquidity and health of the credit system.

The algorithmic rating adjusts a participant's overall score, with higher penalties for defaults and prolonged debts. This automated rating provides a critical balance to the subjective user reviews, by focusing purely on objective data to assess a member's reliability within the system.

This dual rating system serves to:

1. Incentivize timely repayment and active participation, as the ratings directly affect a member's reputation.
2. Deter defaults and passive behavior, as a poor algorithmic rating could limit a user's ability to engage in future transactions.
3. Enhance trustworthiness, with the community having access to both personal and data-driven insight on each participant before engaging in a transaction.

This combined rating system is a powerful tool for self-regulation, encouraging positive accountable behavior, and providing a clear and transparent basis for trust within the community. It ensures that while personal relations and subjective experiences are valued, the overall integrity of the system is upheld by objective, data-driven assessments.

4. The Ledger

The SANE mutual credit system is a ledger-based system that is scalable and can handle a large number of users, facilitating complex chains of transactions using advanced data analysis and optimization techniques. All users host their personal ledger and own their data. Transaction history is, therefore, always available to users in order to comply with local financial regulations, ensuring transparency and legality.

The ledger includes the following features:

- **Transparency and Record Keeping:** Participants have access to a fully decentralized, private, and encrypted personal ledger that contains a comprehensive record of their transactions. This ledger includes the date, the amount of mutual credit exchanged, and the equivalent value in bricks or respective local currency at the time of the transaction.
- **Real-time Updating:** The ledger is updated in real time, ensuring that participants have access to their most recent transaction data at any time.
- **Customization:** Users are able to select specific date ranges or types of transactions when viewing their ledger, allowing for greater control over the data they wish to view or report.

- **Education and Support:** Since mutual credit systems are relatively uncommon, the app provides educational resources on how transactions within the system translate into local currency values and how they should be reported according to local laws.
- **Structure:** The ledger does not reside on the app; it is part of an open source structure (see zero.tech).

By including such a ledger feature, the mutual credit system not only provides transparency and trust among its users, but also helps to ensure that users can meet their legal obligations in terms of financial reporting and taxation.

5. **Citizenship**

To participate in this mutual credit system, individuals will need to attain the status of 'citizenship'. Since mutual credit exchanges happen at the bioregional scale and are often done face-to-face, the need for "citizenship" may seem less important. This mutual credit system is, however, designed to scale from bioregion to bioregion, and for bioregions to network and eventually trade with each other. Thus, a fully decentralized system that authenticates users as "real humans" is critical to the success of any new digitally based system of trade and communication. Citizenship gives users control over their data and ledger (see part 4). Users host the ledger themselves, and the ledgers do not reside in a central location.

6. Value Acknowledgement Credit (VAC)

In order to make the SANE mutual credit system more equitable and to acknowledge contributions typically undervalued by conventional economies, a "Value Acknowledgement Credit" (VAC) is introduced. VAC operates alongside the regular mutual credit transactions, and is specifically designed to recognize and reward activities beneficial to the commons, which are often unpaid, such as parenting, elderly care, volunteer work, and environmental stewardship. Here's how the VAC functions within the system:

- **Credit Issuance:** Individuals engaged in qualifying activities receive VACs as a form of societal compensation for their contributions.
- **Community Validation:** The community drives what types of activities qualify for VACs, using a democratic voting system within the app to ensure that the credits accurately reflect collectively held values and priorities.
- **Integration with Mutual Credits:** VACs are convertible to standard mutual credits at a rate of 1 to 1, using the "chosen item" index (in this case "the brick"). This allows recipients to use VAC within the broader mutual credit marketplace.
- **Sustainability:** To ensure that the system remains balanced and sustainable, the issuance of VACs are algorithmically regulated based on the size of the community, the demand for mutual credits, and the economic activity within the system.
- **Encouraging Participation:** Awarding VACs for community-valued activities encourages more people to participate in these activities, strengthening the social fabric and providing economic support to those who contribute to ecological and social wealth in non-commercial ways.

This approach recognizes the value of all forms of work and promotes a more caring, respectful and cohesive society, one that supports the functioning of the mutual credit system by bringing forward a diverse range of participants and services.

7. Incentives for Ecological Health and Human Wellness

By incorporating a mechanism for collective projects which are both backed by citizen votes and also by an innovative algorithm (called NUNA - see section 4)) designed to measure and identify actions that significantly benefit both the community and the bioregion, and furthermore, by incentivizing these chosen projects with additional mutual credits, a layer of community-driven development and participation is added to the system.

This novel approach to value measurement within the SANE mutual credit system, is structured as follows:

a) Project Proposal and Approval

- Members propose projects they believe will enhance the bioregion, be it through environmental, infrastructural, or social improvements.
- NUNA assesses the proposals based on the desired future condition for the bioregion.
- Through the app, all participants within the mutual credit system can also vote on these projects, and NUNA integrates community input into the selection process.
- Recognizing the dynamic nature of community needs and ecological health, NUNA is developed iteratively. It evolves through continuous learning from real-world applications and community feedback.
- By identifying and quantifying valuable actions, NUNA guides community members towards activities that have a positive impact.
- As the SANE mutual credit ecosystem grows and evolves, NUNA adapts, incorporating new data and insights to refine its value measurements. This adaptive approach ensures that the system remains responsive to the changing needs of the community and the planet.
- The development and refinement of NUNA is conducted with a commitment to transparency, allowing community members to understand how actions are valued and to contribute to the ongoing improvement of the system.

b) Project Delivery:

Within this framework, approved projects are understood as elements of the 'desired future conditions' of the bioregion, reflecting the collective aspirations of the citizens. Each project is visualized in its completed state, symbolizing a shared goal. To turn this vision into reality, a process of reverse engineering is employed, breaking down the 'completed' state into its fundamental components of required actions and materials. This method provides a tractable roadmap for successful execution. The following outlines how this approach is integrated within the mutual credit system:

- **Project visualization:** The inception of each approved project is marked by a detailed envisioning of the desired outcome. This vision could be as varied as envisioning a pristine lake, the reforestation of ten acres of land, the rejuvenation of a community center, or the establishment of a network of urban gardens.
- **Deconstructing into components:** Project Managers dissect the overarching vision into distinct, actionable elements, akin to how an artist deconstructs a painting into individual strokes, colors, and themes. This detailed breakdown may encompass a variety of tasks, ranging from planting trees and conducting educational classes to constructing pathways or transporting materials such as gravel to a work site.
- **Actionable items:** Every facet of the project is transformed into distinct, tangible tasks. This compilation serves as a comprehensive menu of activities from which participants can select and engage.
- **Resources identification:** In tandem with outlining actions, physical resources needed are outlined for distributors to choose from..
- **Community involvement and task selection:** Community members engage with the system via the app, where they can view the detailed list of tasks and required resources. Based on their unique skills, interests, or available resources, they commit to contributing to specific components of the project via smart contracts.
- **Monitoring and adjusting:** The App diligently tracks task completion and resource utilization, offering real-time insights into the project's progress. This monitoring allows for timely adjustments, ensuring completion of the envisioned project.
- **Dynamic response:** As the project evolves, the list of actions and resources is updated to reflect current needs and completed components.
- **Emergent completion:** As individual tasks are completed and components come together, the community witnesses the gradual materialization of their envisioned future.

Through this structured and simultaneously flexible approach, the SANE mutual credit system enables citizens to collaboratively construct their collective future, piece by piece, incentivizing each action toward their desired future along the way. This is a dynamic process that values every contribution, big or small, as essential to the community's desired future.

c) Community Engagement:

The selected projects and its benefit to the community act as an effective incentive for members to engage in community projects, fostering a sense of collaboration and collective responsibility. This ensures that community resources are channeled into projects with widespread support .

This approach also empowers citizens to directly influence the development and prioritization of initiatives within their bioregion. It fosters a proactive community spirit, whereby participants are not just passive consumers; rather, they are active contributors to the collective well-being and future of their bioregion.

After project completion, the community assesses impact and success, providing a feedback loop that informs future project planning.

8. Onboarding for Success

Despite their long-standing history, attempts at Mutual Credit Systems have seen limited success in the last few decades. This stems primarily from challenges presented in the scaling of the onboarding process, a process crucial to the success of a mutual credit system for several key reasons:

- **Network effect:** The value of a mutual credit system increases with the number of participants. More participants equal a broader range of goods and services, which in turn attract more users, generating a virtuous cycle of growth.
- **Liquidity:** A larger pool of participants ensures that more transactions can occur without the need for conventional money. This liquidity is essential for the system to function effectively as an alternative to traditional currency.
- **Balancing credits and debts:** With more participants in the system, there are more opportunities to match needs and offerings, allowing credits and debts to circulate and balance out more efficiently and effectively.
- **Economic resilience:** A diverse and extensive network of participants leads to a more resilient system that can withstand individual failures or economic downturns.
- **Community impact:** The system's success is tied to its acceptance and use within a community. Significant onboarding ensures that the system can have a meaningful impact on the local economy and society.
- **Trust and reputation:** A critical mass of users helps establish a sense of trust and credibility, which is essential for any new economic system to gain traction.

Without a strong initial and ongoing onboarding process, a mutual credit system risks remaining marginal and underutilized, failing to achieve the critical mass necessary for it to be a viable alternative to conventional monetary systems. The SANE mutual credit system addresses this on-boarding challenge by integrating blockchain as a bridge to mutual credit.

9. Blockchain Token as Bridge to Mutual Credit System

The concept of a transitional token is fundamental to the SANE economic model, serving as the connective tissue between traditional economic systems and this mutual credit framework. The rationale for this bridging mechanism is multifaceted.

To effectively scale onboarding and ensure the success of mutual credit systems, a strategic approach is essential. The SANE method employs a proven multi-stakeholder strategy. This involves establishing collectively agreed-upon future goals within a bioregion and translating these into tangible, impactful projects on the ground. Such initiatives are bolstered by a global community that acknowledges the importance of thriving decentralized economies.

Utilizing a blockchain token ($SANE) as a tool for onboarding to the mutual credit system represents a groundbreaking and innovative approach that harnesses the strengths of blockchain technology's core attributes — transparency, security, and extensive reach — to support and energize a localized economy. The token acts as an ambassador for the bioregion's economic experiment, raising awareness, and attracting international attention and support.

The purchase of tokens by global investors introduces external capital into the system, providing liquidity. These investors are not just financial contributors; they are committed advocates who resonate with the principles of bioregional and decentralized economies.

Token holders worldwide are also rewarded for the success of bioregional initiatives, wallets that held tokens until completion receive reward tokens. Tokens once allocated to a bioregion for projects are burnt and swapt for mutual credits. See Section 5 of this paper for more details.

Tokens can also be converted into mutual credits through a swap mechanism, facilitating their use within each bioregion. This conversion process offers a gateway for external investors and enthusiasts to engage with local economies, either through indirect participation or by supporting individuals who wish to be directly involved.

Initiating the system in a select number of bioregions allows for a controlled and measured approach to experimentation and refinement. The successes and insights gained from these initial implementations will then guide the expansion process into additional bioregions.

By funding projects that benefit the entire region through token allocation, local engagement and participation increase. As more and more citizens become directly or indirectly involved in projects, a growing number of residents are incentivized to become part of this new emerging economy. This pivotal step results in a robust pool of goods and services within the system, creating the essential momentum necessary for success.

In the event that 1 to 3 bioregions achieve genuine success in this endeavor, they will set a new standard for decentralized economies. Such a milestone would pave the way for broader scaling and significant global impact. This progress could catalyze a flywheel effect, playing a substantial role in positively transforming our world.

10. Technology Implementation Steps:

1. App Framework and Design:
Design the user interface (UI) with a clean and intuitive layout, emphasizing ease of use.

2. User Registration and Onboarding:
Create a user registration process where individuals can sign up and become SANE citizens. Ensure identity verification measures for security and trust using zero.tech technology.

3. User Profiles:

Develop user profiles where individuals can manage their personal information and preferences. Include options to link bank accounts or other payment methods for purchasing mutual credits.

4. Ledger Creation:
Implement a personal ledger for each user that is fully decentralized, private, and encrypted.
Ensure ledger data can be accessed only by the respective user.

5. Transaction History:
Design a section in the app where users can view their transaction history. Include details such as date, transaction amount in mutual credits, and the equivalent value in bricks or local currency at the time of the transaction.

6. Real-Time Updating:
Enable real-time updating of the ledger to provide users with the most current transaction data. Ensure that changes in mutual credit balances are reflected instantly.

7. Customization:
Allow users to customize their ledger view, enabling them to select specific date ranges or types of transactions they wish to review or report.

8. Education and Support:
Integrate educational resources within the app to help users understand how mutual credit transactions translate into local currency values and how to comply with local financial laws.

9. Security Measures:
Implement robust security measures to protect user data, including encryption and multi-factor authentication. Ensure the safety of ledger data stored on users' devices. (e.g. through Tableland).

10. Blockchain Integration:
- Integrate the blockchain-based transitional token ($SANE) into the app.
- Enable users to convert $SANE tokens into mutual credits directly within the ledger.

11. User Feedback and Ratings:
- Allow users to rate their experiences with transactions and other participants within the app.
- Display user-generated ratings in the ledger for transparency.
- Integrate Algorithmic rating for users engagement and debt ratio

12. Algorithm Integration:
- Integrate the debt management algorithm into the ledger to track and adjust mutual credit balances based on user transactions.

13. Testing and Debugging:
- Conduct thorough testing of the ledger functionality, including data synchronization, transaction recording, and data security.
- Identify and fix any bugs or issues.

14. User engagement and decision making:

- Enable users within the App to propose and vote on common projects and on VAC distribution.

15. Documentation and Help Center:
- Provide comprehensive documentation and a help center within the app for users to access guidance and support.

16. Maintenance and Updates:
- Continuously monitor and maintain the ledger system to address any issues or vulnerabilities.
- Regularly release app updates to improve functionality and security.