

GRASSROOTS ECONOMICS

CIC - Research Findings

Expert Opinions on the future of Community Inclusion Currencies (CICs)



Compiled and edited by [OCTOPI](#) and [Grassroots Economics Foundation](#)

Commissioned by [The French Development Agency \(AFD\)](#)

May 2022

| | |
|---|-----------|
| ABSTRACT | 4 |
| FOREWORD | 4 |
| What is the problem we are navigating? | 4 |
| How are we approaching it? | 5 |
| Introduction to CICs | 6 |
| Key Properties | 6 |
| History & Findings | 7 |
| METHODOLOGY | 9 |
| KEY RESULTS | 10 |
| Government Integration | 10 |
| Technical Integration | 15 |
| Legal Integration | 19 |
| Humanitarian Integration | 23 |
| Impact Analysis | 27 |
| Other - Cross-Cutting | 30 |
| CONCLUSION | 32 |
| ANNEXURE OF RESPONSES | 34 |
| Agha, Shaila - Grassroots Economics Foundation | 34 |
| Anonymous - Humanitarian 1 | 36 |
| Anonymous - Humanitarian 2 | 36 |
| Arensen, Heath - Digital Impact Alliance, UN Foundation | 37 |
| Bornstein, Adam - Danish Red Cross | 37 |
| Champsavoir, Pierre - COREUM SAS / happy smala | 42 |
| Cook, Chris - Senior Research Fellow, Institute for Strategy, Resilience & Security, University College London | 44 |
| Emmett, Jeff - BlockScience Inc | 54 |
| Fleischman, Tomaz - Informal systems | 55 |
| Gee, Christopher - Universal Time Bank Exchange, Shanzhai City, Hong Kong | 66 |
| Greco, Thomas H. Jr. | 69 |
| Green, Dil - Mutual Credit Services | 74 |
| Guterman, Eve Anne | 76 |
| Kameja, Evarist | 77 |

| | |
|---|----|
| Malisa, Alison - Peace Profits | 79 |
| Mqamelo, Rebecca - \$OAK | 79 |
| Mustard Seed Trust, Representative | 80 |
| Ndolo, Joshua | 81 |
| Sanders, Eduard | 81 |
| Short, Tom - TSC | 81 |
| Skari, Lars-Andre - Norwegian Red Cross | 82 |
| Slater, Matthew | 82 |
| Smith-Christensen, Cecilie - World Heritage Catalysis | 83 |
| Stodder, James Paxton | 85 |
| Tibebwa, Sister | 85 |
| Xu, Guanghong | 86 |
| Zargham, Michael - BlockScience | 87 |

ABSTRACT

Community Inclusion Currencies (CICs) have been piloted as alternative financial systems, studied and adapted into various contexts but haven't yet been fully adopted into larger-scale institutions or state application. They have been designed as a financial instrument to support the development of circular local economies in marginalised communities, but have the potential for implementation in a wide variety of settings. This research paper sought out experts in various fields to point out potential solutions and risks to adoption and scale within potential implementation opportunity areas.

FOREWORD

We want to: support prospering economies built by thriving communities

By: helping communities govern and share their resources sustainably through self-sovereign financial instruments and protocols that support long-term local economic development and empowerment.

What is the problem we are navigating?

In countries and communities facing food insecurity, local markets are often fragmented and inefficient, resulting in soaring debts and market volatility. In this context economically marginalised factions of society, inter alia and not exclusively, women, smallholder farmers, the elderly, the physically disabled, and illiterates tend to be excluded from existing financial systems. Difficult access to credit impedes investment, and there is often no sustainable way for community groups to finance community projects and build financial resilience. Worldwide, financial and legal systems fail to organise and maintain public goods, commons, such as farmable land and communal resources, which are the basis of production for the above-named marginalised groups. This is mainly due to a lack of understanding and equally a lack of tools needed to foster financial sustainability.

How are we approaching it?

Grassroots Economics Foundation developed the Community Inclusion Currencies as instruments within an Economic Commons system, which was implemented as a pilot in the Sarafu Network. The Sarafu Network is a platform which provides economic and financial services at lower cost (freemium) than any other commercial or public agent could. Given that CICs deployed are self-created by the beneficiaries and thus in their ownership, this system can be regarded as an economic services commons. It does this by optimising demand and supply within a community in a specific local context and facilitating trade by enabling businesses or associations to issue credit obligations or vouchers redeemable as payment for their goods and services. Goods and services' production potential are audited and verified by Grassroots Economics and the community itself. The digital vouchers issued can be redeemed and traded multiple times and thus function as a currency. They are taxed with demurrage (currently 2% monthly) to avoid hoarding and accumulation, and stimulate fast and efficient circulation of the currency. Vouchers can also be purchased in-kind or with national currency. For example, humanitarian organisations may procure the vouchers in national currency and distribute them to crisis-affected populations for both emergency relief and the simultaneous development of local circular economies and financial resilience within marginalised communities.

While CIC pilots have shown much promise, integration of these concepts, systems and technology at a larger scale is lacking. In order to increase our impact and learn from experts, Grassroots Economics with the support of AFD and OCTOPI have asked experts in various fields to shed light on paths forward, opportunities and challenges.

Introduction to CICs

Key Properties

1. Community Inclusion Currencies (CICs) are part of a protocol for the management of common resources.
2. CIC are legally-binding vouchers (credit obligations) redeemable as payment for the issuer's goods or services - denominated in particular goods or services as the unit of account. For example, any given set of vouchers issued by a village group in Kenya may assume the value of a 20l container of drinking water; or an onion; or an egg.
3. CICs can be traded (technically, by reassigned contract ownership) and held by any member. The circulation of vouchers can act as a medium of exchange, just the same as a currency, and support local trade.
4. CICs are issued by associations of members or organizations by means of defining XYZ in a legal contract, documented on a blockchain. The functioning, the value, and the underlying production capacity for goods and services, which back the voucher, are audited by local authorities (e.g. traditional chiefs, society elders, state authorities at the local level). Such authorities also provide mediation, in case an issuer failed to accept vouchers as redemption for the goods or services promised.
5. CICs can be traded (like a bus ticket) in various ways: in-kind for other vouchers; in-kind for other goods and services; and last, but not least, for national currency cash.
6. CICs expire gradually over time in order to stimulate the circulation and flow of the currency and sanction hoarding and accumulation. At the moment, vouchers in the Sarafu Network will be taxed with a demurrage of 2% per month. The tax is returned to the issuer (the association) and can be used again, e.g. for community development projects or crisis relief.
7. CICs have been deployed digitally on a distributed ledger (blockchain). Interfaces have been created to trade by vouchers over ordinary, non-smart feature phones without internet access (USSD / SMS dialogue menus). The Sarafu Network then automatically transfers transactions on USSD to a blockchain as a transparent, safe, and resilient distributed ledger system.

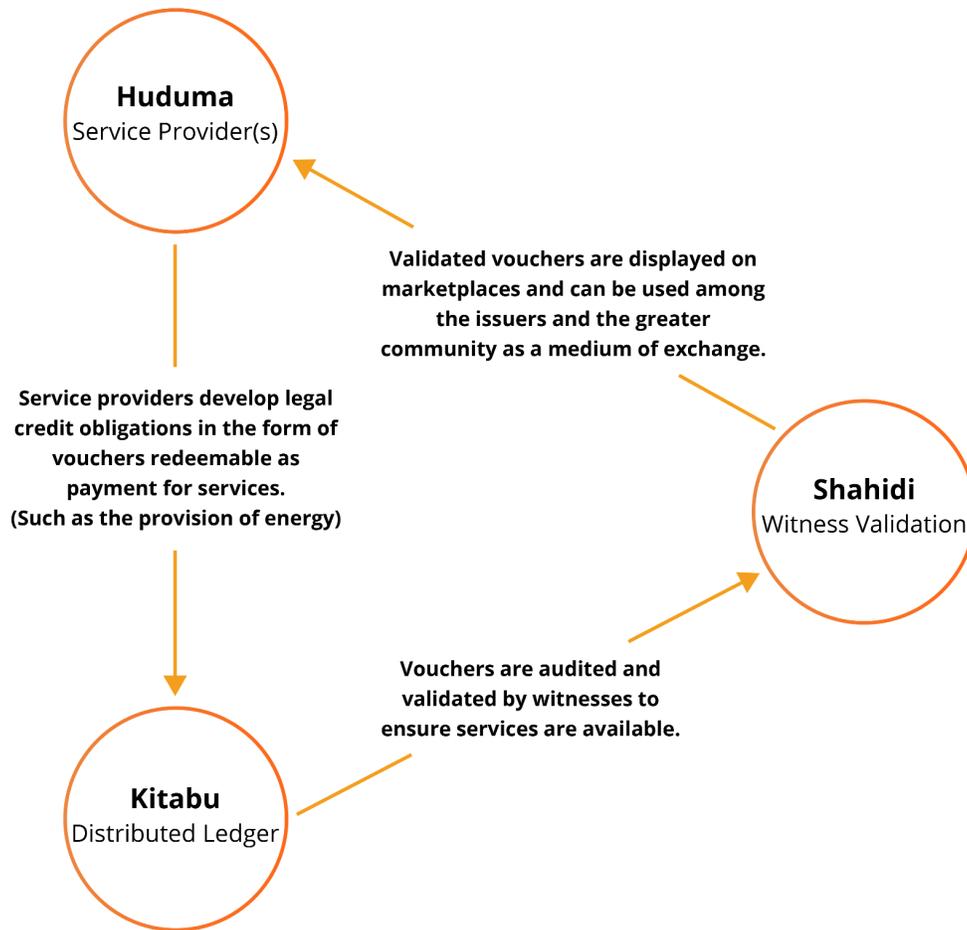


Figure1: Community Inclusion Currencies (CICs) are utility vouchers for a commons via validated credit obligations stored on distributed ledgers. Huduma = Service, Shahidi = witness, Kitabu = Ledger or book

History & Findings

Grassroots Economics (GE) has been piloting and developing alternative financial instruments and protocols since 2010, starting with paper vouchers, and since 2018 moved to a digital platform. Since going digital, GE has reached nearly KSH 300 Million worth (~3 Million USD) of CIC trading between 60,000 users in Kenya for basic needs, recorded in over 400,000 transactions on a blockchain. We have seen over \$1 Million USD worth of trade on the Sarafu Network in Kenya in 74 different locations/villages. Below you can see the breakdown of spending in different areas and products or services.

Sarafu-Network Transaction History Jan 1st 2020 – May 1st 2022

Balances and volumes in Sarafu (Kenyan Shilling Equivalent)

| Category | # Users | Balances | Trade Volume | # Transactions |
|---------------|---------------|-------------------|--------------------|----------------|
| food | 12,408 | 3,476,677 | 73,132,213 | 124,526 |
| savings | 295 | 2,751,279 | 62,589,588 | 56,336 |
| labour | 23,497 | 3,319,177 | 55,961,749 | 104,865 |
| shop | 5,779 | 1,823,156 | 48,963,964 | 69,096 |
| farming | 9,976 | 2,152,807 | 20,204,258 | 48,410 |
| water | 1,127 | 336,171 | 10,185,432 | 15,188 |
| fuel/energy | 2,929 | 665,577 | 9,992,285 | 18,784 |
| transport | 1,792 | 337,540 | 7,786,706 | 11,573 |
| other | 1,874 | 487,943 | 7,592,331 | 13,884 |
| health | 345 | 220,286 | 5,566,425 | 8,391 |
| system | 37 | 32,502 | 4,212,623 | 1,041 |
| education | 809 | 289,217 | 2,143,834 | 6,801 |
| environment | 318 | 64,810 | 2,106,615 | 3,433 |
| faith | 40 | 64,639 | 1,442,852 | 2,672 |
| government | 67 | 63,458 | 525,014 | 667 |
| TOTALS | 61,293 | 16,085,239 | 312,405,890 | 485,667 |

| Locations | # Users | Balances | Trade Volume | # Transactions |
|---------------------|---------------|-------------------|--------------------|----------------|
| Mukuru Nairobi | 10,319 | 4,521,265 | 180,803,634 | 195,845 |
| Kinango Kwale | 24,023 | 7,166,484 | 100,633,056 | 164,152 |
| Misc Nairobi | 5,522 | 1,392,811 | 21,487,790 | 39,069 |
| Kilifi | 1,115 | 270,459 | 5,171,860 | 5,909 |
| Nyanza | 925 | 367,759 | 2,044,127 | 16,146 |
| Kisauni Mombasa | 6,985 | 1,399,131 | 1,563,703 | 55,210 |
| Misc Mombasa | 1,178 | 169,358 | 274,361 | 2,678 |
| Misc Rural Counties | 409 | 68,774 | 154,490 | 1,063 |
| Turkana | 633 | 106,023 | 121,717 | 1,673 |
| other | 9,736 | 552,191 | 86,483 | 1,794 |
| Kitui | 448 | 70,983 | 64,668 | 2,128 |
| TOTALS | 61,293 | 16,085,239 | 312,405,890 | 485,667 |

More information on CICs as implemented in Sarafu Network platform can be found here:

- Operations: <https://docs.grassecon.org/ops>
- Legal: <https://docs.grassecon.org/legal>
- Education: <https://docs.grassecon.org/edu>
- Software: <https://docs.grassecon.org/software>
- Charter: <https://docs.grassecon.org/community/charter/>

METHODOLOGY

We took a qualitative approach to source data and opinions for the purpose of this paper - through surveys, interviews, formal legal opinions and group discussions. Participants in the research were asked to give comments in relation to a set of implementation/opportunity areas on existing and potential use cases for CICs, the risks and challenges involved, potential solutions and suggestions for such projects, and any other relevant comments. The findings, from the surveys, interviews and discussions have been compiled into our key findings. The full responses can be found in the annexure and confidential legal opinions can be provided upon request.



KEY RESULTS

The findings suggest that there is an opportunity for scaling the use of CICs as a form of tradable credit obligation, to develop prospering economies at the hands of the people on the ground. Although our implementation is new, many versions of credit, such as vouchers and air-time credit used as community or complementary currencies, have existed for some time, and are rapidly evolving through digital and blockchain-based technology. We've included summarised results mixed with direct comments from a variety of experts on existing and potential use cases and advice broken down into government integration, technology, legal, humanitarian, and cross-cutting opportunity areas.

Government Integration

Although the existing implementation of Community Inclusion Currencies is largely driven by Civil Society and funded by the UN and philanthropic organisations in the humanitarian sector, we believe there is great potential for government integration of CICs.

From our research, the following themes were prevalent in relation to the potential for government integration:

- Integrating CICs for accessing medical services in the form of health clinic vouchers
- Trading energy with CICs and in doing so creating local economies around energy and increasing access to electricity.
- Effective feedback systems through digitisation of trade and energy-specific credit obligations that would allow for a smart provision of energy
- Integration of CICs into communities hosting World Heritage through site management authorities as a means of developing local economic resilience against disruptions in the tourism sector
- Tax credits usable between companies

One of the most limiting factors to economic development in developing economies is the availability of credit and access to financial services. CICs have the potential to mobilise credit (CIC as Credit Obligations) even on the household-level and facilitate its distribution highly efficiently by its digital application over mobile phones.

Below are some key takeaways from the research, with the full responses available in the addendum.

Cecilie Smith-Christensen - [World Heritage Catalysis, UNESCO World Heritage sites](#)

“World Heritage are natural and cultural heritage recognised for their Outstanding Universal Value to humanity. There are currently 1154 World Heritage sites and 1731 sites on the tentative list across 179 States Parties to the UNESCO World Heritage Convention (1972). Many of these communities have come to depend on visitor revenues and are specifically vulnerable to disruptions affecting the tourism sector. CC/CIC could, if appropriately designed within the context of the 1972 Convention, be integrated into these communities to enhance economic resilience and support transformation towards a more sustainable and ideally regenerative economy. More specifically CC/CIC could potentially be integrated into communities as a means to support site management authorities (governments) responsible for protection and management of the natural and cultural heritage sites.”

Tomaž Fleischman - [Informal Systems](#)

“The idea is to develop a framework that is general-purpose, meaning that the government or any other entity promoting a policy can implicitly or explicitly design any incentive program for any policy as long as it leaves room for other currencies (forms of tradable credit obligation) to express their role and contribute to the general well-being. It is important to note that boundaries are clearly defined between the actors engaging with the system. It results in economic actors being exposed to more than one medium of exchange and more than one way to get rewarded or contribute to the state budget.

A government introduces tax credits (in CICs) among companies aimed at promoting any kind of government objective (in the case of Sardex in Italy, home renovation and energy efficiency).

These tax credits come with conditions:

- a. issued for a specific purpose, in a simple way that can be digitally traced (housing improvements -> permit plan -> material bills and traceable payments)
- b. usable between companies and towards offsetting any state-related obligation
- c. redemption spread over up to 10 years, selling at discount or par for any other means of exchange is possible (not explicitly acknowledged by the state)

Companies will usually accept and sometimes accumulate tax credits while reducing unpaid dues for the government or paying for workers' state insurance but will only be able to do so up to a certain point (without risking their own liquidity crisis). Passing that point, any currency that is sufficiently available and more liquid than a tax cut 10 years down the line will be valued by companies and be used.”

Chris Cook - Institute for Strategy, Resilience & Security, University College London

“Community Inclusion Currencies are affected by two key government sensitivities: firstly there is invariably a prohibition on any non-bank credit issuer redeeming credit for fiat currency in the absence of 100% reserves. Secondly, income or gains denominated in the fiat unit of account are subject to taxation. Integration of government and Community Inclusion Currencies may commence by introduction of simple but radical combinations of “smart swaps” of technology use for fossil fuel savings. These are not new, being pioneered by James Watt in 1778 when he supplied the use of his innovative steam engine in exchange for a third of the coal saved by tin mine owners – pumping as a service.

A similar services approach enables new energy value flows to be funded by energy returns to investors. This is achievable via the supply of natural power, thermal and bio technologies in exchange for the value of fossil fuel savings and the reduced CO2 emissions which naturally follow. The combination of such “smart swaps”/capital partnerships and Energy Credit Obligations gives rise to free flows of the intrinsic value of energy generated from free renewable energy and savings. By mapping use via the creation of a shared energy ledger, mapping local natural resources and identifying optimal interventions by the service providers and capital partners the transition to a sustainable economy through smart provision of energy services is made possible.

Finally, the use of an energy Unit of Account (eg the Joule equivalent of 1 MMBtu thermal energy or of 10 kWh of electrical energy (energy accounting) instead of a fiat unit enables the organising principle of resource resilience to be applied using these Community Energy institutions and instruments. On the basis of new Community Energy Treasury & Mint institutions and shared Energy Exchequer ledgers, other services such as health and education may then be swapped for flows of energy, land/buildings use, IP/tech services such as communications and of course for the mutual credit of local people.

I would like to see pilot village-scale projects for an accelerated transition to energy independence/resilience via “Energy Fintech” monetisation of energy savings using Energy Credit Obligations and mutual legal designs independent of jurisdiction.”

Tom Short - TSC

“There is potential in integrating CICs in the development of local economies around electricity in communities that are off the grid. Motivating installation of residential level photo-voltaic arrays and panels in rural communities using government infrastructure development funds, and supplementing the economy around that infrastructure with implementation of CICs so that the excess power is traded amongst the community. Energy is universally desirable and therefore will motivate consistent trade in the community.”

Evarist Kameja

“Through CICs, less economically developed countries can reach their development goals and reap the benefits of higher productivity, capital and labour hours which are a net result of increased access to credit and financial services for poor households and rural communities.

Studies indicate that lack of credit systems, poor housing quality and lack of information concerning the use of electricity drastically impact the access to electricity in Africa. There is no gainsaying that Community Inclusion Currencies (CICs) will effectively address these challenges as with increased access to credit, poorer households will not only be able to afford to pay for electricity but will also be able to afford education and improve their housing quality, ultimately leading to increased use of electricity.”

Shaila Agha - Grassroots Economics Foundation

“New taxation regulations in the UK from the HMRC for self-employed and freelancers require citizens to submit a digital tax summary annually in addition to a tax return. This is far from a reality in Kenya, digital accounting solutions such as CICs would allow individuals and micro-businesses to have visibility on their Finances and take control of their sovereign data and access information on their tax obligations or exemptions.

There are challenges to the implementation of CICs in Kenya. The Central Bank of Kenya governor Hon. Njoroge has cautioned all lending institutions to be wary of any blockchain-related currency. Kenya is currently researching and deliberating the implementation of a Central Bank Digital Currency (CBDC) . Regulation and taxation of

digital currencies is therefore unclear. However, those challenges could be addressed by an official introduction to the regulators to discuss collaborative frameworks for governance and oversight for the protection of the beneficiaries. More attention should be placed on governance and Auditing principles to ensure best practices in Finance and Economics are adhered to. Toolkits and continuously evolving curricula should be developed to ensure standardisation and replicability at scale in order to remain in compliance with the government.”

Technical Integration

The extent to which technology can play a role in creating access to financial instruments is endless. For the purpose of CICs, technical integration and the possibilities within the world of technology hold great potential for the scaling of CICs, as well as the innovation of supplementary and complementary instruments/tools within the currency system that can support further community resilience.

From our research, the following themes were prevalent in relation to technical integration:

- Liquidity pools and decentralised exchanges to help create markets for inter-community exchange
- Using CIC data to provide
 - impact certificates
 - credit scores that can reduce lending risk
- Digitisation of existing community currency systems for scalability
- Providing universal protocols of exchange of community currencies that are customisable to context
- Liquidity injections through community currencies as a means of extending public funds

There are many existing and potential technical integrations of the current CIC design, and with that research to be done. Below are some of these opportunity areas, and comments from the writers on their desired research around CICs.

Christopher Gee - Universal Time Bank Exchange, [Shanzhai City](#), Hong Kong

Universal Time Bank Exchange is an existing implementation of an analogue, paper-based community currency system where community members self-organise local economies of microservices using time as the unit of exchange. In Hong Kong, Time Banks allow local neighbourhood community members to self-organise local economies of microservices through the exchange of one's time-and-services for another's time-and-services through the equivalency of time units instead of a cash price as a means to mitigate negative impacts brought on by market failure, gaps in government services, or facing crisis. Although hundreds of thousands of people use the system, it faces challenges of scalability, accountability, efficiency and government regulation. The CIC system is being considered as a means of addressing those challenges by providing a financially accessible digital platform that 1) allows for inter-community exchange, 2) removes the need for paper ledgers and the inefficient accountability measures therewith, 3) provides a flexible and

customisable governance system to communities and grassroots initiatives, and 4) can institutionalise a universal time bank exchange in Hong Kong by developing a universal protocol of exchange that allows for scalability of the model in tandem with the communities' own governance types and models.

There is room for research in developing diverse automated governance mechanisms in each time bank community in order to meet the specific needs of each community currency group. Technology provides an opportunity area for that diversity of protocols, and for the space it will provide in allowing communities to learn from each other by using the same technology/platform.

Rebecca Mgamelo - \$OAK (an existing community currency in Oakland, USA)

“We are currently piloting a fully web3.0 city in Oakland and integrating many dimensions of currency design and on-chain governance of local funds, that CICs could form part of. For the first time, groups have the technology to scale what complementary currency practitioners have been crafting for decades: a more inclusive, regenerative and decentralized approach to local economics. However, there is a wide gap in the literature covering blockchain-based complementary currency systems. This nascent field is yet to be tested or evaluated at the scale of entire cities or regions. Furthermore, liquidity and "macro-tokenomic" factors must be scrutinized. The increased opportunity presents a heightened risk, and practitioners will face challenging yet interesting design choices on the technical, political, and cultural aspects of bootstrapping a crypto-based complementary currency.”

Cecilie Smith-Christensen - World Heritage Catalysis, UNESCO World Heritage sites

“World Heritage Catalysis is an emerging commons-oriented community of practice applying new and innovative tools and technologies (VMAST and WHETS) in visitor management for heritage protection and community resilience. There is an opportunity for systems and mechanisms able to address consistent challenges facing World Heritage sites where CICs are considered specifically promising in the need to enhance economic resilience.. Incubated through World Heritage Catalysis and complementing the UNESCO World Heritage Visitor Management Assessment & Strategy Tool (VMAST) the World Heritage Exchange Trade System (WHETS) is an opportunity to consider CICs, as adapted use cases or a protocol for new interventions, to extend the objectives set out through VMAST concerning heritage protection, environmental, social and economic sustainability.”

Heath Arensen - Digital Public Goods, United Nations Foundation

The Digital Impact Alliance at the United Nations Foundation seeks to accelerate digital transformation in pursuit of the sustainable development goals. The support of open source digital solutions, Digital Public Goods (DPGs), are a key focus. There is the potential for CICs, and the underlying technology used to manage them, to become Digital Public Goods. Further, there is a potential role for CICs in facilitating transactional activities within the maintainer community of DPGs. A key challenge in maintaining DPGs is in coordinating, tracking, validating, and rewarding micro-activities performed by individuals distributed geographically and organizationally. A world with more assets effectively governed in the commons is a world with more shared value. CICs are an essential instrument in achieving this vision, and are actively evaluating the feasibility of using CICs to maintain Digital Public Goods.

Tomaž Fleischman - Informal Systems

In the area of liquidity injection through obligation networks, Tomaž Fleischman from Informal Systems is looking into various distribution policies. The first results promise significant benefits for the community with access to a small liquidity source in the range of 1% of total debt in the obligation network. Even with such small amounts they can implement policies that clear all debt for in some cases over 80% of participants in a currency system .

“The liquidity injection instrument can be further integrated into a funds disbursement scheme to better manage financial flows in larger projects, ensuring that all project participants have equal access to funds no matter where in the sub-contracting hierarchy they reside. In combination with tax, this instrument enables better use of scarce public funds. If the same unit of account is shared among several local currencies or the exchange rate can be easily determined, the multilateral obligation set-off can be used to discharge obligations in a single unified obligation network. This lifts the utility of all currencies involved. We see this as an opportunity for broader use of vouchers backed by producer credit.”

- Enhanced tax compliance monitoring capabilities.
- Reduced mutual indebtedness incentivises the taxpayers and dilutes their credit risk.
- Saved liquidity stands as an indispensable tool to intervene and save the economy from a late payment crunch. Especially in times of economic crisis, natural disasters and public health emergencies like the current Coronavirus.

Legal Integration

Due to digital currencies being a relatively nascent field, in most cases CICs as credit obligations fall under contract law and are generally outside of the legal or regulatory frameworks that govern currency or economics. Through submissions from participants, as well as engagement with a Kenya law firm, African Law Partners, we have compiled suggestions for legal integration of CICs, as well as how the existing system of CICs integrates into the current legal/regulatory framework in Kenya.

From our research, the following themes were prevalent in relation to legal integration:

- Risk of governmental push-back against CICs as they don't fall within existing regulation
- Effort is needed in the implementation of CICs to engage regulatory bodies so that they are familiar with the systems, and how they relate to existing regulation

We have compiled comments from existing/potential use cases, as well as feedback from individuals speaking to regulation/legality. Below are some of these comments:

Shaila Agha - Grassroots Economics Foundation

“From research conducted in Kenya, the CMA Fintech team mentioned that the CBK Governor Dr. Njoroge has cautioned all lending institutions to be wary of any blockchain related currency. CMA confirmed that under Grassroot Economics' current operations, CICs are not in violation of any regulation that is under their mandate to administer. This connects to other comments, in that for future plans calling for public investment, there will need to be robust compliance documentation, regulatory frameworks and licensing surrounding CICs.

With regards to integration with the county governments, there are several stakeholders that have to be engaged before any intervention. These include the department of Social Services, Department of Agriculture, Gender, Youth, Finance (or other relevant parties) where the Chief officer would be engaged by formal introduction through a letter from the organisation. A proposal from the community, including registered civil society groups like CBOs, would help push the case forward for any ad hoc policies to be presented as a motion in Parliament. It is crucial to have consensus from a large party of stakeholders, interested parties, industry leaders, experts and academics in the field to aid in the governmental integration of such interventions. ”

Evarist Kameja

“Given their innovative nature, there are limited case studies on the use of CICs in sub-Saharan Africa with respect to legal integration. However, recent enactments of laws such as the Electronic Transaction Act, E-government Act, and Data Protection Act in several jurisdictions champion the implementation of CICs. For example, the Electronic Transaction Act includes provisions related to cryptography, electronic signature, data messages, computer systems, electronic contracts, recognition and admission of electronic evidence in court. Moreover, with clear data protection laws in place, the exposure of risk related to data infringement etc will be limited.

There is however an inherent risk that with the unclear, and in some cases outdated, regulations in sub-Saharan Africa, CICs might not be regulated/licenced under the laws. This may, as in the case of virtual currencies, lead to the Regulator using their wide-reaching regulatory purview, offered by the broad way the laws are drafted, to ban the use of CICs, especially if seen as means of replacing instead of complementing traditional currency.

Lastly, due to most Sub-Saharan countries adapting policies towards gaining more financial independence by increasing internal revenue collection, countries would likely take an apprehensive approach towards CICs if they are not taxable. Therefore, considerable effort must be made in ensuring that the relevant tax revenue authorities are enlightened on the potential of CICs increasing the tax base which inevitably increases revenue collection.

The tax treatment of the CICs in LEDCs should be explored further and researched. Furthermore, engagement with government technocrats is crucial in garnering support for the use of CICs in the region. This has proven to yield success in the case of virtual currency, especially when governments have been assured that stringent measures are in place (e.g., KYC) to curb money laundering and that there will be no adverse effect on revenue collection.”

Christopher Gee - Universal Time Bank Exchange, Shanzhai City, Hong Kong

Many time bank programs require exchange solutions between community currencies and fiat money, in this case compliance with the Hong Kong Monetary Authority in order to allow for state-wide exchange. Through CICs, they would like to explore ways of resolving that, including partnership with licensed financial institutes, such as banks, virtual banks, lending companies and voucher management companies, researching alternative financial legal framework and partnering with other government cash and voucher aid (CVA) programs.

CICs could also help overcome a potential blindspot with timebanks of undermining minimum wages. Integrating CICs as a fluctuating reserve may be a way to decentralise a form of defining a dynamic minimum wage line responsive to real-world changes in the supply of local labour markets with the demand of last-mile economies and microservices.

Chris Cook - Institute for Strategy, Resilience & Security, University College London

“Two key innovations in the legal design of the fully mutual institutions as agreements and mutual instruments enable this new system to be implemented in parallel to the existing market paradigm:

1. Nondominium – quadripartite mutual agreement between;

- a. Value Exchangers – with joint rights of oversight over
- b. Steward – active managing partner; all subject to
- c. Custodian – passive rights of final veto

2. Mutual Instruments

- a. Swaps – value flow and surplus sharing “Capital Partnership” agreements
- b. Credit Obligations are “people-based” upon goods & services supplied by people “commons-based” upon flows of value from the use of productive assets

The key innovation of Nondominium as a risk, cost and production sharing agreement is that no single stakeholder can impose upon or dominate any other. It will be seen that this enables the conflict of interest in tripartite agreements between value exchangers and trusted third parties/fiduciaries to be transcended.

“Swaps” are essentially “smart” contracts between people, rather than machines. Credit Obligations, on the other hand, are not anonymous credit objects transactable between real and legal persons but are rather accepted IOUs which are assignable unilaterally by acceptors and which are subject either to a people-based chain settlement A>B>C>D>A or settlement with asset-based commons credits.

With regard to a shared ledger, the “clearing union” agreement provides that once IOUs are registered they bind the parties under the agreement and since registration of encrypted messages is simultaneous in unique time order there can be no “double spend”. Such asynchronous databases. ”

Africa Law Partners

CICs implemented through Sarafu Network have existing contracts between parties and an emerging regulatory framework that is used for current implementations. We sought comment from Africa Law Partners on the existing contracts around voucher creation, entry into Grassroots Economics Commons, and relationships between members/service providers within that commons. We have included their key comments below:

“In Kenya, there are no specific laws that regulate alternative currencies including community inclusion currencies. The Capital Markets Authority of Kenya (the CMA) was seen to exercise its relatively wide regulatory mandate in *Wiseman Talent Ventures vs Capital Markets Authority*, Civil Suit No. 8 of 2019, where the court takes a conservative view with respect to the regulatory oversight of the CMA with respect to cryptocurrencies. The court stated, among other things, that the absence of a specific legal regime for cryptocurrencies, does not ouster the jurisdiction of the general regime of law as exemplified by the provisions of the Capital Markets Act.

For the provisions of the voucher declaration form to be enforceable in a court in Kenya then the voucher declaration form must be in writing as provided in Section 3(2) of the Law of Contract Act (Cap. 23 of the Laws of Kenya) as it relates to credit obligations between the parties. We note that the primary form of dispute resolution under the contractual arrangement between you and the relevant members is mediation. The subject matter of the contract is vouchers in exchange for goods and services as a form of barter is legal business under Kenyan law. Section 21 of the Central Bank of Kenya Act, Cap 491, Laws of Kenya (the CBK Act) provides that all monetary obligations or transactions entered into or made in Kenya shall be deemed to be expressed and recorded and shall be settled in Kenya currency unless otherwise provided for by law or agreed upon between the parties. In this regard, transactions within the community ecosystem may be settled using the vouchers where the transacting parties agree to the same.

Pursuant to the commons licence, we understand that the voucher represents a promise against a standard unit of measure for value and that the voucher may not be redeemed for national currency. On this basis, the voucher does not fit all the criteria (being an inclusive list) of e-money as defined under the NPS Regulations. For this reason, the re-assignability of the vouchers is not prohibited under any Kenyan law but is governed by the law of contract being a communal agreement.”

Humanitarian Integration

Grassroots Economics has predominantly applied Community Inclusion Currencies in collaboration with humanitarian and developmental aid organisations as a means of providing a mechanism for long-term economic and community development. Over the last 10 years there have been multiple iterations, from paper to digital. The latest iteration of CICs holds great potential in the humanitarian and developmental sector, in improving the efficiency of cash transfer programs by reducing transaction costs and reducing the amount of cash that is required to be injected, whilst providing a more long-term solution to the communities in crisis.

From our research, the following themes were prevalent in relation to humanitarian integration:

- Decentralised aid provision, moving away from the top-down aid model
- Local empowerment
- Enabling trade and exchange loops related to relevant strategic objectives
- Improving efficiencies of cash transfer programs
- Regenerative agriculture supported by local economies
- Effective feedback systems for humanitarian intervention

We have drawn out comments from a variety of contributors/collaborators on the CIC system, as well as external individuals that can speak to potential and existing implementations of CICs, and where there is room for further research.

Eduard Saunders

LGBT Community Based Organizations (CBOs) in Kenya are keen to develop their own CICs as a sustainable economic system to support long term provision of HIV and sexually transmitted infection (STI) prevention and counseling services for their members. The groups will ensure overall inclusivity with more participation by the wider community in CIC use. Work has started in coastal Kenya and will expand to Nairobi. Hugely important to let communities own their capacities.

Eve Anne Guterman

“A randomised control trial is currently being conducted by Grassroots Economics and the World Food Programme to evaluate the individual and community level impact of decentralised aid provision in rural Kenya. The savings and lending groups as part of CICs offer an excellent infrastructure for evaluating the individual and community level impact

of decentralised aid provision in rural Kenya due to their preexisting hierarchies and systems of trust on which the digital tool can be mapped. Sarafu/GE model for CIC offers a unique tool for strengthening local economies, with the potential to incentivize non-market behaviour as well (training, environmental stewardship, degrowth, charity, etc.)

I believe that this model can be revolutionary, particularly in environments where communities are separated from national or international markets, geographically (deeply rural/smallholder farms), politically (refugee camps), socially, or economically (deep poverty, pockets of recession), and as such have developed their own hierarchies and dynamics to sustain their own communities. Furthermore, these communities are empowered by access to and ownership of their own transaction data as an economic identity verified on chain. These models allow individuals and communities to empower themselves on their own terms and according to their own consumption and production habits and realities, rather than in a top-down aid model that often doesn't fit with realities on the ground, and the benefits of which cease as soon as the aid money ceases to flow.”

Cecilie Smith-Christensen - [World Heritage Catalysis. UNESCO World Heritage sites](#)

“Many communities hosting UNESCO World Heritage are directly or indirectly challenged by emerging or full fledged humanitarian crises. The war in Ukraine is only a recent example where the heritage community is at loss of means of interventions that can support heritage protection, mutual aid, and recovery. CICs, enabling trade and exchange loops upon the available resources, should be considered as a mechanism for building back better and where existing use cases could be adapted for relevant application among World Heritage stakeholders in the broadest sense.”

Adam Bornstein - [Danish Red Cross](#)

“A vast majority of the programs implemented by the Red Cross are disaster and conflict response. Although these responses are effective, there is less focus on the development of robust resilient systems and infrastructure that buffer socioeconomic, environmental, and health shocks. Community Inclusion Currencies (CICs), either blended with other solutions or independently, is one of the better researched innovative solutions that encompasses several of the disruptive characteristics needed to proactively address the humanitarian paradox. For CIC's to be effective, community members need an equitable way to acquire CIC tokens that is additive to the underlying value of the tokens. Our experience has cemented the notion that: communities value CICs if the effort exerted to produce the tokens matches the value represented by the token. In other words, if

something is perceived as a handout, it will be valued as such; but if reasonable work and effort are required to forge a reward, then the equivalent amount of energy is captured, and thus valued. Often institutional stakeholders from large organisations like the Red Cross, or development banks like IFC, throttle down funding to vulnerable communities because their systems present themselves underdeveloped, however it is because of this bias and negative perception that these systems never get the opportunity to develop/grow. As long as decisions linked to the allocation of capital and flow of funds to LDCs are controlled by large institutions rather than beneficiary communities, there will always be mismatch between the desire by communities to realise their potential and the capacity within global organisations to fully support this ambition. This is where CICs dramatically flip the script – a paradigm change. CICs invites communities to take back control of their socio-economic relationships by disintermediating large institutions and seeding pathways to greater community resilience and agency.

There are two examples that the Red Cross is working on that introduces pathways for large institutions to mobilise funding for CICs.

1. **Malawi Debt Swap**

Phase one is a generic debt swap between a donor government (name withheld until public announcement) and the Malawi government. A debt swap is the transfer of liabilities from one party to another. In the case of the Malawi Debt Swap, a donor government lent money to Malawi and has agreed to forgive a portion of its debt. In this case, we are looking at US\$5 million, a relatively small amount of capital. In exchange for the donor government forgiving Malawi's US\$5 million, the government of Malawi must channel an equivalent amount in local currency to the Red Cross for livelihood and health related interventions in vulnerable communities over the next two years, where CICs can play a part.

2. **Mangrove Trust Fund**

The Red Cross is developing a blended financing facility that will cover multiple ecosystem-based adaptation nature-based solutions, such as mangrove forests, that protect communities from natural disasters, whilst at the same time contributing to the restoration of valuable and vulnerable ecosystems. This Facility enables capital markets to contribute to climate adaptation efforts, by setting up a value proposition that serves both the humanitarian sector and commercial investors.

By structuring commercially viable financial vehicles that embrace global capital

markets, humanitarian organisations, like the Red Cross, can change their funding paradigm from one focused on grant funding to one focused on blended finance. For example, the first project sponsored by this Facility – the Philippines Mangrove Trust Fund – is estimated to generate the equivalent of up to US\$ 16.5 million in carbon credits per 500 hectares of mangroves planted. Semi-annually, proceeds from the Mangrove Trust Fund are distributed in equal amounts to the following two sub-accounts: (1) technical assistance for mangrove reforestation, and (2) premium payments for the trust fund. The first is a technical assistance bucket that is drawn down by the local communities to maintain and replant mangroves while equally strengthening community resilience. Like income-generating activities in the CIC program, funding directly from this technical assistance pool is used to maintain and purchase seedlings from local mangrove nurseries, sustain families for long intermittent periods as mangroves mature with liquidity and credit to purchase local goods, and potentially seed a mangrove Ecosystem-based Adaptation (EbA) CIC program.

Indeed, these EbA interventions embedded in the community, ensure stronger ownership, hence better chances of the intervention’s endurance, and have a clear economic rationale: with established community-based mangrove nurseries, costs for seedlings purchased may be reduced by 40-50%, while survival rates significantly increase. To this end, this Red Cross mangrove program is a strong candidate for CIC adoption.”

Mustard Seed Trust, Kenya

“In our work to support a care economy, we would like to see a CIC project that brings together a universal basic income, or an alternative currency, linked to regenerative agriculture and/or caring for fellow humans. There are risks in the time it takes to onboard people to use the CICs, the trust needed in order for the system to work, and a potential risk in the dependence on farming as a means of income/trade considering the weather risks related to farming. We would like to see CICs implement a care economy focus into their projects as well.”

Impact Analysis

As noted by James Paxton Stodder, the empirical finding is that CC activity is counter-cyclical, and thus helps to blunt the force of recessions and even, from the Swiss WIR data, to shorten them. CICs hold great potential in developing the local economic resilience needed to buffer marginalised communities against national economic crises and volatile market systems.

From our research, the following themes were prevalent in relation to impact analysis integration

- Blockchain providing the potential for impact reports using NFTs
- Addressing the SDG goals
- Mitigate the risk of liquidity crunches
- Developing community resilience

Furthermore, the data which is generated from these exchanges could be packaged as Impact NFTs, which could enable funding mobilisation for communities and development actors themselves - this has generated interest with various staff at WFP.

Jeff Emmett - BlockScience

“The potential opportunities for CICs to facilitate exchange in communities lacking adequate access to fiat currency is immense. The tools supplied by Grassroots Economics empower chamas (risk-pooling groups) and on-the-ground communities with the collective ability to spend and earn their community currency within local market economies, reducing reliance on inadequate fiat currencies and resulting in more savings for all involved. These tools have the potential to address many of the SDG goals around poverty, hunger, health, education, equality, and much more. Use cases for complementary currency tools abound wherever there is insufficient supply of fiat currencies, for example in peer to peer market exchange in rural villages.”

Michael Zargham - BlockScience

“Community Inclusion Currencies as designed, developed and deployed by Grassroots Economics provide targeted intervention to a critical system issue. CICs provide an opportunity to mitigate the harm of liquidity crunches on communities that do not directly provide goods or services to nation-states or corporations, but that has the capacity to provide goods and services to match supply and demand in their own area.

The customizability to the context of CICs exists in contrast to the one-size-fits-all policy of national currency that these communities are underserved by and fragile to the effects of when unstable.

Caution that there may be a dependent relationship however between the maintenance of CICs within communities being reliant on the national currency not serving that population. On the one hand, it is extremely valuable to deploy Community Inclusion Currencies in any region where a portion of the population is experiencing regular liquidity crunches. On the other hand, it takes effort to maintain a Community Inclusion Currency program, so one can expect these programs to persist only as long as their communities remain underserved by their national currencies. CICs can help make liquid markets that support infrastructure investments.”

Thomas H. Greco, Jr.

Community currencies and mutual credit clearing exchanges are key elements in the emergence of a new economic paradigm. This is largely the result of increasing disillusionment with conventional money and banking systems, the emergence of Bitcoin and other non-governmental, non-bank currencies, and the growing interest in decentralised, peer-to-peer approaches in all realms of human activity. The latest wave of exchange alternatives has seen the emergence over the past few decades of scores of commercial trade or “barter” exchanges, and hundreds, if not thousands of local currencies. Private currencies that are SPENT into circulation by trusted producers, and mutual credit clearing exchanges, have a much greater potential for promoting local community prosperity, resilience, and self-determination because they allow a community to monetize the local value created and sold by local businesses and professionals. That allows a community to greatly reduce its dependence upon official money and bank borrowing, and automatically favours local production and local sourcing (import substitution).

Guanghong Xu

“Businesses or associations of members can raise capital to expand their businesses by issuing bonds recorded on the digital tokens, villagers can then bid for the bonds based on their knowledge of the creditworthiness of borrowers, which is often unobserved from outside lenders. With asymmetric information, and high monitoring cost, it's common knowledge that rural households, especially rural women, have a hard time getting access to credit, even though they have access, they are borrowing with an extremely high-interest

rate. Based on the village network, there is less asymmetric information between borrowers and lenders, and lower monitoring costs and contract enforcement cost, so more rural women can in principle borrow money with a low-interest rate, which happens already as oral debts. The oral debts might work between two people or three people, but it's hard to expand to a larger group of people without trustable records keeping. With the blockchain-based digital tokens to keep records, this can be achieved. The immutable ledgers increase the trust of record-keeping and allow for greater credit availability for rural women. As with any existing credit products, there is the risk of default - but there is the potential for mechanisms around the use of goods and services as collateral within communities to mitigate for that risk. This implementation of technology provides a shared risk and rewards to the communities engaging with it.”

Other - Cross-Cutting

Alison Malisa - [Peace Profits](#)

“What is currently taught in economics is in dire need of re-direction away from assumptions and fallacies that uphold, perpetuate, or simply do not address antisocial self-interest, economic inequality, political enmity, and environmental collapse. Since discovering Grassroots Economics in 2017, the model has been a central focus of what I teach in high school economics. How can we foster the development of prosociality in the economics classroom and beyond with an evidence-based, relationship-centred, and design-thinking approach that draws upon the transformative potential of Community Inclusion Currencies? To accompany and further the breadth and depth of growing evidence about the efficacy of CICs, Peace Profits proposes to collaborate with Grassroots Economics Foundation in the co-design of economics education materials, evaluate pilot studies, and help build awareness and capacity for communities to create their own CICs.”

Pierre Champsavoir - [COREUM SAS / \[happy smala\]\(#\)](#)

“PROBLEM: Many development projects, addressing entrepreneurship and/or TVET, are developing principles of Training of Trainers to secure local long term impact of their programmes. However, they face a sustainability challenge as the individuals that are selected and trained to be trainers have little to no curriculum history, and if so, with poor reliability. It is hard for implementers of such projects to identify reliable trainers to invest in, and deploy their programme with the right people. It is even harder to follow-up after the programme ended.

SOLUTION: CIC could be used to redeem local trainers, in addition to the potential revenue they could get when deploying the programme. Then, these CIC could be proposed to beneficiaries willing to benefit from the training from a local trainer, who would be rewarded by beneficiaries for the reality and quality of his actions. Trainers could therefore use these CIC to get additional training from development programmes, or access services agreed with local partners (public or private). The digitalization of the CIC would bring a very interesting vision on how ToT programmes are deployed and sustained in time, as well as working as a "performance scoring" for the recruitment of local trainers, and how to improve support of these trainers with additional services made available through the CIC.

CASE STUDY: Africa 21 Daloa's pilot project for the University of Green Profession (Ivory Coast), Africa 21 Errachidia's project for the University of Green Profession (Morocco),

Entrepreneurship programme of the Regional Center for Investment of Béni Mellal - Khénifra area (Morocco), all these projects under construction are leveraging ToT to support the development of local expertises in sustainable business sectors, mobilising qualitative international knowledge providers from time to time in order to grow local opportunities. The CIC would help both for governance, incentivization, monitoring and sustainability of these projects.”

CONCLUSION

Based on the above results several common themes arise, notably:

Government Integration: Several experts call for local or national governments to create CICs redeemable as payment for various government services such as electrical power delivery. Examples of government-issued vouchers redeemable as payment for government services are both contemporary in the case of tax credits in Italy and general government bonds as well as historic municipalities like Worgl in Austria and Curitiba in Brazil. Integration of taxation built into such credit systems could provide a way for repayment of infrastructure loans when coupled with open markets and would foster greater tax transparency and compliance.

Technical Integration: Providing liquidity between CICs by connecting them to exchanges and specifically decentralised exchanges via methods like liquidity pool has been a common theme. In addition, utilising the data available via CIC transactions combined with endorsements and other data sources has been mentioned as adjacency value. Working on internet based solutions to bypass the cost of Telecom USSD access is recommended as is finding telecom partners to zero-rate or highly subsidise such services. General purpose software applications that enable the creation, trade and marketing of credit obligations could be considered a Digital Public Good under the UN and receive open source repository maintenance support. As a form of investment CICs represent a way to divest from pure national currencies and fossil-fuel based economies into networks of commons based credit obligations. Finally, on the technical side several contributors noted the need for zero-knowledge-proofs as a way to secure sensitive information while still providing a provable and immutable ledger system.

Legal Integration: Provision should be made to prevent CICs being securitised and becoming speculative assets, thereby hijacking their original medium of exchange purpose. Formal legal opinions as well as views from experts, formulating CICs under contract law has been a good choice as it transcends jurisdiction and means that CICs – rather than being seen as mere tokens – are representations of a legal contract. Specifically, working with various government ministries and regulatory sandboxes has been recommended. In a world full of credit instruments being used as currencies - how does one trust their redemption policies? While focusing on regulation and contract law may suffice from a governmental perspective, an emphasis on accreditation of CICs is extremely important.

Impact Analysis / Studies: Several experts have suggested various potential implementations, from Digital Public Goods, Time Banks in Hong Kong, Mangrove forests to natural and cultural World Heritage sites and refugee camps. Methods to study these pilots via randomised control trials and academic oversight have been offered, specifically to the point of government integration, targeting pilots together with government ministries. Specifically using energy provision as a unit of account was suggested by contributors as a strong basis for a credit obligation that could become a widely used medium of exchange.

Cross cutting areas: Monetary design structured around credit obligations and clear legal contracts has been presented by many experts as the solution for the failing fiat or fiat backed financial systems. Rather than currencies being issued against treasury bonds, letting credit instruments be issued against specific services, like energy provision as well as community services, provides a basis for sound money. Markets that connect what could be millions of credit instruments together and organically chosen network currencies are seen as the next phase in financial evolution. Building toward this future also requires a major focus on education. Several contributors pointed out the need for curriculum enhancements at all levels.

Overall the contributors are pushing for more legal rigour, technical integrations, educational programs, additional pilots and studies with government involvement and are overwhelmingly positive toward the potential efficacy of CICs. Potential next steps in moving forward with the findings would include further research into some of the particular opportunity areas in order to develop a blueprint for a pilot to test some of the suggested integrations.

ANNEXURE OF RESPONSES

Agha, Shaila - Grassroots Economics Foundation

For engagement with county governments, Shaila interviewed a project officer who worked with WFP in the implementation of entrepreneurial and capacity building of farmers in Kenya. The process of engaging county level government begins with empirical research evidence and case studies being presented to stakeholders. This can be done all together during an introductory workshop. The relevant stakeholders include but aren't limited to the department of Social Services, Department of Agriculture, Gender, Youth, Finance etc alongside county leaders including area chiefs and elders. However, this is preceded by an official letter directed to the Chief officers of the relevant departments, the DCI office and the Chief.

Additionally, she added that projects with the support of registered civil society groups like CBOs and self help groups would help amplify any Ad Hoc policies needed for their implementation. Sending out official letters to local members of parliament with the support of the aforementioned groups and signatures (1000+) from local communities would substantiate the movement and qualify it as a motion to be proposed in Parliament. It is crucial to have consensus from a large party of industry leaders, experts and academics in the field to aid in the governmental integration of such interventions.

She also interviewed a Finance Officer working at IFAD who works directly with Ministers of Finance and Agriculture. Their procedure requires RFPs that are sent out to individual country's relevant ministries. These requests for proposals alongside their relevant risk assessments are analysed on a case by case basis. A well done risk assessment can be used to mitigate potential pitfalls and anticipate challenges beforehand. These are a requirement for each project. When a proposal addresses impact, scalability and has a full understanding of the risks involved and how to mitigate them, IFAD holds an open dialogue where negotiations on terms and repayments are conducted.

Several regulators in Kenya were also engaged, these include the Capital Markets Authority, the Kenya Bankers Association, Kenya Revenue Authority and the Central Bank of Kenya. Seeing as this intervention falls under a grey area, meaning its regulation is under development, many of these institutions weren't able to give their official opinion on the matters of Community Inclusion Currency. However, when speaking to the Capital Markets Authority (CMA) Sandbox Fintech team mentioned that the CBK Governor Dr. Njoroge has

cautioned all lending institutions to be wary of any blockchain related currency. Furthermore, the CMA has a regulatory sandbox which GE should apply to immediately. This will grant GE access to conversations with regulators and an opportunity to test out complex interventions that don't have regulation set up yet. There are several crypto exchanges existing in this environment and the network of FinTech and Financial Inclusion organisations operating here could be extremely beneficial. CMA confirmed that under our current operations, CICs are not in violation of any existing regulation that is under their mandate to administer. Our future plans to involve public calls for investment may need compliance documentation and licensing.

A conversation with Hesborne, who is involved with the lobby group formed by the Kenya Bankers Association, was insightful as to the integration of CICs into the banking sector. Kenya Bankers Association (KBA) is the financial sector's leading advocacy group and the umbrella body of the institutions licensed and regulated by the Central Bank of Kenya (CBK) with a current membership of 47 financial institutions. This institution is first in line to begin discussions about integration with the banking sector. KBA has a mandate to continuously reinforce a reputable and professional banking sector in a bid to best support Kenyans. It is in their best interest to increase Financial access and ensure equal access to banking services and instruments. Although this may seem counterintuitive to the CIC model of localised fundraising and credit creation, the limitations of the CIC financial capacities can be overcome with the integration of access to Microloans and other community financial services provided by the banking sector.

Although the KBA constitution forbids them to give any kind of endorsement, they suggested we do an official introduction letter to extend partnership that is aligned towards financial inclusion and access of transaction information to their institutions. The sovereign transaction data can be used as a Credit Report for unbanked individuals. Having an active partnership with the KBA would be essential. The integration with the banking sector can also open up conversations of the savings groups using their transaction data and trust mechanisms to guarantee microloans. Financial instruments such as microcredit programs can be designed with CIC data used as prudent KYC data.

Although *chamas* or savings groups are unregulated by SASRA, CBK or CMA, they are regulated under the Co-operative Societies Act. When a *chamas* accounts and memberships exceed a certain threshold, they then become Registered Savings and Credit Cooperatives (SACCOs). With every 1 out of 3 Kenyans being a member of these informal savings groups, and over 300,000 in existence with approximately \$4bn in assets, this

group has been under the careful scrutiny of regulators. Most financial institutions would wholeheartedly tap into this market if given the opportunity, and many have, creating bespoke financial services for chamas. As GE works closely with chamas, it is evident that the data generated by them has clear market value. Other service providers include Eccoba, Aturi and Chamasoft, that provide digital ledgers and accounting software for transparency, accountability and effective record keeping. Representatives from SASRA and CBK would welcome the opportunity to introduce CICs to them officially and discuss further integration.

Anonymous - Humanitarian 1

The existing use case which Grassroots Economics is testing in Kitui East, Kenya with Red Cross and WFP has promising potential to increase resiliency (economic) within closed loop communities to facilitate exchange of critical goods and services, which enables food security. The potential use case of financial inclusion which GE's CIC program may enable, in which communities or individuals may obtain credit scoring, financial products and/or hold crypto assets also demonstrates potential. Lastly, the backend infrastructure in which CICs are exchanged has the potential to improve the efficiency of cash transfer programs by reducing transaction costs and reducing the amount of cash that is required to be injected. Furthermore, the data which is generated from these exchanges could be packaged as Impact NFTs, which could enable funding mobilization for communities and development actors themselves-this has generated interest with various staff at WFP. Looking forward to seeing the results of the primary use case which is being tested in Kitui, as well as GE's expansion into additional use cases mentioned above. I would advise GE to assess the feasibility of each use case and develop a funding strategy to build its staffing and operational capacity to sequentially roll out its expansion into these new areas of work.

Anonymous - Humanitarian 2

We have so far worked on Cash Voucher, and Livelihoods, it'll be interesting to see if Health sector can integrate CIC for accessing medical services. Additionally, the challenge still lies on self-sustainability post project implementation. How does one utilise many vouchers on their phone, how does a service provider with multiple products manage to receive and use SRF? More research is needed in integrating private sector into this solution, and possibly doing a reward system to employees in SRF and empowering them with an option to sustain their expenses with the boosted support. Can CIC voucher be created by a health clinic? to be used within the health clinic?

Arensen, Heath - [Digital Impact Alliance](#), UN Foundation

The Digital Impact Alliance at the United Nations Foundation seeks to accelerate digital transformation in pursuit of the sustainable development goals. The support of open source digital solutions, Digital Public Goods (DPGs), are a key focus. We believe that CIC's, and the underlying technology to manage them, could become Digital Public Goods. Further, we see a role for CICs in facilitating transactional activities within the maintainer community of DPGs. A key challenge in maintaining DPGs is in coordinating, tracking, validating, and rewarding micro-activities performed by individuals distributed geographically and organizationally. We are actively evaluating the feasibility of using CICs to maintain Digital Public Goods. As part of a wider evaluation of the role of Web3 in international development, CICs seems to allay many concerns with interfacing with cryptocurrencies on the public blockchain. The concept of impact certificates is also intriguing. The challenge to maintain DPGs is related to the challenges to maintain the commons. We believe that focusing first on the digital commons, which is easier than physical assets, will open up learnings to extend lessons to how we collectively manage the commons. A world with more assets effectively governed in the commons is a world with more shared value. CICs are an essential instrument in achieving this vision.

Bornstein, Adam - [Danish Red Cross](#)

A vast majority of the programs implemented by the Red Cross are disaster and conflict response. Indeed, these interventions tend to be very specific in nature – geographically, demographically, and legally – which is reflected in the response modality and funding streams. In this context, the Red Cross is very good at what it does, for example providing food and shelter Ukrainian refugees.

To organize teams of volunteers, staff from various organizations, supply chain personnel, government officials all the while ensuring clear communication is appropriately shared, requires a command-and-control culture. However, apply these same techniques to less response-oriented interventions – those that are protracted and systemic in nature – it becomes significantly more difficult for the Red Cross to significantly improve conditions in vulnerable communities.

To wit, this sense that the Red Cross is always in country yet seldom associated with developing robust resilient systems and infrastructure that buffer socioeconomic, environmental, and health shocks this is known as the humanitarian paradox.

Maintaining its regular disaster response cadence will not solve this paradox, only disrupting the natural order by leveraging advanced technologies, structured finance, nature-based solutions, and human centric design. Community Inclusion Currencies (CICs), either blended with other solutions or independently, is one of the better researched innovative solutions that encompasses several of the disruptive characteristic needed to proactively address the humanitarian paradox.

For three years, the Red Cross has been working with Grassroots Economics to extend the CIC program in Kenya, and now in Cameroon. Progress has been made on multiple fronts ranging from the technology to governance to community engagement. Where the CIC platform is today compared to just twenty-four months ago is a cosmic leap. However, what has remained constant, and ultimately the deciding nuance that determines a CIC program's success or failure is a single, very basic principle: For CIC's to be effective, community members need an equitable way to acquire CIC tokens that is additive to the underlying value of the tokens.

Our experience has cemented the notion that: communities value CICs if the effort exerted to produce the tokens matches the value represented by the token. In other words, if something is perceived as a handout, it will be valued as such; but if reasonable work and effort are required to forge a reward, then the equivalent amount of energy is captured, and thus valued. '

Understanding this nuance is critical to the success of the CIC program, particularly in the context of rolling out and scaling up large government backed and humanitarian driven interventions. Perhaps counter intuitive to general opinion but fragile and vulnerable communities can absorb tremendous amounts of capital. Often institutional stakeholders from large organizations like the Red Cross, or development banks like IFC, throttle down funding to vulnerable communities because their systems present themselves underdeveloped, however it is because of this bias and negative perception that these systems never get the opportunity to develop/grow.

As long as decisions linked to the allocation of capital and flow of funds to LDCs are controlled by large institutions rather than beneficiary communities, there will always be mismatch between the desire by communities to realize their potential and the capacity within global organizations to fully support this ambition.

This is where CICs dramatically flip the script – a paradigm change. CICs invites communities to take back control of their socio-economic relationships by disintermediating large institutions and seeding pathways to greater community resilience and agency.

There are two examples that the Red Cross is working on that introduces pathways for large institutions to mobilize funding for CICs.

#1 Malawi Debt Swap

There are two phases of this program.

Phase One is a generic debt swap between a donor government (name withheld until public announcement) and the Malawi government.

A debt swap is the transfer of liabilities from one party to another. In the case of the Malawi debt Swap, a donor government lent money to Malawi and has agreed to forgive a portion of its debt. In this case, we are looking at US\$5 million, a relatively small amount of capital. In exchange for the donor government forgiving Malawi's US\$5 million, the government of Malawi must channel an equivalent amount in local currency to the Red Cross for livelihood and health related interventions in vulnerable communities over the next two years.

The benefit for Malawi is that the debt converts from foreign denominated to local denominated, which means the government can take fiscal approach to repayment (i.e., release money from an existing budget) or take a monetary approach to repayment (i.e., print money). Our preferred source of funding is fiscal because it creates a budget line over multiple years, which can be extend through political and civil society advocacy. However, regardless of the source, the local proceeds released are channeled into income generating actives, health systems strengthening, and seeding a trust fund.

If this sounds familiar, it should be since one of the funding modalities for the CIC program is for a donor government or organization to inject a lump sum amount of capital into a community for income generating activities. In exchange for these proceeds, the community mints a number of tokens of equal value, and distributed them to the donor. As goods and services are produced from the donor's initial investment, the donor airdrops tokens into the mobile wallets of the community members equivalent the value of goods produced. This provides an initial 2x multiplier effect on donor funding while ensuring value – intrinsic and extrinsic – is balanced.

Phase Two, is channeling additional funding to the trust fund established to hold a portion of the proceeds released from the debt swap. A trust fund is a pool of funds (or liquidity pools not dissimilar to DEX) set aside for a particular purpose with specific rules about how the proceeds can be used. Trust funds pool resources from one or more sources of funding. For example, domestic taxes, donor funds, carbon credits, insurance payouts, and private sector contributions can be combined within a legal structure that specifies how the capital of the fund is used over time. A trust fund has a funding base, statutes, and articles of incorporation that specify the purpose, beneficiaries, and governance processes. In the case of the Malawi Debt Swap the purpose will focus on distributing the trust's capital to finance programs that strengthen Malawi's infrastructure, both grey (i.e., embankments, wastewater) and green (i.e., Ecosystem based Adaptation, Nature Based).

Below is an actual example of how a trust fund can be used to loop various funding streams together that pool sufficient funds to continuously support CIC programs.

#2 Mangrove Trust Fund

The Red Cross is developing a blended financing facility that will cover multiple ecosystem-based adaptation nature-based solutions, such as mangrove forests, that protect communities from natural disasters, whilst at the same time contributing to the restoration of valuable and vulnerable ecosystems. This Facility enables capital markets to contribute to climate adaptation efforts, by setting up a value proposition that serves both the humanitarian sector and commercial investors.

By structuring commercially viable financial vehicles that embrace global capital markets, humanitarian organizations, like the Red Cross, can change their funding paradigm from one focused on grant funding to one focused on blended finance. For example, the first project sponsored by this Facility – the Philippines Mangrove Trust Fund – is estimated to generate the equivalent of up to US\$ 16.5 million in carbon credits per 500 hectares of mangroves planted.

Semi-annually, proceeds from the Mangrove Trust Fund are distributed in equal amounts to the following two sub-accounts: (1) technical assistance for mangrove reforestation, and (2) premium payments for trust fund.

The first is a technical assistance bucket that is drawn down by the local communities maintaining and replanting mangroves while equally strengthening community resilience. Like income generating activities in the CIC program, funding directly from this technical assistance pool are used to maintain and purchase seedlings from local mangrove nurseries, sustain families for long intermittent periods as mangroves mature with liquidity and credit to purchase local goods, and potentially seed a mangrove Ecosystem based Adaptation (EbA) CIC program.

Indeed, these EbA interventions embedded in the community, ensure a stronger ownership, hence better chances of the intervention's endurance, and has a clear economic rationale: with established community-based mangrove nurseries, costs for seedling purchased may be reduced by 40-50%, while survival rates significantly increase. To this end, this Red Cross mangrove program is a strong candidate for CIC adoption.

The second sub-account pays the insurance premium for the tropical cyclone (or cat bond). Proceeds from the cat bond only transfer to the ground in the event that a qualifying cyclone triggers the Tropical Cyclone catastrophe bond. The insurance wrapper provides a cover that ensures community and donor investment in reforestation and watershed management are protected from loss resulting from a nature disaster. This is particularly important in the carbon credit accreditation process around the concept of permanence.

Ensuring continuous capital flow is critical to this intervention. Therefore, the Facility is designed to leverage three different funding loops, that together allow the Facility to achieve some level of self-funding stability.

Each loop is diversified and independent of the other, which provides for some redundancy in the event one loop fails to produce its expected results.

- Loop One: Carbon Credits. Funding from the trust funds is used to plant mangroves in vulnerable communities. Mangroves store more carbon per unit area than any other ecosystem on Earth, and thus we anticipate to sell carbon credits from the sequestered carbon to corporate investors over a 5 to 15 years period. As we scale up the platform to include other countries and ecosystems (e.g., watershed, coral, etc), the portfolio of carbon credits will expand and benefit from economies of scale. These credits can be tokenized to backstop various CIC programs in the communities participating in the reforestation and restoration of mangrove forests.

- Loop Two: Cat Bond. If the cat bond is triggered, funding from the cat bond will flow back into the trust fund. A portion of these funds will go to the communities to support disaster relief, while another portion will remain in the trust fund to support future mangrove projects and pay for cat bond premiums. The proceeds flowing directly to communities will be used both to replace mangroves damaged by the cyclone and storm surge and seed livelihood activities (e.g., income generating activities). As noted above, this mirrors the CIC programs operating in Kenya and Cameroon; these similarities are intentional.

- Loop Three: Capital Markets. The trust fund pools capital from multiple resources, such as donors, the sale of carbon credits, or even a triggering of the cat bond. These funds are invested in capital markets (or other ILS products) and earn an investment return. The income from these investments is ploughed back into the trust fund to be used to service the planting of mangrove and pay for the cat bond's premiums. If we take this a step further, capital markets can be replaced with liquidity pools, such as DEX, and other DiFi products.

Champsavoir, Pierre - [COREUM SAS](#) / [happy smala](#)

CIC as a unit of involvement and monitoring of ToT programs

PROBLEM:

Many development projects, addressing entrepreneurship and/or TVET, are developing principles of Training of Trainers to secure local long term impact of their programmes. However, they face a sustainability challenge as the individuals that are selected and trained to be trainers have little to no curriculum history, and so with poor reliability. Therefore it is hard for implementers of such projects to identify reliable trainers to invest in, and deploy their programme with the right people. It is even harder to follow-up after the programme ended.

SOLUTION:

CIC could be used to redeem local trainers, in addition to the potential revenue they could get when deploying the programme. Then, these CIC could be proposed to beneficiaries willing to benefit of the training from a local trainer, which would be rewarded by beneficiaries for the reality and quality of his actions. Trainers could therefore use these CIC to get additional training from development programmes, or access services agreed with local partners (public or private). The digitalization of the CIC would bring a very interesting vision on how ToT programmes are deployed and sustained in time, as well as

working as a "performance scoring" for the recruitment of local trainers, and how to improve support of these trainers with additional services made available through the CIC.

CASE STUDY:

Africa 21 Daloa's pilot project for the University of Green Profession (Ivory Coast), Africa 21 Errachidia's project for the University of Green Profession (Morocco), Entrepreneurship programme of the Regional Center for Investment (CRI) of Béni Mellal - Khénifra area (Morocco), all these projects are leveraging ToT to support the development of local expertises in sustainable business sectors, mobilising qualitative and costly international knowledge providers from time to time in order to grow local opportunities. The CIC would help both for governance, incentivization of trained local trainers, and of course monitoring and sustainability of these projects.

Cook, Chris - Senior Research Fellow, Institute for Strategy, Resilience & Security, University College London

1/ Government – Institutions and Instruments

(a) Public Corporates

For the purposes of this response a modern nation state government is a public corporate body with a permanent independent legal existence with absolute property rights – “ownership” – over a defined territory inhabited by a subject population.

Property in natural commons such as land, resources and knowledge is not an object or thing: it is the relationship between people and commons through which privileged rights and obligations of use, fruits of use (eg rent/tithe); management, and exclusive possession are shared.

Governments became accustomed to grant – in exchange for a consideration of state money or money’s worth – absolute, permanent “equity” ownership rights (“in rem”) such as freehold land, and also assignable personal (“in personam”) finite/dated ownership rights such as leases.

(b) Private Corporates

Early Companies were unincorporated associations of entrepreneurs with a common purpose and the earliest example of a Company as a private collective corporate body was probably the 11th C UK City Corporation. Such incorporation by Royal Charter evolved into incorporation by Act of Parliament and then into simple registration under Company legislation.

There are now many different types of private Companies and incorporated bodies, most conferring limited liability to members and many with ownership split into “joint stock” share capital with a par value eg £1.00 or \$1.00.

(c) Trusts

Trusts are a creation of UK Common Law and provide for a Trustee (trusted third party) to own property and act as a fiduciary on behalf of a disempowered beneficiary.

(d) Governance

Public/State and Private/non-State corporate bodies have constitutions specifying the rights and obligations as between a collective membership and those who act as fiduciary agents on their behalf to oversee and manage assets and activities.

There is a fundamental and intractable conflict of interest between the interests of the collective and those who act on their behalf – the ‘Principal/Agent Problem’. Only mutual risk, cost and production sharing agreements such as partnerships transcend this problem.

(e) Debt & Derivative Obligations

Debt and derivative obligations are claims by counterparties over fruits of use, or claims over the value of goods and services. Debt obligations are repayable in government money/state credit upon demand or at an agreed date. Derivative instruments are claims over money’s worth of goods and services deliverable at a specific date or on demand. Debt is typically secured by claims over productive assets eg mortgages, while derivatives require collateral, typically money or liquid financial assets.

(f) Credit Obligations

Generally

Credit obligations are issued and accepted in exchange for pre-payment in money or in kind and accepted in payment for future goods and services. Undated credit obligations (“stock”) are redeemable in payment at any time: dated credit obligations are redeemable at a predetermined date and typically issued at a discount, which gives rise to a profit (absolute return) and a rate of return over time. A brief history of government “stock” funding instruments and their misleading “National Debt” description is published here - [Myth of Debt](#).

Bank Credit

A relatively small amount of credit in circulation today is created and issued by central banks on behalf of Treasuries, whereas the vast majority is created by private banks when either spending or lending. Bank credit issuance is subject to capital constraints set by the Bank of International Settlements in Basel, and it is generally not restricted by official reserve requirements although for prudential reasons banks will keep on hand sufficient liquidity to meet payments and cash demands from depositors.

Other Credit

There is also a vast, but relatively invisible amount of personal and commercial “trade” credit – ie “time to pay or reciprocate” – and more or less informal personal and other credit and it is in this informal space, which pre-dates banking systems by millennia that Community Inclusion Currencies are to be found.

(g) Tokens

A token is essentially a record or proof of past value received such as a “Memorandum” tally stick, as distinct from an accepted promise of future value (a Loan Tally). While tokens may have subjective exchange value as an asset, without objective utility can only become currency if acceptance is imposed by law (“fiat”).

(h) Taxation and Public Credit

Modern Money

‘Modern Money’ – also “fiat” money - is to all intents and purposes a credit obligation issued by a Central Bank as agent for a State Treasury and redeemable in payment of tax obligations.

Modern Money is denominated in a “Unit of Account” represented by a fiat symbol eg \$ or € which is a conceptual standard unit of measure for value in the same way a metre is standard unit of measure for length, and a Joule for energy. So the \$ unit of account is distinct from the US Dollar credit obligations and “Dollar’s Worth” of goods and services which are exchanged by reference to it.

Currency

Currency may be defined as a generally acceptable credit obligation and Modern Money’s general acceptability derives from its acceptance by the State in payment for tax obligations. Another way of seeing Modern Money is as an undated pre-payment for State corporate goods and services.

In my analysis, the basis of a generally acceptable credit obligation is objectively valuable utility or use value over time eg land, resource/energy, knowledge/IP use. The only “hard” objective cost over time is energy (Joule) cost.

But the Exchange Value of a transaction, on the other hand, is based on a subjective value judgement of the relative value of the goods and credit obligations being instantaneously

exchanged: metrics include need, desire, scarcity, status, sentimental and higher forms of value. These value judgements are made by reference to the chosen Unit of Account and any underlying standard unit it represents eg a unit of gold, wheat, or even salt.

Community Inclusion Currencies and Government

Community Inclusion Currencies are affected by two key government sensitivities: firstly there is invariably a prohibition on any non-bank credit issuer redeeming credit for fiat currency in the absence of 100% reserves. Secondly, income or gains denominated in the fiat unit of account are subject to taxation.

Community Institutions

(a) Community Societies

The institutional basis of a 21st C resilient community will be the Community Society. This institution is not a collective organisation with an independent (corporate) legal existence but rather a mutual agreement between self-sovereign individual members of communities of place and/or communities of interest constituted as an unincorporated association.

The Community Society constitution specifies Aims/Purpose, Organising Principles, Powers, Membership and Governance and serves as a framework for delivery of community services from housing, through energy in all its forms to services such as health, education, social care and thence to public goods such as culture, creativity and arts.

Organising Principles - Resilience

We have identified three organising resilience principles necessary for a sustainable community:

- Resource Resilience – minimising finite resource use for any given delivery of services;
- Social Resilience – maximising well-being and amenity;
- Financial Resilience – equitable mutually shared risk, cost, production, access and surplus;

These themes map loosely to the Environment, Social and Governance (ESG) goals and more accurately to the Permaculture principles of: Care for Planet; Care for People & Fair Shares.

Organising Principles - Governance

The first organising principle of governance a Community Society is Cooperation, through the adoption of ICA Cooperative principles. A Community Society will be in effect a cooperative of stakeholder cooperatives as follows:

The Community Society agreement has User, Investor, Steward and Custodian stakeholder member classes:

- User – swaps income or production in exchange for use of services;
- Investor – swaps money or in kind (goods and services) for prepaid rent or production
- Steward – service provider swaps development/management services for income or production under joint User/Investor oversight
- Custodian – guardian of commons with supreme veto rights over changes to the agreement in relation to the aims, objectives and principles

The second organising principle of Governance is Non-Dominance, whereby no stakeholder may have dominant rights over another.

Community Instruments

Guarantee Society - Mutual Risk Sharing

These mutual agreements between members share risk, such as performance/credit risk (“clearing union”), pension longevity risk (tontines), health/accident (mutual assurance) and a contemporary example is the global platform for mutual assurance of certain shipping risks by Protection & Indemnity (P&I) Clubs managed for 1580 years by a platform service provider.

Pools/Rings - Mutual Cost Sharing

These mutual agreements provide for shared use of productive assets and technologies and shared operating costs. By way of example Scottish and UK farmer machinery rings share machinery use, pool contractor, fuel, fertiliser, and seed purchasing and share the cost of a secretariat/service provider. The outcome is competition on quality of produce and cooperation on costs.

Capital Partnership – Development Risk/Reward Sharing

Partnership enterprise agreements share development risk and absolute returns simply and effectively between investors of currency, technology use and personal goods and

services with rate of return depending on the time to project completion and refinancing by long term funding.

Credit Obligation/Voucher

A credit obligation (CO) is a promise issued in exchange for value received. It is an issuer's IOU and an acceptor's UOI or invoice. It is a right 'in personam' between two named persons and may be assignable by an acceptor to another acceptor in exchange for value.

A CO holder has no right to demand payment in fiat money, so it is not a debt instrument. There is no right to demand delivery of goods and services, so a CO is not a derivative (forward/futures) instrument. The CO confers no right of ownership such as a rent or dividend, so it is not an equity instrument. Finally, it is not purely an authenticated receipt or proof of value received or expended without any additional obligation & is not a Fintech Token or Coin instrument eg Bitcoin.

Credit and Commons

Sharing access to and the fruits of use of Commons is an ancient custom. Islam still provides for access to pasture, fire and water as Commons, and a tithe on the fruits of land use has a long history. Similarly, from Churchill back via JS Mill and Adam Smith to Tom Paine, the classic liberal position was that those who have privileged exclusive rights to Commons such as land should share the fruits of use with those they exclude.

Commons Credits

To the Commons of Land/Location and the Resources embedded in and passing through locations may be added the "Creative Commons" of knowledge, know-how and know who with which unqualified labour (manpower) may be qualified and which may be appropriated as Intellectual Property.

The community instruments outlined above enable innovative financing and funding of sustainable development of land and the built environment using combinations of capital partnerships to develop new flows of use-value, which may be monetised/packetised through the issuance of credit obligations which may be shared through community dividends.

Such credits may be registered as mutually binding in a shared ledger or "Exchequer" enabling transparency of issuance, while the quality of the credit in terms of capacity to

generate use value is the subject of a “Mint” service provider/stewardship role combined with dispute resolution, communications and other services.

Credit Commons

In addition to credits returnable in payment for the use of Commons, there is mutual P2P credit-as-commons which is based upon the capacity of people individually or collectively to provide valuable goods and services. Such credit obligations may be issued subject to a Clearing Union agreement providing for mutual acceptance, clearing and settlement, and such assignable credit obligations may be settled by generating chains $A>B>C>D>A$, by exchange for fiat currency or for Commons Credits as currency.

Energy First

Integration of Government and Community Inclusion Currencies may commence by introduction of simple but radical combinations of “smart swaps” of technology use for fossil fuel savings. These are not new, being pioneered by James Watt in 1778 when he supplied the use of his innovative steam engine in exchange for a third of the coal saved by tin mine owners – pumping as a service. A similar services approach enables new energy value flows to be funded by energy returns to investors. This is achievable via the supply of natural power, thermal and bio technologies in exchange for the value of fossil fuel savings and the reduced CO2 emissions which naturally follow.

The combination of such “smart swaps”/capital partnerships and Energy Credit Obligations gives rise to free flows of the intrinsic value of energy generated from free renewable energy and savings.

By mapping use via the creation of a shared energy ledger, mapping local natural resources and identifying optimal interventions by service provider and capital partners the transition to a sustainable economy through smart provision of energy services is made possible. Finally, the use of an energy Unit of Account (eg the Joule equivalent of 1 MMBtu thermal energy or of 10 kWh of electrical energy (energy accounting) instead of a fiat unit enables the organising principle of resource resilience to be applied using these Community Energy institutions and instruments.

Finally, on the basis of new Community Energy Treasury & Mint institutions and shared Energy Exchequer ledgers, other services such as health and education may then be swapped for flows of energy, land/buildings use, IP/tech services such as communications and of course for the mutual credit of local people.

Proposed Projects

Pilot village scale projects for accelerated transition to energy independence/resilience via “Energy Fintech” monetisation of energy savings using Energy Credit Obligations and mutual legal designs independent of jurisdiction.

Chris Cook - continued.

Use Value, Trust and Community Inclusion Currencies

Communities and Mutuality

A community is defined associatively by a shared/common link or bond. Communities of place are defined by a common location eg a national population or residents association; other communities share a common interest (society or club); a common purpose (company); common knowledge (college) and so on.

Such communities are inclusive to the extent that they are open to everyone who shares the common link or bond. The mutual agreement which defines the community is a consensual or associative agreement which is both open and closed open to those who choose to participate, but excluding those who do not.

Under French jurisprudence such associative agreements, where no person has dominant rights over another, are referred to as “contrats de société”. Such agreements may be distinguished from the “contrats de mandat” imposed by statute or by judges and which enforce absolute, exclusive Anglo “Rule of Law” rights of ownership and privileged use.

Such mutual agreements need not be subject to any jurisdiction although human (self-sovereign real person) or corporate (collective “legal person”) subscribers to mutual agreements are always physically (de facto) or legally (de jure) subject to one jurisdiction or another.

Currency

A currency may be defined as a “generally acceptable credit obligation”, where a credit obligation is a promise which has been accepted in exchange for value (to create an IOU) and which is returnable to the promissor in exchange for value at a future time. Such acceptance requires trust in the promissor’s capacity and willingness to reciprocate, and where such a trusted relationship is absent a credit object is required which is trusted either due to intrinsic use value, or to a trusted issuer such as a government or bank.

Credit and Exchange Value

Community Inclusion Currencies are centred on people and the essential goods (typically food & drink) and personal services they supply individually or collectively as public, private or third sector corporate legal persons.

So goods and services are typically exchanged for currency by reference to a national standard unit of measure for value ("unit of account") represented by a symbol eg \$ or € which represents a national or supranational credit obligation.

The centrality of food and drink to inter-personal credit is well illustrated by the US financial innovation of "Diners Club" where associations of restaurants and hotels began to extend time to pay (\$ credit) to diners for settlement at the end of the month. In due course banks became involved who provided liquidity enabling diners to repay balances over time which in due course led to the Visa and Mastercard systems.

Credit and Use Value

By far the majority of modern "fiat" money in existence was created by banks as interest-bearing \$, € etc credit obligations when making loans secured against land and other productive commons held in private ownership. Such credit obligations are based upon the use-value of land/location, energy (in material and dynamic forms) and intellectual property with a value in use.

It is self-evident that a credit obligation returnable in payment for the use of land throughout a location represents a currency which is local by definition. Similarly, an energy credit obligation returnable in payment for the use of thermal (heat/cooling) , power/mobility and other forms of energy use may be generally acceptable in exchange when subject to a "clearing union" agreement of mutual acceptance and accounting, and so on for other forms of use value such as mobile telephony where there already exists a global clearing and accounting system,

Use Value and Exchange Value

There is a pervasive myth that a currency must be scarce in order to be valuable in exchange. But there is then a monetary paradox that to the extent a currency is scarce it is not liquid, and to the extent it is liquid it is not scarce. This monetary paradox is resolved by the insight that the general acceptance in exchange which defines a currency derives from objective use value over time (utility) of flows of use value against which credit obligation instruments may be returned in payment.

Through the use of protocols “packetising” flows of objective/quantifiable use value, credit obligations may be created, assigned, accepted in payment and cancelled. The exchange value of such credit obligations is then the result of a subjective value judgement between counterparties by reference to subject/qualitative metrics such as desire, scarcity, amenity, status and so on.

Unit of Account

The difference between a unit of currency (credit obligation) and a unit of account is not widely understood. The unit of account is the standard unit of measure for value exchange. Where flows of objective use-value are exchanged (“swaps”) and an objective (Joule) unit of account is necessary, in an amount which is relevant to everyday experience. So in the same way that carpets are measured in metres, not light-years or Angstrom units, so it is that energy flows (eg heat & power use) may be measured in the Joule equivalent of MMBtu of thermal energy or kWh of electrical energy.

These objective units of account are quantifiable using positive rational or irrational numbers. The unit of account to be applied to subjective monetary exchanges of value may be represented by positive imaginary units. The reason for mentioning this is that to do so may guide correct logical operations by computer processors at the most granular level.

Legal Design

Two key innovations in the legal design of the fully mutual institutions as agreements and mutual instruments enable this new system to be implemented in parallel to the existing market paradigm:

Nondominium – quadripartite mutual agreement between;

- c. Value Exchangers – with joint rights of oversight over
- d. Steward – active managing partner; all subject to
- e. Custodian – passive rights of final veto

Mutual Instruments

- f. Swaps – value flow and surplus sharing “Capital Partnership” agreements
- g. Credit Obligations “people-based” upon goods & services supplied by people
“commons-based” upon flows of value from the use of productive assets

The key innovation of Nondominium as a risk, cost and production sharing agreement is that no single stakeholder can impose upon or dominate any other. It will be seen that this

enables the conflict of interest in tripartite agreements between value exchangers and trusted third parties/fiduciaries to be transcended.

“Swaps” are essentially “smart” contracts between people, rather than machines. Credit Obligations, on the other hand are not anonymous credit objects transactable between real and legal persons but are rather accepted IOUs which are assignable unilaterally by acceptors and which are subject either to people-based chain settlement A>B>C>D>A or settlement with asset-based commons credits.

Shared Ledger

The “clearing union” agreement provides that once IOUs are registered they bind the parties under the agreement and since registration of encrypted messages is simultaneous in unique time order there can be no “double spend”. Such as asynchronous databases.

Emmett, Jeff - [BlockScience Inc](#)

The potential opportunities for CICs to facilitate exchange in communities lacking adequate access to fiat currency is immense. The tools supplied by Grassroots Economics empower chamas and on-the-ground communities with the collective ability to spend and earn their community currency within local market economies, reducing reliance on inadequate fiat currencies and resulting in more savings for all involved. These tools have the potential to address many of the SDG goals around poverty, hunger, health, education, equality, and much more. Use cases for complementary currency tools abound wherever there is insufficient supply of fiat currencies, for example in peer to peer market exchange in rural villages, and it is fantastic to see Grassroots Economics expanding their programs to more underserved communities in new countries. Challenges faced by such programs may include scaling program operations, education of participants and facilitators, and maintenance of growing infrastructural needs. We are highly supportive of further work by the expanding Grassroots Economics team, and are eager to see more positive results of on the ground impact!

Fleischman, Tomáš - [Informal systems](#)

Areas of common interest

- Demurrage
- Voucher functionalities
- Interchain accounts and potential
- Multilateral obligation set-off
- Liquidity injection

General purpose framework for integrations between government and CIC currencies

The text below serves as a reference and is inspired by the unintended consequences of a government (case in point the Italian one, i.e. California with gov. Schwarznegger did something pretty similar in the mid 2000s) promoting a much needed policy, financing it via anticipating tax income and inadvertently creating conditions to increase the usage of complementary currencies.

The idea is to develop a framework that is general purpose, meaning that the government or any other entity promoting a policy can implicitly or explicitly design any incentive program for any policy as long as it leaves room for other currencies to express their role and contribute to the general well-being. It is important to note that boundaries are clearly defined between the actors engaging with the system. It results in economic actors being exposed to more than one medium of exchange and more than one way to get rewarded or contribute to the state budget.

A government introduces tax credits among companies aimed at promoting any kind of government objective (in Italy home renovation and energy efficiency).

These tax credits come with conditions:

- a. issued for a specific purpose, in a simple way that can be digitally traced (housing improvements -> permit plan -> material bills and traceable payments)
- b. usable between companies and towards offsetting any state related obligation
- c. redemption spread over up to 10 years, selling at discount or par for any other means of exchange is possible (not explicitly acknowledged by the state)

Companies will usually accept and sometimes accumulate tax credits while reducing unpaid dues for the Government or paying for workers state insurance but will only be able to do so up to a certain point (without risking their own liquidity crisis)

Passed that point, any currency that is sufficiently available and more liquid than a tax cut 10 years down the line will be valued by companies and be used. Even competing with official money which might be scarce and therefore.

Another under-researched aspect is what role banks and other financial service providers are also playing by exchanging tax credits for Euros at a discount (companies exchanging tax credits between each other for a complementary currency at par)

Important to note this above is not 100% certain as the market which arose from the existence of tax credits is all but transparent to research and the more recent government interventions point to a clear will to keep the system from growing.

The crux seems to be if a state issued quasi-currency evolves to become heavier to use then people (in this case companies) will find ways to turn it into other maybe less official but lighter means of exchange.

Smart contract tax collection only with **democratic representation** and checks by popular **randomly** selected **citizen** assemblies (as in ancient greece)

EXAMPLE FOR SCHOOL could be a remix for Lietaer Proposal from 2006

<https://ijccr.files.wordpress.com/2012/05/ijccr-vol-10-2006-3-lietaer.pdf>

Liquidity injection

In the area of liquidity injection through obligation networks we will look into various distribution policies. First results promise significant benefits for the community with access to a small liquidity source in the range of 1% of total debt in the obligation network. Even with such small amounts we can implement policies that clear all debt for in some cases over 80% of participants.

The liquidity injection instrument can be further integrated into a funds disbursement scheme to better manage financial flows in larger projects. Ensuring that all project participants have equal access to funds no matter where in the sub-contracting hierarchy

they reside. In combination with tax, this instrument enables better use of scarce public funds.

Monetary plurality

If the same unit of account is shared among several local currencies or the exchange rate can be easily determined, the multilateral obligation set-off can be used to discharge obligations in a single unified obligation network. This lifts the utility of all currencies involved. We see this as an opportunity for broader use of vouchers backed by producer credit.

Published papers with participation of Informal team members

Original paper on Sardex

<https://ijccr.files.wordpress.com/2017/02/littera-et-al.pdf>

Sociological study on Sardex:

<http://eprints.lse.ac.uk/67135/>

Cyclic motifs

<https://www.nature.com/articles/s41562-018-0450-0>

Political theory study on Sardex (with a bit of economics too):

<https://www.tandfonline.com/doi/full/10.1080/23311886.2019.1646625>

Original paper on trade credit set-off (more empirical):

<https://www.mdpi.com/1911-8074/13/12/295>

Mathematical background paper on trade credit set-off (more in-depth)

https://mdpi-res.com/d_attachment/jrfm/jrfm-14-00452/article_deploy/jrfm-14-00452-v5.pdf

Finally, this is a macroeconomics paper on using local currencies as an alternative to QE, from a Keynesian perspective:

<https://www.mdpi.com/1911-8074/14/3/129>

EXTENDED: "The trade-credit you offer your customers - is a cash for you to pay your bills"

The basic challenge for us is to build a mutual trade-credit offsetting system that maintains the close, personal, friendly nature of local mutual credit while enabling transactions with strangers in distant places.

GOALS:

1. To provide an efficient trade-credit offsetting resolution mechanism;
2. To provide universal access at a low cost. Every validated invoice is accepted as a trade credit that can be offset;
3. To promote healthy community economies under local control. This includes a majority of businesses in a local community;
4. To build interconnected networks of social and economic solidarity. Extending the community along the supply chains in different industries.

Increased payment diversity

Most payment systems are inter-bank, so they are generally used only by banks and large multinationals. Some are specialized for payment cards. Due to their considerable size, complexity, and standard (rigid) interfaces, it is typically difficult for users to migrate between them and for small companies to access them. There are costs and technological barriers to overcome. One of the potential benefits of a CBDC is that it can seamlessly integrate these systems, giving more access to smaller players. The motivation is that payment systems benefit from network effects, so the greater the integration the greater the value to individual actors and to the economy as a whole. To achieve these effects within the present banking and payment systems context, an efficient central settlement scheme is necessary. Multilateral obligation set-off can facilitate payments across different fragmented closed-loop systems. In addition, it is uniquely suited to integrating local complementary currencies with the clearing of fiat obligations (in CBDC or otherwise).

Financial inclusion

Very often SMEs have no access to the banking system for financing. They have to rely on trade credit to finance their operations and growth. Multilateral obligation set-off acts as a bridge between bank payment systems and the trade credit market. Liquidity-saving properties of Multilateral obligation set-off enable SMEs to improve their credit score and gain access to bank finance.

Supporting public privacy

Currently, it is hard to find a centralized record of holdings and transactions. A rare example is tax authorities collecting transaction-level data for tax compliance checks. CBDC would represent another example of such centralized record systems. The issue with this is that the public gets no benefits. Centralized holdings and transaction data can be used to operate Multilateral obligation set-off for the benefit of users. It can utilize public transaction data anonymously to preserve the privacy of payment systems' users.

Facilitating fiscal transfers

Central holdings and transaction records combined with tax payments and fiscal transfers could facilitate a fast and efficient transmission of funds in a crisis. Multilateral obligation set-off at present can claim an established record for counter-cyclical effects. Integrating Tax payments and fiscal transfers would enable the government to efficiently use the available liquidity in the budget. Significant liquidity savings realized with Multilateral obligation set-off would enable a broader reach for all fiscal interventions in times of crisis.

Financial stability

SMEs rely mainly on trade credit for their financing needs, but the trade-credit market has no payment gridlock resolution mechanism. The introduction of a CBDC to provide liquidity to resolve such payment gridlocks opens the possibility for payment default spillovers from the trade credit market. To minimize this threat an efficient payment gridlock resolution system such as Multilateral obligation set-off is needed. With its risk mitigation role, it does not disintermediate banks. On the contrary, it enables them to serve more firms with reduced risk profiles. Multilateral obligation set-off can be integrated with non-performing loans recovery processes to assist banks to transfer their exposures to firms with a better credit rating.

Protecting monetary sovereignty

When the public starts to adopt a foreign currency to support their economic activities, monetary sovereignty is in imminent danger. This can be prevented by offering local alternatives. Multilateral obligation set-off typically increases the usefulness of local complementary currencies. This can be improved further. By integrating various complementary currencies with tax payments, fiscal transfers and CBDC we establish a diverse flexible monetary system. Such a system will actively protect monetary sovereignty.

THE TAX AUTHORITIES: Promoting the evolution, social acceptance and institutional strengthening of tax administrations with multilateral obligation set-off

Overview:

Recent worldwide developments in e-invoicing and open banking present new opportunities to strengthen the compliance monitoring capabilities of tax administrations. The growing trend towards e-administration with an increasing number of online options to collect tax data enables a systemic approach for compliance and monitoring. Tax administrations collect supplementary information on taxpayers' economic activities. This is then used to enhance monitoring capabilities on one side and to assist taxpayers, especially SMEs to save liquidity. Multilateral obligation set-off is a part of such a systemic approach. It is an extensive collection of knowledge, legal practice, accounting methods and tools to tax compliance and reduce mutual indebtedness in the economy through non-monetary intervention. Significant improvement of taxpayers' liquidity and credit rating acts as an incentive to participate in an improved tax reporting system. Besides increased tax revenues the economy benefits from saved liquidity in ranges from 1% to 2% of GDP, even above 5% of GDP in extreme circumstances of distress on the economy. Such a systemic approach is trending also in payment systems as the Bank for International Settlements (BIS) in their latest position papers recommends the transition towards solutions that enhance trust in systems and reduce the number of intermediaries between trading partners. This is exactly what the integration of e-invoicing, e-administration and Multilateral obligation set-off delivers.

Key takeaways:

- Enhanced tax compliance monitoring capabilities.
- Reduced mutual indebtedness incentivises the taxpayers and dilutes their credit risk.
- Saved liquidity stands as an indispensable tool to intervene and save the economy from a late payment crunch. Especially in times of economic crisis, natural disasters and public health emergencies like the current Coronavirus.

Empowering tax administrations with Multilateral obligation set-off

Excessive delays in payment transactions generally have an adverse effect on the cash flow of the enterprises. This forces small firms to seek extensions of their overdraft facility and increase their borrowing. Late payment of a commercial obligation can play a significant role in the survival of the enterprises as their liquidity can be severely affected, even forcing some of them to exit the market.

As a consequence of the third Basel agreement, access to credit by SMEs has become extremely difficult. The stricter constraints made banks more stable but consequently brought severe restrictions on SMEs access to credit. This, in turn, limited the ability of the financial sector to serve the needs of significant parts of the economy, adding to the late payment crunch.

In Europe, the introduction of the Payment Services Directive (PSD2) has presented an opportunity to use Multilateral obligation set-off as a Liquidity Saving Mechanism (LSM) for all enterprises. It can be integrated into the services of banks, Payment Services Providers and complementary currency operators. Multilateral obligation set-off enables them to save liquidity for their customers and therefore aids them to improve their financial position. It delivers a financial tool currently employed exclusively by payment systems and multinationals to all enterprises.

Due to advanced e-invoicing and e-administration in the south, central American countries also possess the potential to rapidly adopt the Multilateral obligation set-off as a liquidity saving mechanism. The need for such integration of tax and payment is indeed greater than in Europe since the access to liquidity, especially for SMEs is even more restricted.

The emergence of Fintech, Regtech, e-invoicing and real-time VAT reporting means that vast amounts of data on business transactions and obligations are now collected. This creates new opportunities for debt resolution. It also offers new opportunities for the financial sector to serve the real economy. Businesses no longer have to rely solely on the financial sector to resolve short term financing issues. Alternatively, they can address the business community and use the mutual trust expressed as trade credit they gave to their buyers to resolve the mutual indebtedness. Multilateral obligation set-off offers a solution where data from real-time VAT reporting is used to enhance compliance and incentivise taxpayers with liquidity savings.

Multilateral obligation set-off requires supplementary information from e-invoice recipients. The trade-credit information on issued invoices is confirmed by the recipients as correct. By this action, the trade credit becomes an obligation that has to be settled. Such obligations form an obligation network. The result of this process is reduced mutual indebtedness for the taxpayers and in turn for the economy.

Obligation network alone offers more opportunities to improve compliance monitoring since all information in it represents a double entry from pairs of trading taxpayers. In Slovenia, the tax administration uses information about offsetting circles to further improve their monitoring capabilities.

There are several scenarios for the integration of Multilateral obligation set-off into e-invoicing and e-administration. To improve compliance by design, it is necessary to implement e-invoicing and Multilateral obligation set-off as part of tax administration IT systems. Other options are national payments infrastructure, specialized government agencies as in the case of Slovenia or even private independent service providers. What matters is access to quality data for tax compliance and monitoring purposes.

Using Multilateral obligation set-off diminishes the need for SMEs to seek loans to finance the working capital. The financial sector still benefits from the reduced risks, stability and growth generated by substantial mutual indebtedness reduction. Financial institutions using Multilateral obligation set-off also gain an important new revenue source with obligation clearing charges.

Multilateral obligation set-off presents a unique growth opportunity. Integrating it with payment solutions leads to:

- Universal access to LSM at a reasonable cost for firms of all sizes. Every validated invoice is accepted as a trade credit that can be offset.
- Promotion of healthy community economies under local control, reducing the over-indebtedness.
- Creation of interconnected networks of social and economic solidarity. Extending the community along the supply chains in various industries.

As such, Multilateral obligation set-off promotes financial inclusion and sustainable finance. It combats late payment, enhances payment and financial systems, therefore, contributing to economic growth.

Results and the integration of Multilateral obligation set-off with tax administration in Slovenia

The Multilateral obligation set-off in Slovenia is performed once per month on a preset date. It is operated by the government agency AJPES. The agency accepts obligation information from enterprises in standardized electronic format. The received information is checked and organized in the obligation network. Then the search for all multilateral set-off circles that maximize the total set-off value is executed.

The information about successful multilateral set-off circles is sent to the Tax Administration of the Republic of Slovenia (DURS) to complement the standard tax reporting. Richer information allows for a more in-depth analysis of taxpayer behavior. As a result, Slovenia is better than average in Europe with efforts to close the VAT gap.

Enterprises receive the set-off notice containing all the accounting information as a standardized electronic message. The agency charges a percentage fee for the amount that was successfully set off.

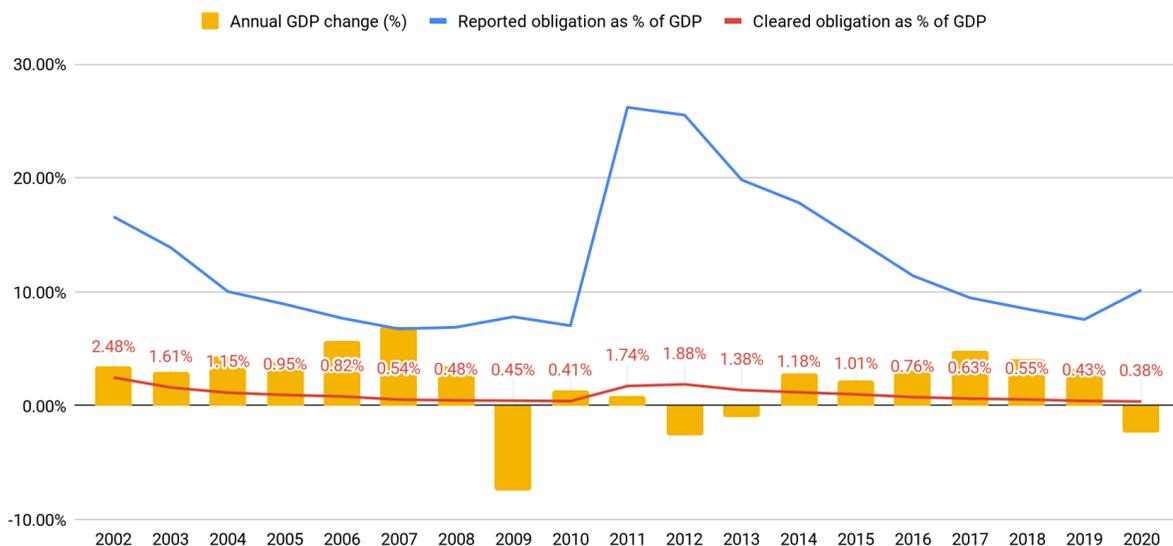


Figure 1: Reported and Cleared obligation in comparison with annual GDP change.

Sources: Statistical office of Republic of Slovenia (SURS) and AJPES

In 2012 Multilateral obligation set-off in Slovenia cleared 683 million EUR. That represents 1.89% of GDP. The red line in figure 1 represents cleared obligation and the blue line represents the amount of obligation entering the system. The yellow columns represent the annual GDP change. There was a spike in 2012 as a response to the liquidity crisis following the economic crisis and a huge drop in GDP in 2009. It is clear that the demand

for the liquidity saving capabilities of TCT increases in times of crisis and diminishes with the higher growth of GDP. Such anti-cyclical behavior acts as a relief for enterprises in times of crisis and stabilizes the financial system.

The Slovenian example also shows a correlation between the number of enterprises that use Multilateral obligation set-off, cleared obligation and average payment delay in days. As the situation in average payment days improves, the interest and need for Multilateral Set-Off declines. Average payment days in B2B transactions decreased from 62 days in 2012 down to 32 days in 2017. The usual days payable stated on invoices is 30 days.

Conclusions

From day to day money and data are ever more closely linked. This development is called, "Data-Network-Activity." In the past making purchases meant using money in exchange for a certain amount of economic value. Today it also means an electronic exchange and record of relevant data on who purchased what when where and how it was taxed. Businesses already profit from this richness of available data. Tax administrations and payment systems are still lagging behind. Access to this data allows for smarter tax compliance and risk management. The proactive approach is possible, and tax administrations can plan and intervene at earlier stages rather than after the end of the period tax returns are filed. Analysis of TCT data can provide behavioral insights to better understand how taxpayers act. All this offers an opportunity to design practical policies and interventions to improve the liquidity of the economy and increase tax revenues.

Literature:

OECD, O. for E. C.-O. and D. (2020). use-of-digital-technologies-set-to-increase-tax-compliance @ www.oecd.org. Retrieved from <https://www.oecd.org/tax/use-of-digital-technologies-set-to-increase-tax-compliance.htm>

AJPES. (2020). Poročila o rezultatih večstranskega pobota @ www.ajpes.si. Retrieved from https://www.ajpes.si/Bonitetne_storitve/Vecstranski_pobot/Porocila

SURS. (2020). BDP in nacionalni računi @ www.stat.si. Retrieved from <https://www.stat.si/StatWeb/Field/Index/1>

Wooldridge, P. (2020). BIS Quarterly Review, March 2020. (March).

OECD, O. for E. C.-O. and D. (2017). Technology Tools to Tackle Tax Evasion and Tax Fraud. Oecd. Retrieved from <http://www.oecd.org/tax/crime/technology-tools-to-tackle-tax-evasion-and-tax-fraud.htm>

(TGPG-VF), T. G. P. G. (2020). The concept of Tax Gaps Report III : MTIC Fraud Gap estimation methodologies. <https://doi.org/10.2778/418684>

EU Commission Report. (2019). Study on the evaluation of invoicing rules of Directive 2006/112/EC (Vol. 1).

Intrum Justia. (2019). European Payment Report 2019. 84. Retrieved from <https://www.intrum.lv/media/5764/intrum-epr-2019.pdf>

European Parliament. (2015). Directive 2015/2366 (Payment Service Directive 2). Official Journal of the European Union, L 337/35(260), 35–127.

Amamiya, M. (2020). Central Bank Digital Currency and the future of payment and settlement systems. BIS Central Bankers' Speeches, (February), 1–4.

<https://docs.google.com/document/d/1OM2X7FiO2L0FO7IYRGtAPik9uuA0OxBou6lqVXmhG9U/edit>

Gee, Christopher - Universal Time Bank Exchange, [Shanzhai City](#), Hong Kong

Community Inclusion Currencies (CICs) Use Case in Hong Kong

Case Study prepared by Shanzhai City (SZC) for Grassroots Economics Foundation (GE) & Agence Française de Développement (AFD)

In Hong Kong, Time Banks allow local neighborhood community members to self-organize local economies of microservices through the exchange of one's time-and-services for another's time-and-services through the equivalency of time units instead of a cash-price as a means to mitigate negative impacts brought on by market failure, gaps in government services, or facing crisis. It serves hundreds of thousands of users that use time credits as a means to fill gaps in their daily living expenses and needs, and has become a community-driven social service model adopted by several social service agencies to address various local socio-economic issues, including ageing, gender-inequality, and community support.

We are exploring the utility of CICs as a means to mitigate several of the problems that have arisen when trying to scale Time Banking as a state-wide¹ solution. These problems include:

- **Analog to digital ecosystem transformation** – the majority of time banking communities cannot afford to build their own digital system and use a single paper ledger which manages all transactions at a local community centre, requiring the presence of 3 parties for each transaction, severely limiting the efficiency of peer-to-peer transactions and effectiveness of the system to respond to crisis.
- **Fungibility of Tokens across different user groups** – there are dozens of time bank communities that use analog vouchers as paper or wooden tokens that are only fungible within their own communities, and cannot be transferred to a different locality or system; limiting access to resources and services² across Hong Kong.
- **Ideological differences across different systems' governance philosophies** – a diversity of time bank communities were spawned with different mandates

¹ Time banking in Hong Kong gained popular use in response to the 2008 Asian Financial Crisis, and then swelled to massive adoption during the recent COVID pandemic, where in both cases, government response was too slow and inefficient to deploy services, leaving marginalized communities to fend for themselves, whereas time banks were largely successful at meeting the needs of grassroots communities because they are mitigated by local community centers and NGOs. However, suddenly facing serious challenges to scale at such a rapid rate surfaced from an informal infrastructure and low support from the government.

² From 2018 to 2019, Hong Kong Council of Social Service Department of Policy Research piloted an analog universal token allowing users of 4 major time banks to exchange their remaining tokens in exchange for a universal token, which could then be used in a general marketplace for products and services. The pilot revealed that cross-community liquidity increases incentives for users to join the programs, however, due to the limitation of technology at that time, the program can only be limited in the pilot scale.

and purposes, where at a fundamental level, some require that time banks should never touch the monetary/fiat system, whereas other groups mandate that backing with cash reserves is a preferred practice; thereby creating systemwide collaboration problems of gridlock when trying to create a universal solution across the fractured and sometimes oppositional agendas

- **Regulatory restrictions in a heavily regulated environment** – being one of the financial epicenters of the world, the Hong Kong Monetary Authority has very strict regulatory conditions, which places a watchful eye on if and when the timebanks create a universal medium of exchange and if it should ever gain or have relation to a real monetary value.

Our case seeks to address the aforementioned problems using CICs in the following ways:

- **Conversion of analogy systems to easy-to-use digital ecosystems** – . A digital solution is needed for digitization of time banks at different levels of administration and utility to plug-and-play, while safeguarding data privacy of the organizations and their users.. This will require both digital and financial literacy training to foster an ethical digital ecosystem.
- **Create an exchangeable token across different networks** - In order to scale to a state-wide solution, the time banks must first resolve the cross community liquidity issue with a universally exchangeable token across different networks that can obey or abide by the different governance requirements from each network.
- **Empowering time bank communities with customizable DeFi mechanisms and governance to fit their needs** – During the COVID pandemic, time bank communities began innovating their own strategies which could benefit from programmable DeFi tools. This requires a governance system flexible enough to allow for programmable token models to reflect grassroots innovations such as creating liquidity pools of time, second-hand markets, and mechanisms for time bank users to exit their tokens for fiat cash or exchange for services outside the community.
- **Institutionalise a universal time bank exchange in Hong Kong** – To overcome both the problem of token fungibility across time bank communities and the strict regulatory environment in which to create a universal time bank exchange protocol requires close partnership with trusted financial and community institutions³ that

³ Recently, we have been working with HKCSS and 4 major time bank NGOs for a joint proposal for Hong Kong Exchange (HKEX) Foundation and the Community Chest of Hong Kong to build a time bank exchange platform. HKEX would like to provide financial and operation support for this endeavor for the next 3 years among 12 time banks from these 4 NGOs, then scale the platform to accept all digital or non-digital time bank to join the exchange platform. There will be standardized APIs, governance, and technology requirements for communities to follow. This project is under the two pillars of HKEX Foundation, which are financial literacy building and poverty alleviation.

can help vet and design a token economic model suitable to both the Hong Kong Monetary Authority as well as to the communities for which it serves. This requires a systems-design that is open enough to fit all the different models of time banks and their unique types of governance to exchange with one another.

The following areas require further research and advice

1. **Compliance with HK Monetary Authority for state-wide Exchange** – Many time bank programs require exchange solutions between community currencies and fiat money. We would like to explore through a few ways to seek for breakthroughs, including partnership with licensed financial institutes, such as banks, virtual banks, lending companies and voucher management companies, researching alternative financial legal framework and partnering with other government cash and voucher aid (CVA) programs.
2. **Can CIC help overcome the timebank/minimum-wage paradox** – we previously hosted workshops with Will Ruddick and the Hong Kong time bank projects where we explored how a potential blindspot of timebanks is the undermining of minimum wages and that by integrating CICs as a fluctuating reserve may be a way to decentralize a form of defining a dynamic minimum wage line responsive to real-world changes in the supply of local labor markets with the demand of last-mile economies and microservices.
3. **Diverse governance mechanisms in each time bank community** – there are very specific needs for each community currency group. They also require very different governance procedures and formats for decision making. We would like to research how those governances can be automated via technologies and let each of the communities to learn from one another.

Greco, Thomas H. Jr.

Too many attempts at creating CIC are based on an inadequate understanding of the essence of a currency and what a currency can and cannot do. That usually causes the currency to fail in one way or another.

I have articulated this in detail in my article:

Local Currencies—what works; what doesn't?

Community currencies, and mutual credit clearing exchanges are key elements in the emergence of a new economic paradigm. These approaches to enabling the exchange of value are not entirely new, they have a long and varied history, but their enormous potential and possibilities have become widely recognized only within the past three or four decades. This is largely the result of increasing disillusionment with conventional money and banking systems, the emergence of Bitcoin and other non-governmental, non-bank currencies, and the growing interest in decentralized, peer-to-peer approaches in all realms of human activity.

The latest wave of exchange alternatives has seen the emergence over the past few decades of scores of commercial trade or “barter” exchanges, and hundreds, if not thousands of local currencies. The scores of commercial trade exchanges that have been operating in many countries around the world for the past four or five decades enable moneyless trading among their business members, and collectively “clear” tens of billions of dollars’ worth of trades annually. Their success provides the strongest proof of the viability of decentralized, non-governmental, non-bank, moneyless exchange options.[\[1\]](#)

On the other hand, the plethora of local and community currencies that have popped-up all over the world have not been so encouraging. The avowed purpose of local currencies has generally been to keep money circulating locally instead of “leaking out” of the community. It is hoped that by keeping exchange media circulating within the local community, the vitality of the local economy will be enhanced and local businesses will be better able to compete with large global corporations and merchandising chains.

That is well and good, but it misses the main point of what ails our communities, and our world. It is the very nature of the dominant political money system that is problematic. So, localization is not the end in itself, but the necessary means to an end, which is personal re-empowerment and freedom; community resilience, sustainability, and self-determination; and the revitalization of democratic governance. Community currencies and exchange systems provide an essential tool kit for achieving those goals but they need

to be designed in such a way as to make people less dependent upon political money and banks. So long as we remain harnessed to the dominant money and banking regime, there will be little chance of significant improvement in the human condition, in fact, the trend has been exactly opposite.

The many local currency experiments that have been tried in various places around the world in recent decades have achieved some worthwhile results in terms of educating the public and planting seeds of possibility but, hardly any of them has achieved the desired results of making their communities stronger and more resilient. Why? There are many reasons, but the most important are the basis upon which the currency is issued and the way in which it is placed into circulation. These are the design elements that determine whether or not a currency will be sound, credible, effective and scalable. Every currency is a credit instrument, an obligation of the issuer, and its “basis of issue” is whatever it promises to give to the holder when the issuer accepts it back, i.e., when the issuer “redeems” it.

Up to now, virtually all of the community currencies that have been tried have followed the “convertible local currency” (CLC) model. These currencies are “cash based,” i.e., they are issued on the basis of conventional money. Typically, they are sold for official money and can then be redeemed back into official money. Currencies like the Bristol Pound and Brixton Pound in the UK, Toronto Dollars and Salt Spring Island Dollars in Canada, and Berkshares in the US are all based on this model. Each of these has garnered some community support and a great deal of attention by mainstream media, but none has been very effective in achieving the desired objectives of enhancing community resilience and local self-reliance. The support of local governments is important in gaining broad acceptance of the currency, and the administrative services provided by local banks or credit unions adds credibility and convenience, but these are not sufficient in themselves to make a currency effective and scalable.

The ineffectiveness of the above mentioned convertible local currencies (CLCs) has been generally acknowledged by their founders who have become discouraged and dissatisfied with the payoff from their efforts. Now a [recent academic study](#) of the Bristol Pound experience by Adam P. Marshall and Daniel W. O'Neill^[ii] has formalized that conclusion. The authors find that the Bristol Pound (and by extension, convertible local currencies (CLCs), in general) “is not driving localization,” and argue that “those seeking to drive localisation should engage in a more active agenda that directly challenges government policy and institutions.”

Are we to conclude, therefore, that the community currency approach to localization is a dead end? Far from it. The burning questions then are, why is the CLC model not effective, and how can a local currency be designed to achieve the desired results?

Selling a currency for cash, as CLCs do, does not create any additional liquidity (payment media) for the community, it merely exchanges official money for a voucher currency that has limited usefulness. It amounts to a prepayment for the goods and services offered by whichever local merchants agree to accept it. If you think a bit about it, it becomes evident that such currencies that are sold into circulation bear a strong resemblance to the gift certificates or gift cards that are sold by myriad retail companies all over the world—companies like Target, J. C. Penney, Marks and Spencer, T.J. Maxx, and Amazon.com, just to name a few. However in those cases, redemption back into official currency is not allowed. Those gift cards are redeemable only for the goods and services that the issuing company offers for sale. Why, then, is it considered necessary for community currencies to be redeemable back into cash? Doesn't that defeat their intended purpose of keeping money circulating locally? How many transactions will a local currency enable before a holder will cash it in?

The CLC model leaves the control of credit and the creation of exchange media in the hands of the banking establishment and leaves communities to flounder in the sea of globalized and corporatized rent-seeking and power concentration. In their weakened and subservient condition, communities are poorly situated to influence government policies or to challenge established institutions, as the authors of that study suggest. Consequently, individuals and communities must first find ways of empowering themselves. The best way of achieving that is by decentralizing and democratizing the control of credit and using it as a basis for creating independent exchange mechanisms.

The main argument that is given for making a community currency redeemable for dollars, pounds or other conventional currency, is that redeemability in cash is necessary to make the currency acceptable to the local merchants. But is it? Why do Target and other retailers' enjoy significant demand for their gift cards, even though those gift cards cannot be redeemed back into cash? The answer is that people have faith that Target is ready, willing, and able to redeem its gift card obligations for a wide range of merchandise and services that people need and want. It would be a small step for merchant gift card balances to become private currencies. It would only be necessary for the gift card issuer to provide a convenient means for gift card balances to be transferred from one account or device to another. However, since gift card credits, like CLCs, are sold for cash, they still fall short of

achieving the desired objectives of providing communities with an independent source of liquidity, even if issued by a local company instead of a national or global corporate chain.

A Better Currency Model

A currency to be sound, credible, effective and scalable does not need to be redeemable for conventional money, the issuer needs only to provide credible assurance that it can be readily redeemed for some goods or services that are in general demand. Private or community currencies that are SPENT into circulation by trusted issuers, like utility companies, goods producers, or municipal governments, have much greater potential for promoting local community prosperity, resilience, and self-determination because they allow a community to monetize the value that is created and sold by local businesses and professionals. The internal “trade credits” provided to members of mutual credit clearing associations, like the scores of commercial “barter” exchanges that operate around the world, do the same. Such home-grown sources of liquidity enable a community to greatly reduce its dependence upon official money and bank borrowing, and automatically favor local production and local sourcing of goods and services (import substitution).

Consider a local electric utility company (or water company) that provides electricity (or water) to customers throughout the local region. The company typically receives periodic payments for its services from its customers in the form of conventional money. The company also has expenses that it incurs in the process of providing its services. Money goes out and money comes in as a more or less continuous stream. Now suppose the company were to pay some of its expenses, not in conventional money, but in the form of its own currency vouchers which it promises to accept back at face value from its customers when they pay their bill. If the utility company is solvent, is there any doubt that the local merchants, and everyone else in the community, would be willing to accept significant amounts of the local currency as payment, instead of official money? If you have an electric bill (or water bill) to pay, why would you not be willing to accept electric company vouchers in payment when you sell your own services or goods? And even if you do not yourself have a utility bill to pay, so many others in the community do, so there should be no doubt that you can spend the currency onward at many other places of business.

A currency that is created locally, that must also be redeemed for local goods and services will automatically circulate locally. Here the word “create” does not mean exchanging pounds, dollars or some other official currency for a local currency, but issuing local currency on the basis of goods and services that are produced and sold within the community. This is the process called “monetization” of value. Such currencies originate

and end up in the community. Even if they should temporarily leave the community, they must ultimately return if the holder wishes to get the value that the currencies promise, which must come from the original local issuer.

Recognizing that the conventional exchange medium (money) is created by banks when they make loans, it becomes apparent that money is but a virtual representation of the value which the “borrower” has pledged in support of his “loan,” be that business assets like goods inventories, or collateral assets, like real estate.^[iii] But economic power is ultimately in the hands of producers who create real value and put it on the market, so what is there to stop producers from creating exchange media (credits and currencies) directly, without involving banks or paying interest? Call them vouchers, credits, certificates or coupons, sound private and community currencies can be SPENT (issued) into circulation by a trusted producer or reseller who is ready, willing and able to accept it back (redeem it) as payment for real value, i.e., the desired goods or services that are their normal stock in trade. This is not a complicated process. The animated video, [The Essence of Money](#),^[iv] provides a clear example of how it works.

Conclusion

Private currencies that are SPENT into circulation by trusted producers, and mutual credit clearing exchanges, have a much greater potential for promoting local community prosperity, resilience, and self-determination because they allow a community to monetize the local value created and sold by local businesses and professionals. That allows a community to greatly reduce its dependence upon official money and bank borrowing, and automatically favors local production and local sourcing (import substitution).

My Solar Dollar white paper

(<https://beyondmoney.net/2016/08/26/solar-dollars-a-private-currency-with-multiple-benefits/>) provides a concise description of how a currency based on renewable energy can be issued and circulated. Of course, the basis of issue of a currency need not be limited to solar power or other renewable energy, it could be any desired goods and services that are produced and sold locally by a trusted issuer.

—Thomas H. Greco, Jr.

^[i] See my posts on [Credit Clearing, Pure and Simple](#), and [Sardex, an emerging model for credit clearing exchanges](#).

^[ii] The Bristol Pound: A Tool for Localisation?

<http://www.sciencedirect.com/science/article/pii/S0921800917304287?showall%3Dtrue%26via%3Dihub>.

[iii] “The actual process of money creation takes place primarily in banks. As noted earlier, checkable liabilities of banks are money. These liabilities are customers’ accounts. They increase when customers deposit currency and checks and when the proceeds of loans made by the banks are credited to borrowers’ accounts. In the absence of legal reserve requirements, banks can build up deposits by increasing loans and investments so long as they keep enough currency on hand to redeem whatever amounts the holders of deposits want to convert into currency.” Modern Money Mechanics. Federal Reserve Bank of Chicago.

[iv] The Essence of Money – a Medieval Tale, <https://youtu.be/uO7uwCpcau8>.

Green, Dil - [Mutual Credit Services](#)

CICs in the context of a Funding mode matrix

There is a well known aphorism which purports to capture this idea; ‘If you give someone a fish, they eat for a day, but if you teach them to fish, they can feed themselves’.

Clearly, giving a fish is a ‘mitigation’ approach - addressing immediate hunger. Teaching someone to fish could then perhaps be described as a ‘capacity building’ approach. However, if we imagine someone who knows how to fish, but has neither fishing rod nor access to a place to fish, even capacity will not feed them - and this makes clear that there is a yet deeper mode of support - an important one, which is rarely mentioned: ‘provisioning’. This gives us three, broad modes of support to consider.

The fish example is what we might call an ‘atomic’ one - a single person or entity is being supported around a specific need. There are no implicit feedback loops in the support provided, and this suggests an assumption that in the future there will not be a stream of other people needing either fish, fishing skills training or access to fishing grounds in order to eat.

However the aid/development sector’s history and context makes it clear that this assumption is not safe.

To work adequately in the real-world situations experienced, agencies of all kinds have increasingly understood the need for ‘systemic’ modes of support - ones which incorporate positive feedback pathways which empower supported communities to develop

sustainable provisioning power and capacity development within their context - with the aim of reducing the need for mitigation.

Thus we have two ways of categorising support - by 'mode':

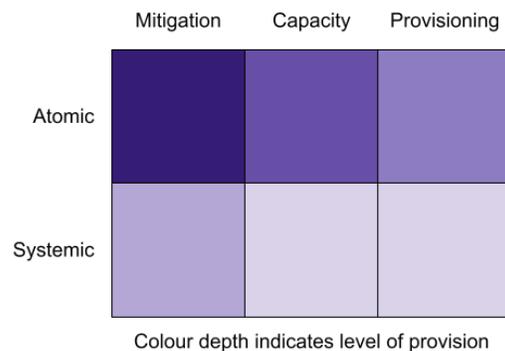
- Mitigation,
- Capacity building,
- Provisioning,

and by character:

- Atomic,
- Systemic.

There is no implied ranking (either moral or utilitarian) among these categories - all have their appropriate place and time.

However, if we use these categorisations to draw a matrix that looks at the various sub-categories suggested, and allocate a broad 'density of offer' score to each (not on the basis of any specific research, but nevertheless very recognisable), we see a pattern which suggests that some are under-represented - bluntly; under-funded - and thus under-considered.



'Atomic' approaches are most commonly seen, and, even where 'systemic' approaches are attempted, it is those focused on mitigation that are most evident (food banks connected to 'end food waste' policies, for instance).

Schemes which support disadvantaged communities to embed capacity development sustainably within their own context are rare, while those looking to empower communities to provision themselves with long-term access to infrastructure - land, buildings, tooling - are almost non-existent.

Systemic work is more complex than funding single entities with clear needs. Systemic approaches, by their nature, have to work across boundaries, engage different types of participants and approaches - serving atomic needs, say, through a systemic approach to provisioning and capacity. Impact is harder to measure, outcomes are less sure. Provisioning can also, clearly become politically sensitive.

It seems clear, though, that without successful and appropriate systemic developments, the likelihood is that the causes of 'atomic' need are likely to recur - and in all likelihood increase, since there are evident systemic developments in other aspects of society that drive increased inequality - that reduce the internal capacity development and provisioning power of already disadvantaged communities.

These infrastructures are about the fundamentals of engaging in society - which go in reverse order to the matrix above, so that we must start with the ability of a community to provision itself - on the basis of which it can provide its own context within which to support capacity development - and finally decrease the need for mitigation.

If we look at the CIC work of Grassroots Economics in the context of this matrix, we can see that, through the deep mechanism of offering to communities the training, infrastructure and operational context within which they can co-create their own means-of-exchange capacity, an approach has been developed which works in exactly that way described above - which start with 'the fundamentals of exchanging with society' - as GE put it in the Introductory document; 'a basic tool for coordinating ... resources'.

The CIC models described are clearly focused on supporting communities in a variety of specific contexts with the means to provision themselves with 'means-of-exchange' appropriate to those contexts - and further, offers ways for those contexts to be able to interconnect and 'bridge' - crucial if that endogenous capacity is to enable and increase participation on equitable terms in wider society.

Guterman, Eve Anne

I am currently working with GE on an Randomised Control Trial (RCT) with the WFP to evaluate the individual and community level impact of decentralised aid provision in rural Kenya. The savings and lending groups offer an excellent infrastructure for such a pilot

because of their preexisting hierarchies and systems of trust, on which the digital tool can be mapped. In general, the Sarafu/GE model for CIC offers a unique tool for strengthening local economies, with the potential to incentivize non market behavior as well (trainings, environmental stewardship, degrowth, charity, etc.) I believe that this model can be revolutionary, particularly in environments where communities are separated from national or international markets, geographically (deeply rural/small holder farms), politically (refugee camps), socially, or economically (deep poverty, pockets of recession), and as such have developed their own hierarchies and dynamics to sustain their own communities. These isolated environments stand to gain the most, and the most rapidly, from new digital tools to bolster and protect their own economies from capital flight, both by increasing access to basic needs and by freeing up value to savings and investment in diverse local offerings to grow local wealth. Furthermore, these communities are empowered by access to and ownership of their own transaction data as a economic identity verified on chain. These models allow individuals and communities to empower themselves on their own terms and according to their own consumption and production habits and realities, rather than in a top-down aid model that often doesn't fit with realities on the ground, and the benefits of which cease as soon as the aid money ceases to flow.

Kameja, Evarist

According to the World Bank report 2021, Sub-Saharan Africa accounts for 75% of the world's population without access to electricity. Similarly, the African continent lags with respect to access to water, medical care, education, and other basic amenities. Despite the human capital (population of 1.2 Billion) and youthful population (19 per cent of the global youth population), a key factor attributing to this is the lack of access to finance and financial inclusion.

Studies indicate that lack of credit systems, poor housing quality and lack of information concerning the use of electricity drastically impact the access to electricity in Africa. There is no gainsaying that Community Inclusion Currencies (CICs) will effectively address these challenges as with increased access to credit, poorer households will not only be able to afford to pay for electricity but will also be able to afford education and improve their housing quality, ultimately leading to increased use of electricity. In light of this, there is undoubtedly great potential for the use of CICs, which uniquely take advantage of the intersection between finance and technology, to improve the level of financial inclusion and access of electricity in rural and low-income households in sub-Saharan Africa.

Mobile money services, such as perhaps the most widely known M-Pesa, are widely considered to be a catalyst/gateway for financial inclusion among the unbanked demography. However, it is clear that CICs offering low or, in some cases, costless medium of exchange will be preferable in communities where transaction rates are a hindrance as “every penny counts.” .

Through CICs, less economically developed countries (LEDCs) can reach their development goals and reap the benefits of higher productivity, capital and labour hours which are a net result of increased access to credit and financial services for poor households and rural communities.

Existing cases and potential use cases, opportunities: Legal

Given their innovative nature, there are limited case studies on the use of CICs in sub-Saharan Africa with respect legal integration. However, recent enactments of laws such as the Electronic Transaction Act, E-government Act, and Data Protection Act in several jurisdictions champion the implementation of CICs. For example, the Electronic Transaction Act includes provisions relating cryptography, electronic signature, data messages, computer systems, electronic contracts, recognition and admission of electronic evidence in court. Moreover, with clear data protection laws in place, the exposure of risk related to data infringement etc will be limited.

Risk and challenges, solutions and suggestions

There is an inherent risk that with the unclear, and in some cases outdated, regulations in sub-Saharan Africa, CICs might not be regulated/licenced under the laws. This may, as in the case of virtual currencies, lead to the Regulator using their wide-reaching regulatory purview, offered by the broad way the laws are drafted, to ban the use of CICs, especially if seen as means of replacing instead of complementing traditional currency.

Another factor to consider is the reliance on fintech. CICs may potentially cut across several sectors such as banking, telecommunications and the internet leading to overregulation which increases the costs and burden of implementation and compliance.

The long bureaucratic process and lack of willingness to engage from the Regulator may lead to a significant time period for approval of the use of CICs. Therefore, this elevates the risk of the Regulator using draconian laws against any party that introduces CICs without its approval, despite the ambiguity in the laws.

Lastly, due to most Sub-Saharan countries adapting policies towards gaining more financial independence by increasing internal revenue collection, countries would likely take an apprehensive approach towards CICs if they are not taxable. Therefore, considerable effort

must be made in ensuring that the relevant Tax revenue authorities are enlightened on the potential of CICs increasing the tax base which inevitably increases revenue collection.

Further research needed

The tax treatment of the CICs in LEDCs should be explored further and researched. Furthermore, engagement with government technocrats is crucial in garnering support for the use of CICs in the region. This has proven to yield success in the case of virtual currency, especially when governments have been assured that stringent measures are in place (e.g., KYC) to curb money laundering and that there will be no adverse effect on revenue collection.

References:

Harnessing Tanzania's Fintech Position, PwC Financial Focus 2021 - Harnessing Tanzania's fintech potential

Malisa, Alison - [Peace Profits](#)

Since discovering Grassroots Economics in 2017, the model has been a central focus of what I teach in high school economics. What is currently taught in economics is in dire need of re-direction away from assumptions and fallacies that uphold, perpetuate, or simply do not address antisocial self-interest, economic inequality, political enmity, and environmental collapse. How can we foster the development of prosociality in the economics classroom and beyond with an evidence-based, relationship-centered, and design-thinking approach that draws upon the transformative potential of Community Inclusion Currencies? To accompany and further the breadth and depth of growing evidence about the efficacy of CICs, Peace Profits proposes to collaborate with Grassroots Economics Foundation in the co-design of economics education materials, evaluate pilot studies, and help build awareness and capacity for communities to create their own CICs.

Mqamelo, Rebecca - [\\$OAK](#)

CICs and blockchain-based complementary currencies in general offer a unique opportunity to redesign local economies from the ground up. Our communities suffer from extractive systems – predatory lending, poor resource allocation and a low velocity of money create dependence on outside philanthropy and decision making.

Here in Oakland, we're pioneering what a fully connected web3 city might look like, spanning all dimensions of currency design and on-chain governance of local funds.

For the first time, we have the technology to scale what complementary currency practitioners have been crafting for decades: a more inclusive, regenerative and decentralized approach to local economics.

However, there is wide gap in the literature covering blockchain-based complementary currency systems. This nascent field is yet to be tested or evaluated at the scale of entire cities or regions. Furthermore, liquidity and "macro-tokenomic" factors must be scrutinized. For example, can we envision a world where a community in Kenya collateralizes their complementary currency with USDC, an ERC20 stable coin based on the US dollar? Are open currency systems even viable – where, by virtue of owning a blockchain wallet address, users have access to the full spectrum of decentralized finance? How might next-generation governance models, such as quadratic voting and conviction voting, be implemented alongside complementary currencies?

These questions are just the tip of the iceberg when we consider what is possible with on-chain currency design. The increased opportunity presents heightened risk, and practitioners will face challenging yet interesting design choices on the technical, political, and cultural aspects of bootstrapping a crypto-based complementary currency.

[Mustard Seed Trust](#), Representative

1) We support work on a care economy: a CIC project which brings together a universal basic income, or an alternative currency, linked to regenerative agriculture and/or caring for fellow humans, would be the ideal project.

2) Risks: the risks are that people take time to understand the system; that weather affects the farming even with regenerative methods; you cannot dictate what people spend their CIC on of course; that there has to be trust amongst a community to trust each other and this new 'currency'.

3) Suggestions - there are many ways to instel trust: you can use an already in existence group, that know each other (chamas, for instance) or you can use a reference system: you can add a person via an already "trusted" person;

4) Further research: how is CIC enabling more care: care for the earth is more obvious but how can we enable people using CIC to have more time to care for them selves and for

each other? We can use an alternative currency such as you volunteer to help an older person, in return for either CIC or you can put those hours into a time bank and when you need help with a caring task - you can use your stored hours? Adding the human care element would be a wonderful addition to a CIC.

[Ndolo, Joshua](#)

Chamas used for lending on margin to marginalized communities. This allows for those communities to build a credit history while increasing their purchasing power.

2) The technological risks for GE, financial risks for lenders.

3) Technical integration in the form of liquidity pools for lending to marginalized communities using zero-knowledge proofs and the Ramsey rule (for different goods being bought). Lenders plug into an API to access borrowers and the liquidity pool to lend to such communities.

4) Research into API integration, financial regulator advice/feedback useful

Sanders, Eduard

LGBT Community Based Organizations (CBOs) in Kenya are keen to develop their own CICs as a sustainable economic system to support long term provision of HIV and sexually transmitted infection (STI) prevention and counseling services for their members. The groups will ensure overall inclusivity with more participation by the wider community in CIC use. Work has started in coastal Kenya and will expand to Nairobi. Hugely important to let communities own their capacities.

Short, Tom - [TSC](#)

Problem: rural communities that are off the main utility grid need electric power to charge their phones, power water pumps, and other things. Their only real source of electricity is PV panels and arrays, which are expensive to buy. Also, there's no electric grid infrastructure in these communities to distribute electricity from a central array. And finally, there's therefore no mechanism for an individual to monetize any excess power they may generate from their own installation.

Solution: Use infrastructure development funds to pay for the installation of a residential-level PV array; use CICs to facilitate local purchase by other users of excess kwh generated by the array.

Benefits: PV arrays require little maintenance, and have good reliability and longevity, making the initial investment "one and done". Having one in a local community benefits the community by providing a cheap, reliable source of power, while providing a mechanism for trade based on local CIC payments for power.

Skari, Lars-Andre - Norwegian Red Cross

Several humanitarian organizations have been involved in Grassroots Economics' great work in Africa. Among other, Norway Red Cross and Innovation Norway finances projects implemented Danish and Kenya Red Cross in cooperation with Grassroot Economics, where the goal is to provide poor and vulnerable people an opportunity to improve their lives using Community currency. Grassroots Economics is a contributor to the technology which supports this to work. The Red Cross is interested to contribute to the further develop and scale this technology so that it can be used in more local communities and countries to support people help themselves. - Community currency can be of great importance in a local community who have the resources and knowledge but lack the currency to be able to trade with each other. The goal is for local communities to get the opportunity to establish a local currency like those who live there has confidence in, and which allows one to exchange goods and services. Some have water, some have fruits and vegetables - others have books, and instead of trading one to one, one can trade with each other in a network. It helps people in poverty to take responsibility for their own lives, explains Lars Skari, who is the leader of international strategy and innovation in the Norwegian Red Cross, to Mot.

Slater, Matthew

- 1) The basic mechanism of trusted groups issuing vouchers is potentially extremely powerful and could be used to enable trade wherever legal tender money is in short supply - meaning amongst 95% of the world's population.
- 2) Introducing the tools can be very difficult because people take money for granted and need training to be able to issue it and use it responsibly. Also because regulators don't

understand it and most regulations are aimed at institutions of national and international scale. Another huge challenge is interoperability between currencies which are backed by different groups and different assets.

3) Education amongst NGOs and regulators is critical. There are different standard solutions to the interoperability problem that Ruddick knows well - from markets to mutual agreements.

Smith-Christensen, Cecilie - [World Heritage Catalysis](#)

My response is motivated from the prospect of applying CC/CIC in the context of the UNESCO World Heritage Convention (1972) (<https://whc.unesco.org/en/convention/>) and specifically integrated into communities through the management authorities (governments) responsible for protection and management of the natural and cultural heritage sites recognised as World Heritage of Outstanding Universal Value to humanity (<https://whc.unesco.org/en/list/>)

There are currently 1154 World Heritage sites (<https://whc.unesco.org/en/list/>) and 1731 sites on tentative list (<https://whc.unesco.org/en/tentativelists/>) across 179 States Parties to the Convention.

The protection of natural and cultural heritage inscribed onto the UNESCO World Heritage List is a shared responsibility, but their actual protection depends on their perceived relevance within the communities hosting these sites. Many of these communities have come to depend on visitor revenues and are specifically vulnerable to disruptions affecting the tourism sector. CC/CIC could, if appropriately designed, be integrated into these communities for economic resilience and transformation towards a more sustainable and ideally regenerative economy.

Desired CIC project/integration/research:

World Heritage Catalysis (<https://www.whcatalysis.org>) would like to collaborate with Grassroots Economic Foundation and other interested parties exploring the potential of CC/CIC for building resilience in and across communities hosting World Heritage.

World Heritage Catalysis is an emerging commons oriented community of practice applying new and innovative tools and technologies (VMAST and WHETS) in visitor management for heritage protection and community resilience.

The project would specifically focus on site management authorities applying the UNESCO World Heritage Visitor Management Assessment & Strategy Tool (VMAST) made available through the UNESCO World Heritage Sustainable Tourism Programme. VMAST include 40 management objectives of relevance to heritage protection, tourism and community resilience (<https://www.whcatalysis.org/visitor-management>) Upon the strategic objectives identified and prioritised through VMAST, the project could look at how CC/CIC could be adapted and implemented to enable trade and exchange loops in support of the relevant strategic objective(s). While VMAST is already developed, piloted and about to be launched through UNESCO, WHETS (the World Heritage Exchange Trading System) is incubated through World Heritage Catalysis. It is not yet decided whether WHETS would best serve as a supplementary protocol for CC/CIC implemented in WH and/or a system in itself.

Project outcomes could include a better understanding of:

- a) What can we learn from CC/CIC already implemented in communities hosting WH?
- b) Could the VMAST be a useful framework for identifying, adapting and integrating CC/CIC in a community hosting WH, and how?
- c) What are the additional considerations to be taken into account designing and implementing a CC in a community hosting WH/ WH destination, and how could they be formulated into a supplementary protocol (set out through WHETS)?
- d) Could a protocol for CC/CIC in WH (WHETS) present an opportunity for scaling across WH?
- f) Could the CIC/Sarafu Network protocol be applied to operationalise WHETS as a hybrid between a global time bank and local currency (<https://www.whets.club>)?

1) Existing and potential use cases

The project would look at and build upon relevant and already existing efforts by Grassroots Economics Foundation applying CIC in World Heritage destinations:

- Lamu Old Town (<https://whc.unesco.org/en/list/1055>)
- Sacred Mijikenda Kaya Forests (<https://whc.unesco.org/en/list/1231>)

2) Risk: Missed opportunity / lack of synergies

Implementation of CICs in communities hosting WH without considering how such interventions could support or impact implementation of the WHConvention would be a missed opportunity.

Challenge: The idea that CCs/CICs could be formally integrated into the Convention is for the time being unlikely and not necessarily desired vision. At the national level there may

be a resistance towards CC/CIC as radical interventions. However, as bottom-up, inclusive and participatory management approaches are encouraged, the idea of CC/CICs initiated at community or site management level (as practical measure to support strategy development and implementation) may be less radical and from what I personally believe, a matter of time before identified for its potential.

3+4) I believe this is covered in the above.

Please contact me directly for questions and the opportunity to elaborate.

Stodder, James Paxton

My research has been in Switzerland (WIR currency) and Germany (Chiemgauer currency). The empirical finding is that CC activity is counter-cyclical, and thus helps to blunt the force of recessions and even, from the Swiss data, to shorten them.

I would be interested to see if this finding holds with the Kenyan data. Especially interesting is the use of CC in informal sector activities, on which I have no reliable data in the German or Swiss cases.

Tibebwa, Sister

I believe that CIC's have multiple potentials, including increasing abundance, community building and trust building, encouraging trade to be as locally based as possible, introducing communities to the Blockchain and being a bridge to it's infinite possibilities and empowering people to keep their sovereignty in an increasingly cashless world. Therefore I see that there are infinite possibilities for use cases and look forward to the day that we all use our own vouchers and have our own local Blockchains.

The challenges that I see are in how best to help people to understand the potential of the CICs, and the need to move away from a purely FIAT currency dominated reality. Also, of course when introducing the concept to a community the uptake seems to be based on how many services can be used with the CIC, which therefore means the larger the group and the more services offered the more that communities see the importance of using them, and conversely, the smaller the group and the less services offered, the less interest there might be. I also see the challenge of depending on mobiles where there might be a potential for electric blackout and no network coverage.

Xu, Guanghong

Existing and potential use cases, opportunities:

As immutable ledgers to record informal debts between villagers. To be specific, businesses or associations of members can raise capital to expand their businesses by issuing bonds recorded on the digital tokens, villagers can then bid for the bonds based on their knowledge of the creditworthiness of borrowers, which is often unobserved from outside lenders. With asymmetric information, and high monitoring cost, it's common knowledge that rural households, especially rural women, have a hard time getting access to credit, even though they have access, they are borrowing with an extremely high interest rate. Based on the village network, there is less asymmetric information between borrowers and lenders, and lower monitoring cost and contract enforcement cost, so more rural women can in principle borrow money with a low interest rate, which happens already as oral debts. However, the oral debts might work between two people or three people, but it's hard to expand to a larger group of people without trustable records keeping. With the blockchain based digital tokens to keep record, this can be achieved. The immutable ledgers increase the trust of record keeping and allow for greater credit availability for rural women.

Risks and challenges:

There are two main risks: (1) whether villagers, as potential lenders, have money to lend to those businesses or associations of members, even though they have money, would they be interested in lending money. (2) What if borrowers default?

Solutions and suggestions:

For risk (1), it's a practical thing, we just need to pilot it, and then will quickly learn the feasibility of it. For risk (2), there is always a risk of default for any existing credit products, there is no way to eliminate the risk, but we can have many ways to reduce it. For example, during the fundraising meeting (bonds selling), the village admins and village elders should be there, also the borrowers will commit goods and services they can provide as sort of collateral verified by village elders and admins so that if borrowers cannot pay back the loans, they can provide those goods and services as a way to pay back the loans given that lenders are willing to accept it.

Further research, advise needed:

Pilot with a few villages first and allow a small amount of money to borrow first to let the villagers learn about the whole procedure and be confident about it. In this way, risk is

under control and can learn the logistics of implementing projects, which will be beneficial for future scaled-up studies.

Zargham, Michael - [BlockScience](#)

Community Inclusion Currencies as designed, developed and deployed by Grassroots Economics provide a targeted intervention to a critical system issue. Modern economic infrastructure has emerged to primarily serve stakeholders within institutions such as nation-states and corporations at the expense of all other secondary and tertiary stakeholder groups. An unfortunate consequence of this structural bias is that liquidity crunches are common, especially amongst communities not directly providing goods or services to nation-states or corporations. Liquidity crunches represent insufficient monetary instruments to support exchange of goods and services within a community, but not the absence of supply and demand for the goods and services themselves. Community Inclusion Currencies relieve the liquidity constraint and allow goods and services to flow amongst community members, directly and immediately improving quality of life. Community Inclusion Currencies may scale to cover relatively large economic networks, but they are less fungible than national currencies so they can be understood by their local context. These local currencies complement national currencies because national currencies have their monetary policies governed to serve a wide range of stakeholders. Community Inclusion Currencies are maintained in precisely the community's that are underserved by the one size fits all policy. On the one hand, it is extremely valuable to deploy Community Inclusion Currencies in any region where a portion of the population is experiencing regular liquidity crunches. On the other hand, it takes effort to maintain a Community Inclusion Currency program, so one can expect these programs to persist only as long as their communities remain underserved by their national currencies.
