Unifying Economies of Goods & Services and of Information

Section 1: Summary

Use Case Summary			
Use Case ID:	FIN-006	**Use Case Type:**	Vertical
Submission Date:	April 1, 2019	**Is Use Case supporting SDGs**	Yes
Use Case Title:	Unifying Economies of Goods & Services and of Information	**Domain:**	Financial
Status of Case	Proof of Concept	**Sub-Domain**	F,K
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Proposing Organization	Resurgence Dev		
Short Description	We use DLT to formalize economies of goods and services and of information within a single system in the context of a refugee camp, using both social and financial leverage to create new opportunities for targeted delivery of aid and create a scaffold for enduring growth.		
Long description	A major problem of informal economies is that assets within the economy have no way to be exposed to leverage or interest based investments. Tying physical inventories to a virtual currency opens an avenue for goods to also be leveraged. Formalizing a goods & services economy on the blockchain also allows for the pinpoint delivery of aid via community incentives. In other contexts, this would be called "gamification". Tying aid to "interest" on goods stored helps ensure that the amount of aid injected into the economy does not overwhelm organic growth of the economy, serving as scaffold for growth rather than creating a dependence on aid. We propose the formalization of the information economy on a microblogging platform, where participants in the network are able to reward each other for efforts in creation and curation of content. This economy would share the same currency as the layer for goods & services. By adding a social layer, good actors can visibly identify themselves as participants in both the goods & services and the information economies. Gamification can be used to coordinate incentivized behavior. Each transaction can optionally be broadcast on the network for visibility.		

SDG in Focus (when applicable)	1) No Poverty 8) Decent Work & Economic Growth 10) Reduced inequalities		
Value Transfer:	Virtual token to track value of economies of goods & services and of information	**Number of Users:**	50,000 – 100,000
Types of Users:	Residents of a refugee camp		
Stakeholders	Residents of camp Camp administration Governing body that issues / certifies identity		
Data:	The DLT would store and track a digital token for a given camp. It would also store references to actions taken by system actors in the real world and in the social layer. The social application layer would store content outside the DLT with immutable references to the content (via a hash) stored on the DLT.		
Identification:	A public / private keypair will be issued to each resident involved in the study. This is be tied to either a retinal scan or a phone's IMEI number / SIM card, depending on available technology.		
Predicted Outcomes:	Formalizing the goods & services economy through virtual currency allows smoother flows of capital within the cap, ability to measure aid utilization and target future aid, and potentially expose physical assets to interest bearing instruments. Formalizing the information economy exerts social pressure to encourage participation of good actors and counter the influence of bad actors and create tangible rewards for creating / curating useful information. The social layer can also serve as irrefutable proof of reputation if it is needed as residents exit the camp.		

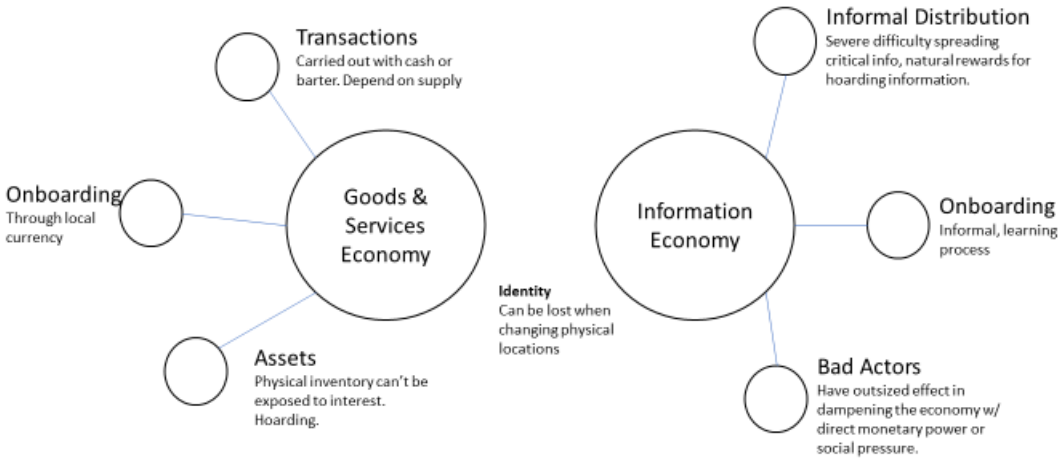
Overview of the Business Problem or Opportunity
Why Distributed Ledger Technology?
DLT allows secure, immutable, and transparent registry of real-world goods tied to virtual currency. It brings the same level of security, immutability, and transparency to the information economy. The currency can also be verifiable if it becomes portable / convertible to any other currencies. Moving every transaction to the DLT creates transparency in the economy at large, removing dark areas in which bad actors prefer to act.

Section 2: Current process

Current Solutions
Currently, the most advanced solution we are aware of uses iris scanning in the distribution of aid resources. (see reliefweb page listed under external resources).

Existing Flow (as-is)		
Step	**User Actions**	**System Actions**
1.	Transactions	Transactions must be carried out either with cash or barter. Supply issues can become a severe bottleneck in the economy
2.	Idle state of assets	Any physical inventory can't be exposed to interest
3.	Informal organization of information	Severe difficulty in spreading critical information to those who need it; natural rewards to those who hoard information.
4.	Dampening effect of bad actors	Bad actors can have an outsize effect in the economy through exerting direct monetary power or indirectly by creating social pressure toward

Process scheme (as-is)



Data and information (as-is)		
Data	**Type**	**Description**
1	Paper money	Fiat currency

Participants and their roles (as-is)		
Actor	**Type/Role**	**Description**
1	Vendors	In context – any individual that engages in goods-for-currency trades

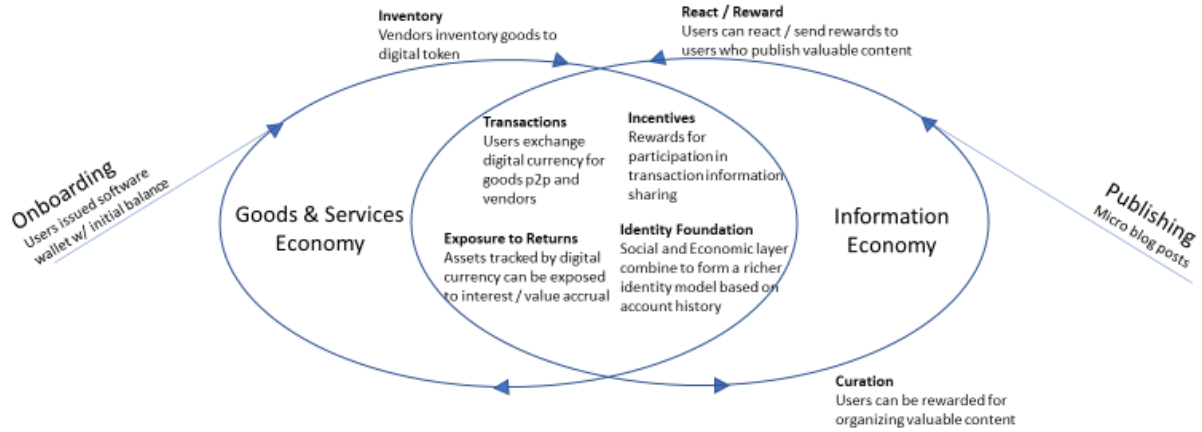
Participants and their roles (as-is)		
Actor	**Type/Role**	**Description**
2	Consumers	In context – transacts via barter or service exchange, or makes currency-for-goods purchases.

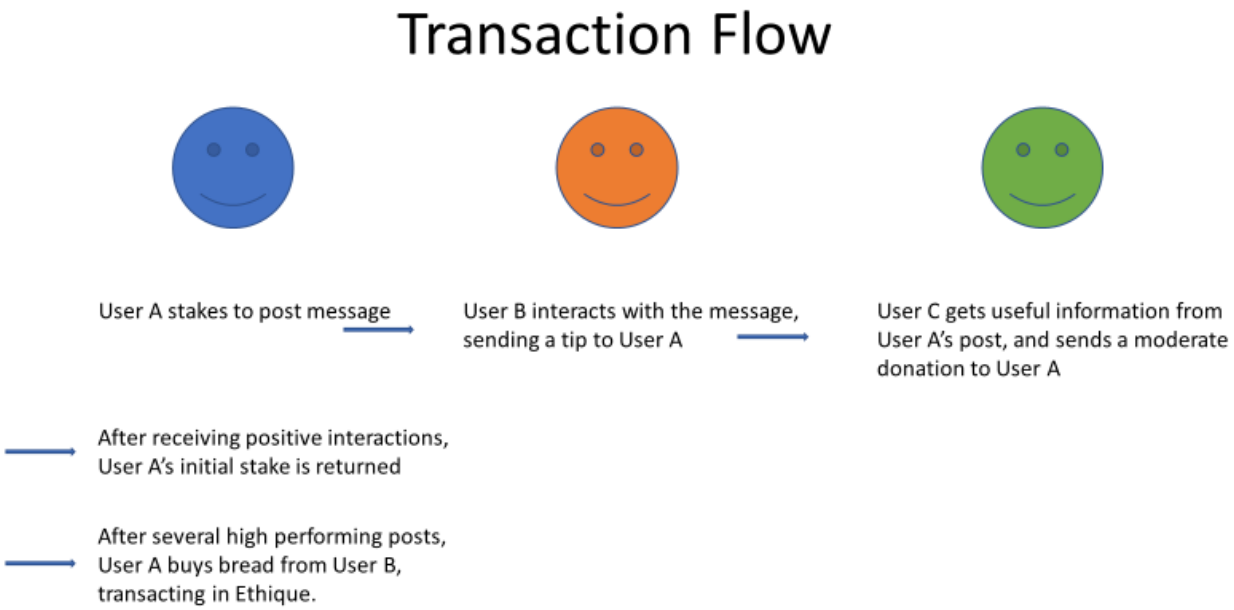
Other Notes
Any assumptions, issues

Section 3: Expected process

Expected Flow (to-be)		
Step	**User Actions**	**System Actions**
1.	Onboarding	Users issued software wallets with a small starting balance.
2.	Inventory	Vendors inventory their goods to be tied to digital tokens.
3.	Transactions	Users can transact using digital currency, either peer to peer or customer to vendor. Tokenized goods get transferred from seller to purchaser
4.	Incentives	As users transact, they can publish their transactions to a micro blogging service. Rewards for system participation can be issued on the basis of transaction quantity, value, or any dimension which could foster adoption.
5.	Publishing	Any user of the social layer can publish a micro blog post.
6.	React / Reward	Any user of the social layer can react to a published post and may choose to send a reward to the user who published the content. This should reinforce positive behavior.
7.	Curation	Users who choose to curate valuable social information in their published posts may be able to accrue substantial value.
8.	Exposure to returns	Digital currency or tokenized assets can be exposed to interest bearing investments / “savings accounts”, or interest might be simulated via direct aid payments as a percentage of assets tracked in the system.
9.	Identity foundation	An individual user’s activity in the social layer and the goods and services layer can use their account history while establishing documented identity in a future host country.

Process scheme (to-be)





Participants and their roles		
Actor	**Type/Role**	**Description**
1	End Users	Participate in both the goods / services layer of the economy and the social layer
2	Program Administrators	Workers who help educate about and facilitate the program.

Data and information		
Data	**Type**	**Description**
1	Wallets	A software that stores basic identity information about the bearer of the wallet and keypairs that hold the assets in the system.
2	Tokenized Assets	Durable goods can be tracked by virtual non-fungible tokens and potentially used as collateral for financial services
3	Microblog posts	User submitted posts related to transactions or created entirely by users.
4	Virtual Currency	Both goods / services layer and social layer are tied to the same virtual currency.

Security and privacy

1. Privacy is a major concern. We recommend that security / stability data science driven monitoring of the system be performed anonymously, and that network topology approaches be preferred in locating bad actors over watching the transactions of targeted users.
2. It will be critical to establish that devices used to access wallet services have some level of security, such as passcode enabled.

Main Success Scenario + expected time line

Success will be met when the vast majority (80%) of camp transactions take place via online currency.

Timeline:

4 weeks – requirements gathering, interviews, on-site inspection

12 weeks – software implementation

4 weeks – on site deployment, on site instruction, begin inventory

12 weeks – rollout of system across camp

12 weeks – monitored / incentivized adoption

Conditions (pre- or post-)

Requires internet or SMS access for end users.

Performance needs

Needs to be on a DLT that can handle high throughput. A RAFT-like consensus algorithm would suffice.

End users would need devices capable of connecting to either an SMS or Web-based interface.

Legal considerations
For each issue, please describe the name of the legal act containing the identified barrier, what is the negative impact and a proposal to overcome this negative impact. *1.*

Risks
Legal issues that have not yet been defined will likely emerge from this process. Bad actors frequently resist attempts at economic formalization and could stall adoption.

Special Requirements
N/A

External References and Miscellaneous
https://ethique.link https://reliefweb.int/sites/reliefweb.int/files/resources/68256.pdf https://www.technologyreview.com/s/608764/how-blockchain-is-kickstarting-the-financial-lives-of-refugees/ https://www.un.org/sg/en/content/sg/personnel-appointments/2018-11-29/task-force-digital-financing-sustainable-development

Other Notes
Any assumptions, issues

Appendix 1:
Domains and subdomains for use cases categorization

Vertical:

1. Finance
    a. Financial management & accounting
    b. International & interbank payments
    c. Clearing and settlement
    d. Reduction of Fraud
    e. Financial messaging
    f. Asset lifecycles and history
    g. Trade finance
    h. Regulatory compliance & audit
    i. AML/KYC
    j. Insurance
    k. Peer-to-peer transactions
2. Healthcare
    a. Pharma
    b. Biotechnology
    c. Medicine
3. Industries
    a. Manufacturing
    b. Energy
    c. Chemical
    d. Retail
    e. Real estate
    f. IT and telco
    g. Supply chain management
    h. Transportation
    i. Agriculture
4. Government and public sector
    a. Taxes
    b. Government and non-profit transparency
    c. Legislation, compliance & regulatory oversight
    d. Voting
    e. Taxation and customs
    f. Intellectual property management
    g. Land Registries

Horizontal:

1. Identity management
2. Security management
    a. Public Key Infrastructure
3. Internet of Things

4. Data processing, storage and management
    a. Data Validation (includes provenance)
