IMPACTING WITH VALUE: Capture.Translate.Transact.Report

Seratio Blockchain 3.12

Proof-of-Trust Transaction Platform

UN BLOCKCHAIN LAB CCEG.ORG.UK | SUSTAINABLE DEVELOPMENT GOALS

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Seratio Blockchain White Paper 3.12

4th April 2017

Essential Reading*:* preceding white papers

Seratio Blockchain 1.0: Currency of Intangible Non-Financial Value [1]
Seratio Blockchain 2.0: Values Based Impact Interventions

Description*: The Seratio Platform integrates multiple heterogeneous tangible financial and intangible non-financial interventions by ensuring financial benefit is contingent on the social impact. Scalability and Sustainability are achieved through the introduction of digital value currency to create a circular impact economy, maintaining the brand link to the impact through the intervention life cycle. Outcomes are interpreted through any framework including the United Nations SDG's. At the heart of the solution is the ability to transact value based on our values.*

Abstract*: Sitting at the cross-over of Fintech Innovation and Social Innovation, this paper represents the best-in-class combination of Blockchain and Social Earning Ratio technologies to provide a radical build on existing well tried and tested platforms. Aimed at all those broadly interested in the impact investment marketplace covering public, private, civil society and community interventions, this is a solution to the current dissatisfaction of a failing marketplace. Grounded in world leading academic research, the Seratio platform is an open source initiative developed irrespective of the impact metric used, and the impact reporting adopted. Several commissions already address significant global issues of SDG, Gender Inequality, Islamic values, Care Givers, Bluelight Services, City solutions, Ethical Leadership, etc. This is a call to collaborate within a not-for-profit framework, taking advantage of the convening power of all those interested in significant structural change.*

Key words: *Value(s), Blockchain, Seratio, SDG, Social Impact, Digital Currency, Proof-of-Trust*

[1] https://github.com/seratio/whitepaper

Making the Intangible Tangible on a Blockchain

In 15 years, today's emerging technologies will capture the superabundance of intangible value as readily as financial accounting systems record profits. What could be more valuable than money? Is it time? How much would you pay for an extra day, week or decade of life? What if you needed community support to survive, and your money couldn't buy access? This isn't as strange as it sounds; many communities value social factors more than money. Communities rely on interdependence, a bundle of implicit promises that cannot be broken without consequence. It takes commitment and time to weave a communal web of trust sufficient to gain access.

Surprisingly, Starbucks derives its value from the same principles, and its shares trade at 14 times its current book value. This massive, unaccounted difference in valuation is deemed intangible. Although it can be deconstructed into many components, such as patents, trademarks, copyrights, goodwill and brand recognition, they share an implicit expectation that the promise will be fulfilled. A brand (or a brand promise) is defined as the expectation of an experience fulfilled. Thus, promises are the cornerstone of intangible value that dwarf financials by comparison.

Banks have long made a lucrative business from lending products based on borrower promises. However, the potential of informal, social contracts remains unrealized, for now. Rapidly evolving technologies, such as blockchain, are designed to store and transfer much broader accounts of value digitally. Beyond providing a neutral, trusted infrastructure for keeping track of the custody and transfer of digital currency, such as Bitcoin, some blockchains (otherwise referred to as distributed ledgers) can also store software programs that automatically invoke transactions based on predefined conditions, such as sending money when a promise is fulfilled.

Imagine being able to record all implicit promises and fulfilled experiences, such as social contracts, on an Internet of value, similarly to the way we currently use the Internet to store and share information. Incredibly, social actions could allow us to accrue our personal brand value that outweighs our income and other tangible assets - much like Starbucks!

The realization that trusted promises underpin all intangible value and that blockchain technology creates the possibility to record and track such promises inspired the formation of Trust 2 Pay - the visionary social enterprise, developing a blockchain-enabled universal platform for social action that allows application software to capture intangible value in the form of trusted promises. It introduces an entirely new way to facilitate financial inclusion and social access, needed by billions of people.

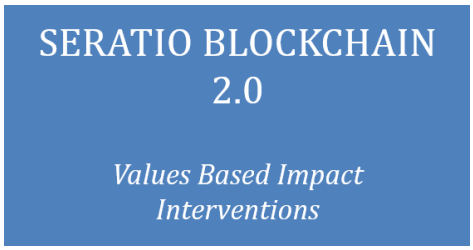
With global aspirations built upon community foundations, the first product, socialXchange, empowers community residents to build their Social Credit Score by offering in-kind support of local businesses in exchange for charitable donations, thereby allowing participants to advertise their track record of fulfilling promises, as an indicator of creditworthiness and employability.

We live in transformative times, experiencing a life that only science fiction characters could 25 years ago. As unimaginable as the power of today's mobile devices was just 15 years ago, blockchain is a new technology creating unimaginable new possibilities for the next 15 years. Blockchain will not only improve transactional efficiencies, but enable entirely new organizational structures that redefine what we 'value'.

Introduction to CCEG Blockchain UN Lab

The Centre for Citizenship, Enterprise and Governance is the leading international Think Tank on the Movement of Value. Since 2011 we have been pre-occupied with the measurement of impact value across scale. We focus on the connection between good thoughts and the translation to a good citizen, good family, good community, good organisations, good cities, good networks, good regions, good nations … and a good world. Our metrics are behind many laws round the world in Corporate Social Responsibility, Procurement based on Social Value, Supply Chains Transparency, Modern Slavery, etc.

We have now moved from capturing value, to transacting value where we have developed the complex theoretical framework upon which we now deliver several commissions for Sustainability Development Goals (SDG), Care Givers, Islamic community, Bluelight government services, Cities, etc. As part of the global Open movement, meeting the burgeoning demand for our services, we have established the CCEG Blockchain UN Lab to make available our enterprise level tools and capability to a broader audience in the areas of measuring impact, translating impact, transacting impact and reporting impact.



CCEG Blockchain Lab - Service Capability

VALUE IMPACT
Measurement and Certification

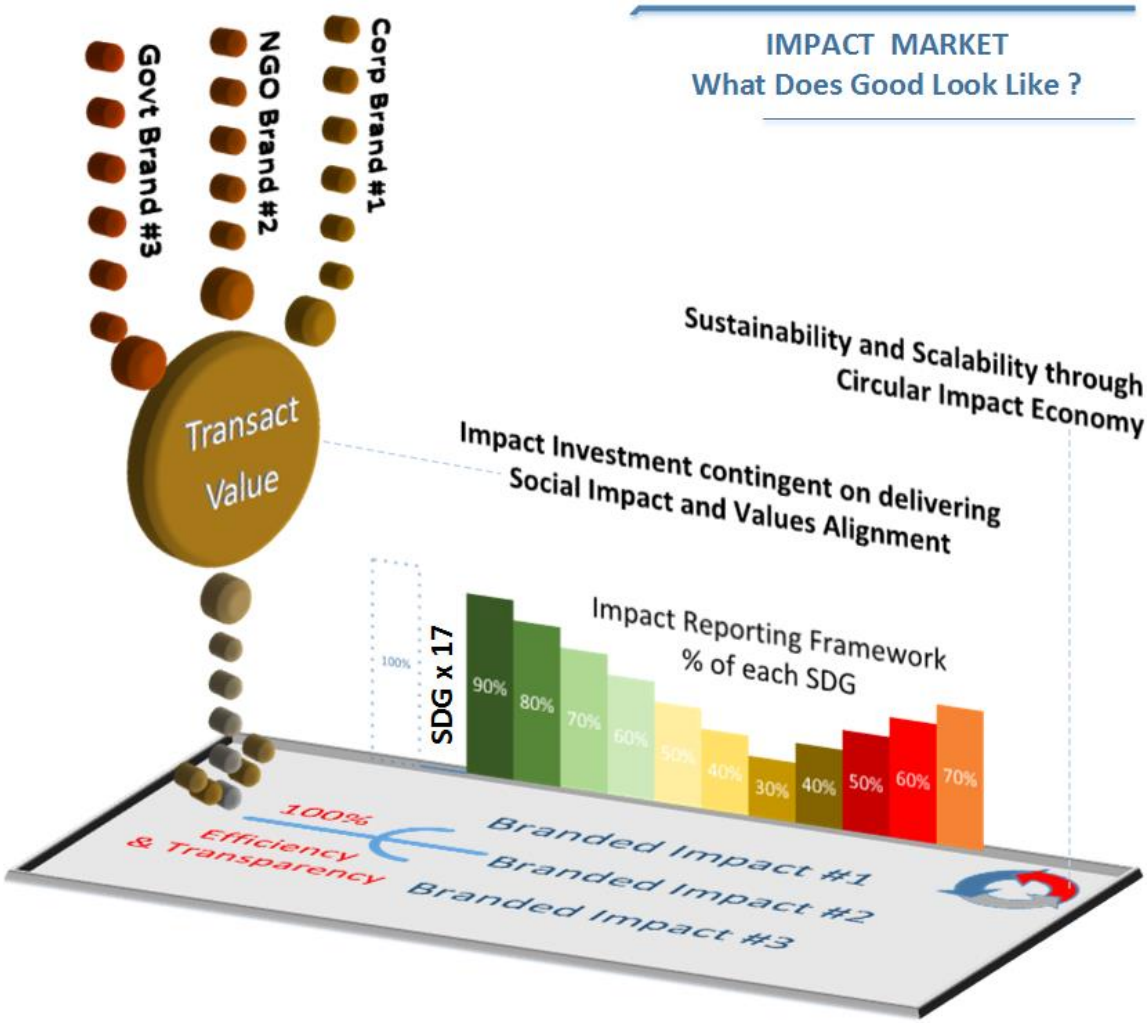
MODELLING IMPACT
Forecast, Refine & Determine

TRANSACT WITH IMPACT
to Engage & Optimise

UPHOLDING IMPACT
Supply Chain Provenance and Transparency

The Impact Marketplace

Let's circumnavigate the usual 'statement of problem' – how we aim to resolve it – start. In our experience, this approach only lends itself to incremental change. To effect wholescale structural, possibly disruptive, change, we need to map out what 'good' would like in the impact marketplace.



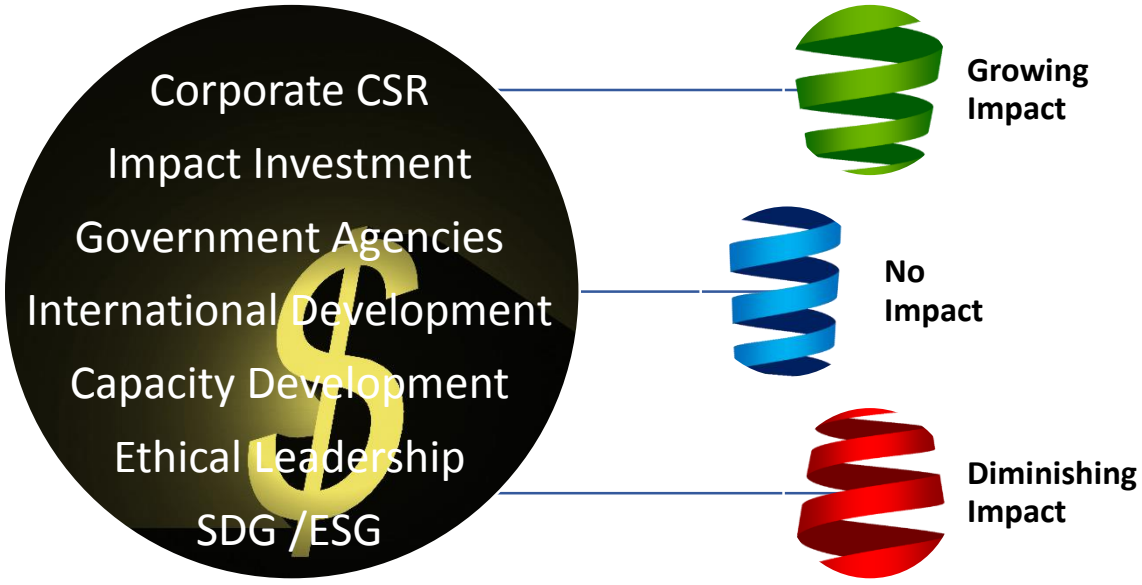
In the ideal world, multiple corporate brands, NGO's, governments, and impact solution providers would undertake their financial interventions contingent on the impact to be achieved, and aligned to the values of the target community. Seeking 100% efficiency, transparency and traceability, with no middlemen to dilute and divert funds, the outcomes would be reported live through the prism of any impact framework eg United Nations SDG (Sustainable Development Goals). Sustainability of the intervention would be achieved through the creation of recurring impact – the Circularity Impact Economy, transacting impact value between individuals and organisations within the private, public, civil society and communities. Scalability is achieved through ensuring the investing brands keep the integrity of their brand marketing directly associated with the interventions well past post launch through the growing circular transactions in ensuing years eg. enabling substantial marketing budgets, not just diminishing corporate social responsibility budgets (CSR).

Surely It's Not Rocket Science

Actually it is; this is not a trivial exercise. That's why the impact market is fragmented, ineffective, with no consensus, scale and rarely sustainable. It requires a deep understanding of the movement of value, influencing parameters, and how we measure it – particularly defining a currency of intangible non-financial value to match the maturity of the sophisticated system of tangible financial value we have constructed over hundreds of years. In particular, we trichotomise the above task:

- [TASK A] Integrate the impact of multiple providers from all sectors using different intervention resources, comparing 'apples and oranges' objectively and consistently eg. health, education, employment, etc.
- [TASK B] Provide a fast and transparent instrument to capture and link non-financial outcomes with financial programme investment, and to be able to transact both kinds of value attached to each investment brand eg. $ cash investment linked to Health & Wellbeing outcome within SaaS
- [TASK C] Report and articulate the combined impact in any desired format, framework and metric to be meaningful in different reference templates, and provide this as a return of social investment framework to inform future projects eg. SDG, MDG, GRI-4, IIRC, B-Corp, etc.

A large number of sectors are focussed on bringing to bear economic resources to achieve non-financial goals – *a financial bet on a social outcome*. It has been a perennial challenge to link the two in a practical, real-world environment,



The answer is neither in Social Innovation, or Fintech Innovation, but at the cross-over of these two burgeoning industries. This paper describes the merging of industry leading instruments in both sectors to bring together an exciting and well-received proposition that has only become available in the past decade following developments in Blockchain Technology and Fast Data Impact Technology.

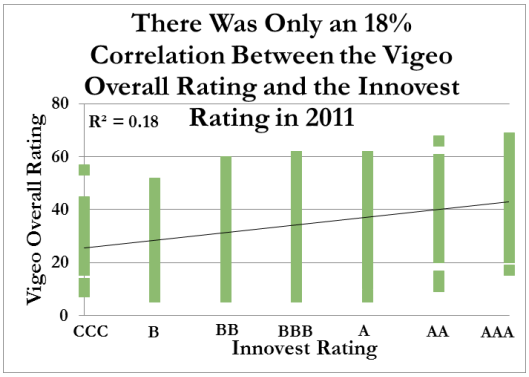
The Journey so Far

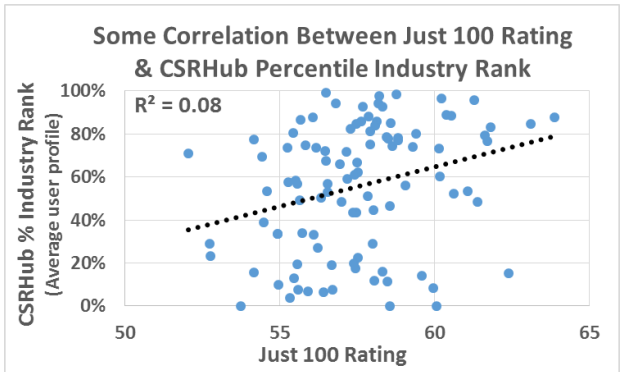
Impact is the defining term of the decade. The impact of policy, strategy, ideas, individuals, corporates, NGO's … the list is endless. To achieve impact requires a thorough multi-disciplinary understanding but mankind is still learning what it takes. This is a short paper – we have no intention to start with 'Adam and Eve' and explain the science that brought us here. What we do intend, however, is to explain the role of the building blocks that allowed us to make what others consider a scale leap.

Value Transaction and Impact Metrics

The failure of impact investment in its broadest term, however, is its inability to link financial investment with the economic, social and values of the communities the interventions are aimed at. There are already many value transaction instruments in existence, ranging from standard FIAT currencies through to a range of digital tokens. Latest of these is Blockchain which is reported in the Fintech world as a revolution in the transmission of value, primarily financial and hard asset classes. In our experience, it is better to go with existing inventions that have found large-scale backing, than invent our own. To allow blockchain, however, to fulfil its optimal position in the 'Internet-of-Value' chain, it has to address ALL kinds of value not just the hard asset classes.

Equally important and challenging, there is a plethora of impact metric solutions out there all claiming to represent the impact value chain.[2] In reality all c. 1500 metrics have their part to play, but appropriate for a particular application. Back in 2011 the ESG data warehousing specialists CSRHub found the 'best' correlation they could find between the sets of data was 18%; in December 2016 they reported an 8% correlation between their 491 data feeds and the recently released and well-funded Just-100 ie. no correlation at all.[3]





So any hope of arriving at a concensus is a very long way away. Rather, the focus here should be on a framework to translate from one metric to another; this paper describes that framework.

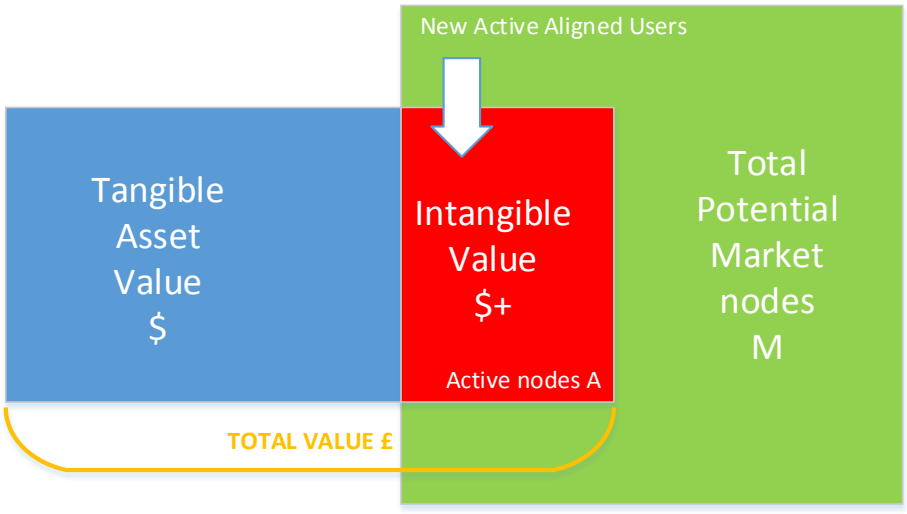
[2] Social Value in Public Procurement, CCEG (2014) 250 p http://ow.ly/CbFUa or http://ow.ly/CChMi
[3] https://blog.csrhub.com/topic/just-100

To mary impact metrics with blockchain requires a system that not only can translate other measurement systems, but is mainstreamed, objective, replicable, comprehensive, cost effective and fast. The latter attribute of speed is important in resolving blockchain proof-of "work, stake, value, impact, etc" calculations where a transaction has to be approved ideally in seconds, and certainly within a few minutes. For instance, imagine standing at a shop EPOS, attempting to purchase based on social credit and the provenance of the product or retailer, only to be told that the transaction cannot be completed until they know the social impact following a 3-18 month impact analysis report, and US$ 3,000 – US$ 200,000 (typical ranges of such reports). For these reasons, we have adopted the Social Earnings Ratio as the first in a new class of Fast Data metrics that fulfil the <10 second and <US$ 5 criteria, and has the ability to translate impact metrics universally.

Whitepaper 1.0

Whitepaper 1.0 introduced and proved the ability to capture total value. Exploring the relationship between the intangible and tangible values and demonstrating the capability to effectively and speedily record both values within transactions by using the Social Earnings Ratio® and blockchain.

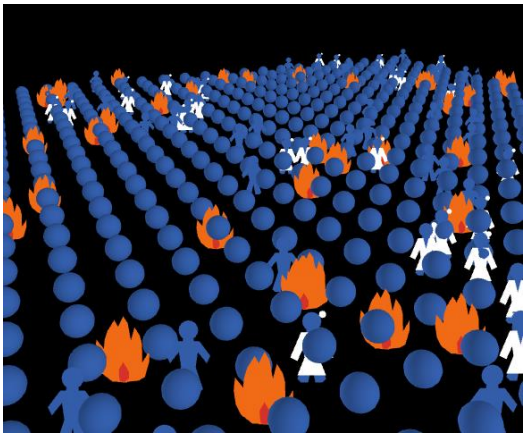
A significant discovery was the role of values alignment to Total Value. Through it we demonstrated, for the first time, the direct relationship between recognized indices (eg. corporate capitalization, product brand, etc) and being aligned to your target audience or community.

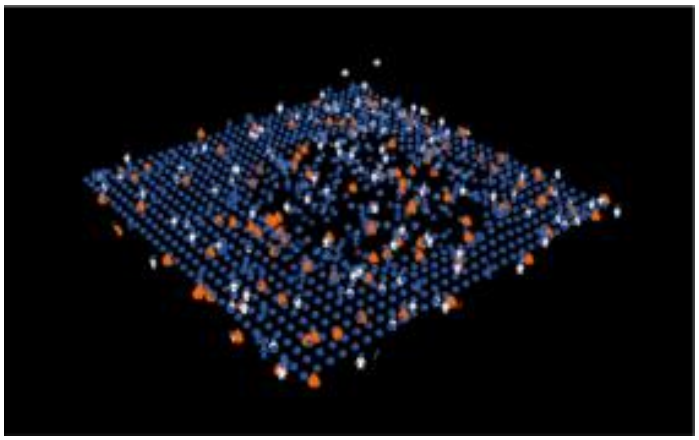


Whitepaper 2.0

Whitepaper 2.0 continued to illustrate the power of merging Social innovation and Fintech developments to improve intervention impact. By understanding and aligning to a community's value framework, accurate forecasting is enabled and a material improvement to investment outcomes and

impact is achieved. Of particular note, was the ability to go from granular detail of individual interventions with people, services (eg. fire health), employment to arrive at a multi-layer dynamic map of integrated impact ie. Multi heterogeneous interventions combined into a single impact metric.





Whitepaper 3.0A

This paper sets out the next phase of evolvement of the platform and functionality to measure, capture and transact impact. It proves the capability of the S/E Ratio, combined with a *proof-of-trust* promise fulfillment Social Credit Score for building an authentic Social Credit Brand, as a translation tool for all value sets both as intervention inputs but also as impact outputs. In particular, this paper illustrates the inclusion of all of the United Nations Sustainable Development Goals (SDG) within the values framework.

A Phronesis Impact World

To create a Phronesis inspired impact world – one with real world instruments that are practical today, not just in a lab - we have created the CCEG Blockchain UN Lab – a not-for-profit organization that is a spin-out from a UK university. This lab encompasses an open-source blockchain platform which has the capability to capture, measure, assess and transact ALL values. By using the S/E, combined with a *proof-of-trust* promise fulfillment Social Credit Score for building an authentic Social Credit Brand, as the translation tool, we can compare values accurately across a range of measures, whilst retaining existing mechanisms and systems.

The Blockchain lab has been created to facilitate a revolutionary change to measurement capability on a global Scale. It will be available to entities to deliver and measure their investment interventions or to sit alongside and in partnership with an organisation's own systems to provide full and complete measurement of value across all Sustainable Development Goals, to translate value systems to a common language, to participate in their transaction of value and to improve impact.

Why is this important? We tend to measure only those categories and things that we already understand and believe we have the ability to monitor. This can be very limiting. Often, those types of

measures of performance and outcomes are only a few of the impacts that are actually achieved. Complex measurement systems and data gathering efforts are expensive to implement and run. Their costs compete with the core funding to achieve the primary goal of the intervention investment. However, by not capturing the total results, inaccurate, uncertain measures are reported which frustrate and stymie potential future intervention confidence, ambition and appetite.

An important case in point - the United Nations have realised Global Consensus for the Sustainable Development Goals 'SDG' with all the 193 Member States signed up. The 17 goals each have sub layers, targets, and the support of governments, NGOs, corporations and individuals who are working to achieve them. Reporting and progress assessment is already proving a mammoth and complex task. Simplicity and speed are being sought to de-mystify and align effort. The holy grail of reporting has, until now, only been a dream of the United Nations.

The CCEG Blockchain UN Lab provides a new and effective way to deliver, capture, measure and translate value across all data sets, bringing all into one efficient framework, a consistent system that can scale across all markets.

The Assured Coin

The 'Assured Coin', backed by the assured coin guarantee and Trusted Social Credit, is the principle tool for intervention impact in a full-service offering. The Coin integrates a total impact measurement tool and the Assured Coin Guarantee, backed by one or several Trusted Social Credit issuers. As an investment tool, the coin gives a full and complete audit trail of spend and impact. This ensure full transparency of investment profile, which is not possible with Fiat currency. The audit trail will also eliminate lost funds and investment monies deliberately/accidently diverted to non-targeted developments and geographies.

Another significant advantage is the ability to track the ongoing use of funds beyond the first round of spend/investment. Subsequent rounds of transactions are also tracked through all levels to determine the ongoing impact and value measurement creating a circular economy. This gives unparalleled clarity of outcomes and impact across all value sets. Transaction level value measurement and recording is built in. We believe this is a totally unique capability.

The ongoing measurement of secondary and subsequent transaction activity of the coins enable the value to be continually exchanged and created. Because this value is measured and recorded in the Seratio Blockchain, it forms the evidence of further sustainability of the investment and impact.

Full control of the spend of the investment funds can be exercised by using smart contracts. Blockchain technology and fast data value measurement allows a wide and variable level of options of contracts to control transactions. This will ensure appropriate targeted use of funds and achievement of value objectives. For example, mandating that transactions are contingent on value creation, or may only be made within a specified geography. Transactions which fall outside of given boundaries can be prevented by a fully automated process.

The Assured Coin Guarantee is also unique in the crypto currency markets. Setting the standards and providing a guarantee to increase consumer confidence and acceptance globally. Coins issued under the Seratio Assured Card branding benefit from a Guarantee of value, a built-in value measurement, promised settlement terms and have a set of 'Good Values' explicitly and implicitly built in; a replication of the Schemes - MasterCard/Visa/Diners/Amex assurety of settlement.

The value of this cannot be underestimated. With cryptocurrencies increasing at the rate of c. 100 per month, the lack of use has been hampered by:

- No-where to spend it other than the Fiat exchange or internal to the community creating it (with only one notable exception of Bitcoin).
- The inability for one branded cryptocurrency to be accepted by another branded community
- The uncertainty and guarantee of settlement
- Fluctuations in value

The Assured Coin is the only cryptocurrency incorporating a value guarantee; the only coin to track and measure impact and the only coin to have inherent values as its core. It is agnostic of the blockchain, wallet, exchange, impact measurement techniques, type of intervention, invested currency. Like the Centre for Citizenship, Enterprise and Governance, the body behind the Blockchain Lab, it is a neutral enabler to operationalize impact and the sentiments behind those values that drive it. It allows the transaction of value through values of the issuer aligned to the receiver.

Trusted Social Credit

Acting as a source of trust for the issuers of Assured Coins, or standing alone as an alternative to coin issuance, a Trusted Social Credit (TSC) is a tradable promissory note (or IOU).

Our relationship with money often hinders our relationship with people by driving a wedge between the haves and have nots. Relationships between friends, family, community and colleagues become strained when people are unable to share common interests, divided by unequal means and diverging tastes.

Money, including Assured Coins, is typically given as acknowledgement for delivered value, analogous to a transferable certificate of completion. It, inherently, terminates interdependence between the parties engaged in the value exchange, since receipt of payment marks the end of a transaction and absolves parties of future obligations, possibly even any expectation of relationship continuance; the work is completed and the bill is paid. For example, you go to your (values aligned) local variety store to get a chocolate bar, choose (a values aligned) one, pay for it, and leave; end of transaction, and end of

obligations between you and the store. In other words, acknowledgement money (the money we use every day, such as Dollars) is transactional.

Consider an alternative kind of payment, using credit money (or a promise for future value) instead, to signal a mutual interest in continuing the relationship beyond the transaction. A non-binding promise to reciprocate in the future would, by contrast, inherently tie the parties to a future outcome, with all parties remaining vested in realizing the promised value. So, credit money is inherently relational (or social). For example, you go to your regular local pub for a beer, and ask the bartender to put it on your tab, which implies you will be back again for more beers and will therefore be motivated to keep paying off your tab; hence an ongoing, trusted relationship. A promise-based currency derives its value from the trustworthiness of the money issuer, namely the party making the promise.

With government issued, fiat currency, we trust the issuing government's promise that they will accept tax payments using their currency. Therefore, every taxpayer needs to have sufficient funds in the official government currency to pay their taxes, which creates a de facto standard for that currency. Typically, central banks issue government backed money by, in effect, converting the government's credit money (promise or guarantee) into acknowledgement money (the country's official, fiat currency). Citizens deposit the money into their bank accounts, which banks use to give out loans (issue credit money); the most common type of money circulating in the economy. So, central banks use a relationship-conducive currency with their governments and the chartered banks that borrow from them to secure their long term relationships, while banks, in turn, issue credit money with citizens (their customers) to build longer term interdependence. Citizens, use the resulting acknowledgement money to transact with each other for transactions that are not conducive to interdependence and relationship-build, ironically - and shockingly - suggesting that relationships are inherently being built around institutions, rather than between people.

What would it take for people to issue their own credit money in order to build stronger relationships with each other? People's promises would have to be trusted, not only based on their credit (fico) score, but also due to their track record of fulfilling promises. The promises (or credit money type of currency) issued by those who have the highest integrity score would be valued higher by recipients (the market). Hence, accumulating trusted promises would be valuable - much like it is for banks that accumulate loans. However, in this case, value to the issuers of the promises would originate from access to a network of interdependent relationships (interlinked by tradable promises), rather than loan interest charges. In other words, your promises are only accepted within (values aligned) communities where you are also relying on other people's promises (interdependence), and your value grows with the value of the promises owed to you and the purchasing power of your own promises. Moreover, the value of such currency value would fluctuate based on the issuing person's integrity (or trustworthiness to fulfill promises), rather than the currency exchange rates that result from government monetary policy or economic performance, thereby putting people in charge of building their wealth instead of relying only on their government to make the official currency more valuable relative to other global currencies. It might be easier to relate by reflecting on an example in your life when someone did you a favour that resulted in you saving time and money, simply because of the value of your relationship, suggesting that your relationship was more valuable than the monetary, market value of the favour. People who accept and hold highly trusted promises and whose promises are also held by others would be wealthier (being more acceptable or liquid, hence meriting greater access or inclusion) than people who have financial relationships with individuals carrying a lower Score.

Until recently, keeping track of people's integrity scores has been impractical. Credit bureaus calculate people's fico scores to help lenders manage risks based on an individual's track record of repaying his or her loans, but exclude people without access to institutional credit (such as from banks). Social media is increasingly being used by emerging FinTech startups to infer creditworthiness based on people's online relationships and engagement, but social networks capture preferences and relationships - not behaviour. Blockchain technologies can be used to create value networks that register and track transfers of asset ownership, including behaviour relative to intentions (promises) to augment existing indicators of creditworthiness.

Inspired by this possibility, Trust 2 Pay is creating a platform for social action that records promises and tracks their fulfillment in order to calculate an objective Social Credit Score, which can be used by participants to indicate their creditworthiness and employability. It will give the 2 billion people who are currently financially excluded an opportunity to become eligible for credit, while giving all 5 billion working age people the ability to use their Social Credit Score for competitive advantage when seeking employment, loans, housing and insurance, and find relief from burdensome security deposits and expensive policies.

Moreover, promise fulfilling actions can be motivated by a distinct purposes to affect a variety of outcomes, ranging from simply acquiring a commodity for personal use that satisfies one of Maslow's survival needs to generating a broader social impact that satisfies one of Maslow's psychological needs and might include satisfying other people's survival and/or psychological needs. Actions intended to satisfy at least one or more of the 17 UN Sustainable Development Goals would represent the highest personal need that Maslow calls self-actualization, to maximize human potential. As very few people operate at this level, incentivizing rewards that satisfy lower level human needs, such as esteem (for recognition) or love/belonging (for access and acceptance) can be used as proxy motivators to achieve broader social impact objectives.

In order to affect socially impactful behaviour, Trust 2 Pay is developing a mobile platform, called socialXchange, which builds strong community ties by facilitating collaboration between residents and local businesses around social causes. People offer to help their favourite merchants with in-kind activities in exchange for a donation to the community or a social cause. Participants earn badges (satisfying belonging and/or esteem needs) for having fulfilled their commitments. Accumulated badges represent the participant's authentic Social Credit Brand and their value to the community. Satisfying such lower-level needs motivates actions that can contribute to broader social impact, ranging from the community to global level.

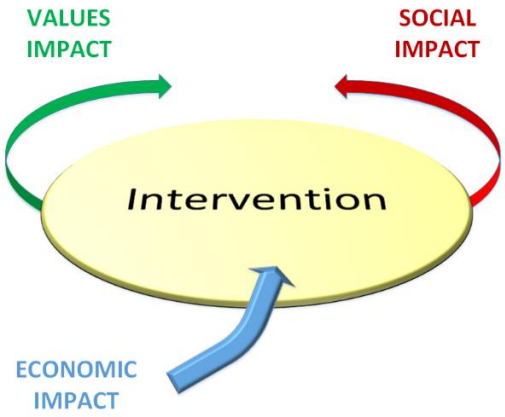
Social actions recorded and tracked on a trusted infrastructure, such as a blockchain, will empower people to objectively demonstrate their worth and gain access to financial and community resources, without depending on institutional approvals. Progressive businesses will, in turn, have an opportunity to reduce their risks of accepting credit money, such as Trusted Social Credit (TSC) and TSC backed Assured Coin, based on the proven character of their customers, thereby freeing them to focus on cultivating the value of relationships, over dwelling on the relatively immaterial value of financial profits.

Framework for Decentralized Proof of Everything

A central tenet of blockchain philosophy is that there is no singular higher authority of transaction verification (and thus control), but that it is a decentralized peer-to-peer system – proof-of-work, proof-of-stake, etc are all variations on a theme. In financial blockchain transactions, comprehensive complex systems have become accepted to allow verification using the framework. Extending this to non-financial blockchain transactions where it's not possible to have one view of what is ethical leadership, love, health & wellbeing, happiness, etc, the corollary is to have a framework to accommodate multiple Proof-of-[…] interpretations. The framework is the consistent feature, the value set can be localized. Thus there is no single authority, but multiple parallel authorities ranging from individuals to institutions whose interpretations are valid within in their particular sphere of influence even if unaccepted within other sectors. A framework cannot be based on only one set of human values.

The Measures

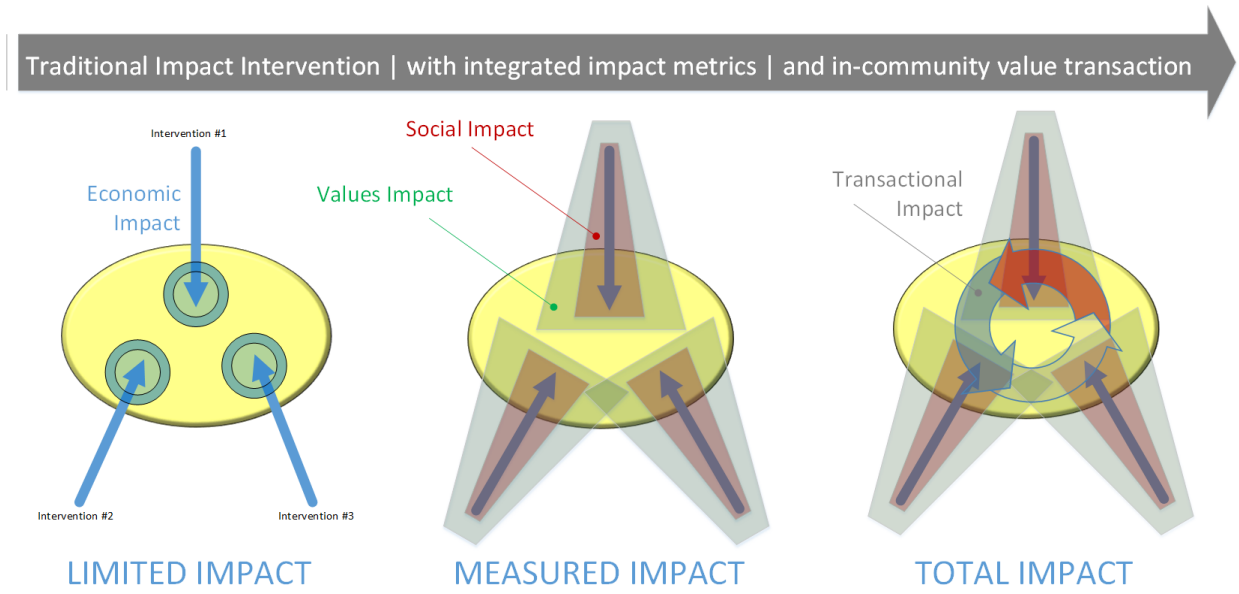
The measures of value and impact are performed using the Social Earnings Ratio®. Each coin, or each project supported, will have a value set bespoke to its community values for example, that may incorporate religious, cultural or ethnic principles and ideals. By aligning values, the improvement to investment outcomes and impact is achieved as proven in whitepaper 2.0.



What is important to note is that the S/E Ratio® will also measure the impact on each of the Sustainable Development Goals. Beyond the individual key performance indicators that a standard intervention would expect, the S/E ratio will measure the full value impact of a program on both the targeted goals and on each of the Sustainable Development Goals.

The result is a full and complete suite of impact measures for any given intervention. Why measure?…. because Reality doesn't exist until we measure it.[4] If you don't measure you have no idea of success or failure, no control, no influence … basically it implies the outcomes are less important. Corporations measure profit because it matters. They know If you can't measure it, you can't bill it.

[4] HRABETOVA J. and TA'EED O., Measurement of Intangibles In Current Society: Challenges, Perspectives and Choice, International scientific conference in Cultural Studies, Yekaterinburg, March 2016



So by measuring your own interventions, broadening them from economic to social and values alignment, integrating other projects from other providers aimed in the space, and finally adding transactional value from your legacy coin, you achieve much greater impact with layers upon layers.

More than the Sum of the Parts: Many Brands, Many Metrics

The old adage "the whole is bigger than the sum of the part" depends on one key factor, that everything you add has a common denominator. Branded interventions do not have the same aims – each has their own particular perspective. Equally there are many varied forms of value measurement and metrics that they use. One clear reason why the sum of all this intervention, all this good intent, all this money, all this goodwill, has been a negligible or incremental improvement in the world. We have overcome this by using the S/E Ratio as the currency of exchange between brands and outcomes to form a unified view – an internal currency within our ecosystem ensuring our outputs can be articulated in the language/metric/currency of the service users choice and globally recognized standards.

Whilst the S/E ratio is the world's fastest adopted value measure[5], and can apply to any global market, we have built in the ability to use any measure. The S/E ratio is used as a translation tool to standardise and simplify other methodologies and measure to give consistent accurate comparisons within the framework. Any and all existing measures and systems can be adopted and built into a measurement framework. We can undertake the translation to S/E, the addition of other value sets, and if required, the translation back to the original metric or measurement tool. The key benefit of this approach is that existing programmes and methodologies can be accommodated for internal comparison, whilst have the total value included and a comparator in global standards and Sustainable Development Goals.

[5] http://ow.ly/GPnAi

Going further, by branding the Assured Coin with a corporate or organisational brand, a clear link to the purpose and impact becomes visible as well as measurable. Visibility enables the leverage of branding in any intervention both directly and indirectly.

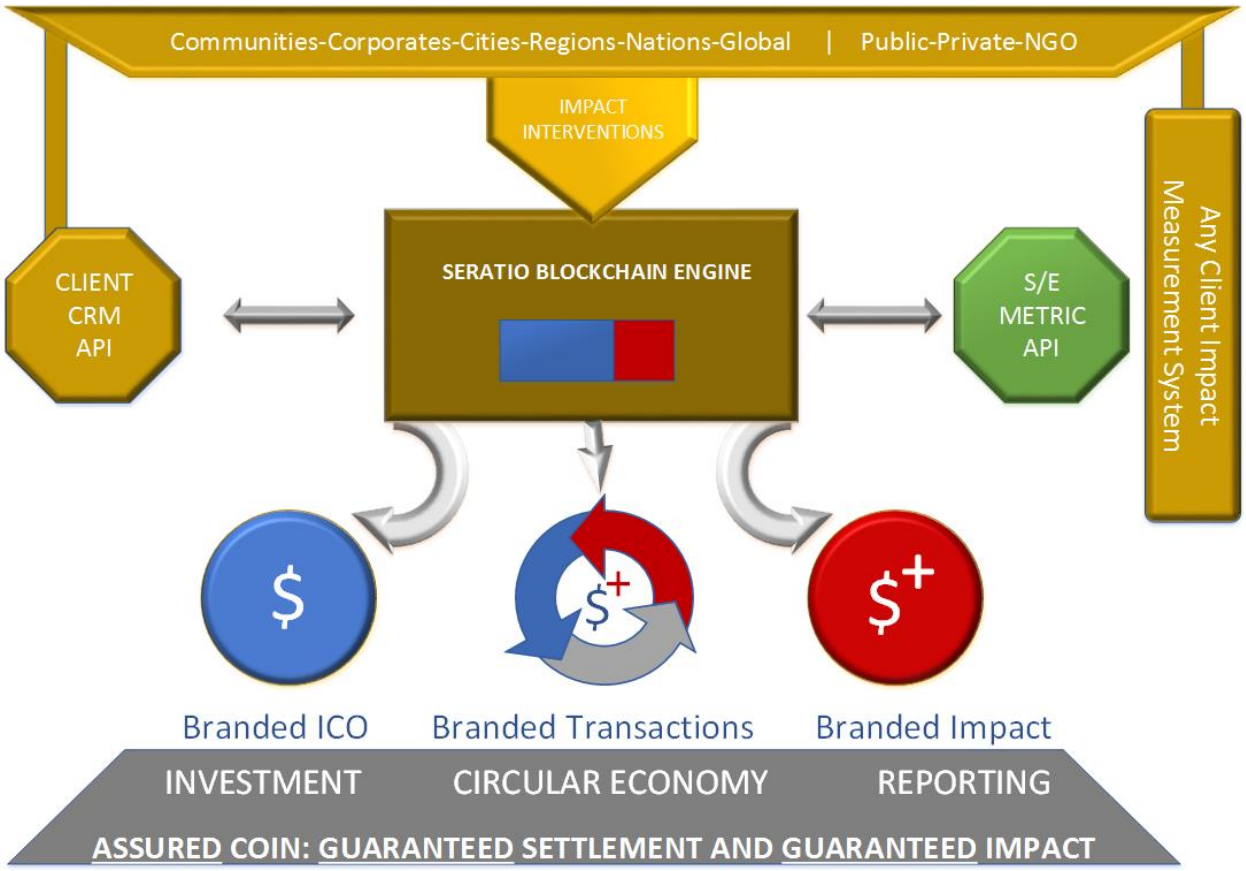
Positive investment interventions will impact more than the directly targeted delivery objectives. We have demonstrated how the measurement of these additional value can be captured and recorded. The intervention impacts act like a rainbow, with varied positive outcomes and impacts being experienced. In a similar fashion, multiple interventions and coins within communities and markets have a wider impact than that immediately evident. The flow of value within the communities, the economic, social and values impact at transactional level have a multiplier effect to create Total Impact.

Interoperability and the Circular Economy

Most impact interventions have a start, and an end, and nothing much after. Whilst a lot of lip service is given to interventions that outlast the initial branded campaign, in reality, sustainability is a key problem. The next intervention by another brand rarely adds to the first – it's off topic. A key advantage of having a common 'currency' of intangible benefits has been the ability for receive investment in one brand – a family member of the SDG Coin, to spend it alongside another branded intervention, and pay your suppliers in any SDG coin with suppliers who share ANY of the SDG values. You can even part pay suppliers with SDG Coins, or incentivise staff with SDG tokens. This interoperability provides for the circular impact economy we seek to make such interventions sustainable and scalable You buy what you want, with what you want, and spend wherever you want – as long as they share your values and will accept the coin. This is why the SDG Coin – with its universal appeal – has the ability to gather momentum. You are not only buying what you want, you are 'buying into' the values you want to promote.

Seratio Platform

The Seratio platform has been architecturally designed to meet Enterprise level specifications. In its simplest form, it can be described by this diagram. It is currently being implemented with the assistance of the Ethereum Classic Community both Internationally (R&D) and in China (ICO).[6] The Seratio Blockchain, however, is not part of ETC and can be implemented using any base protocol. Our Proof-of-Concept, for instance, is in Multichain. As an open source idea, we actively encourage other blockchain protocols and API's to utilise the Proof-of-Impact framework.



The Proof-of-Value framework has been described in whitepaper 1.0. The Proof-of-Impact framework is described in this paper below.

[6] https://ethereumclassic.github.io/blog/2017-01-06-sustainable-development-goals/

Fiscal Policy

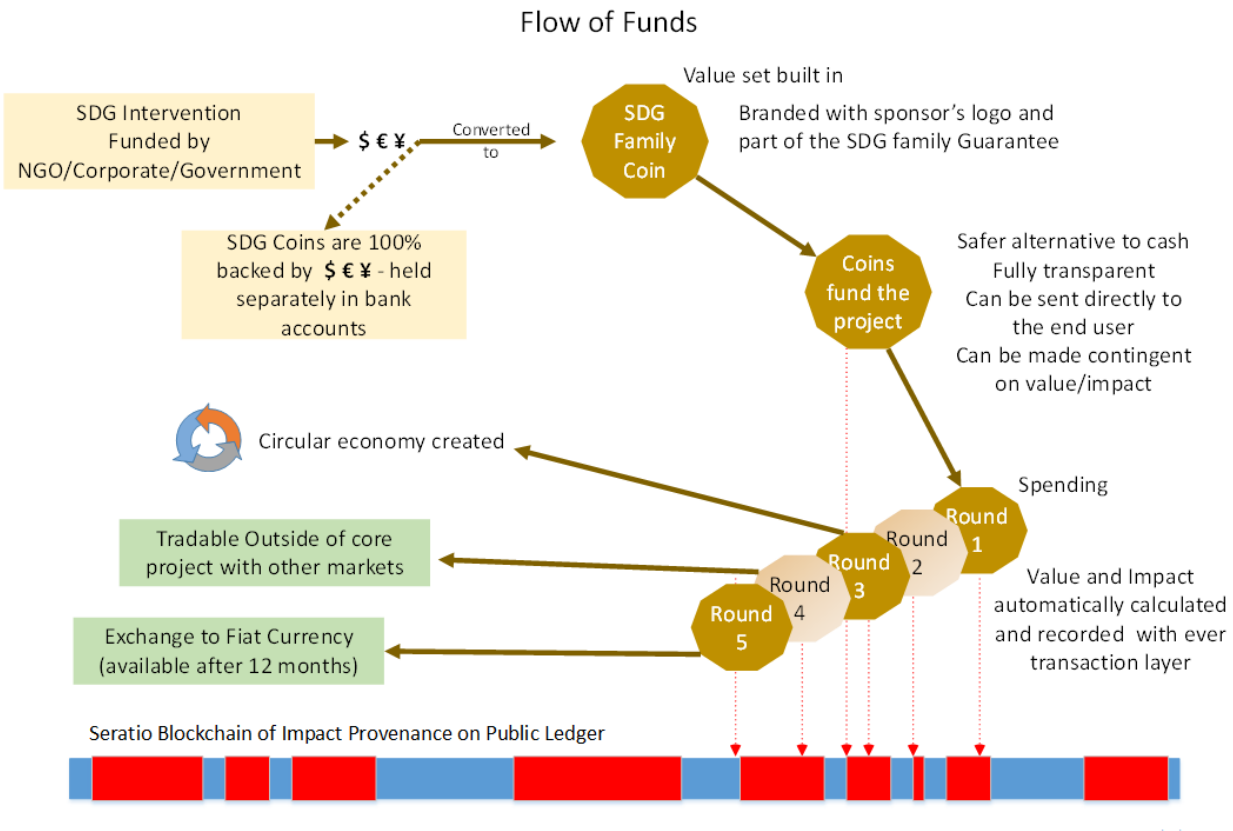
The diagram illustrates our fiscal policy which determines fund flows. The key components are:

- Funds are 100% securely held by CCEG, a not-for-profit organisation, to back the ICO (Initial Coin Offering). Only the interest from these funds will be used to fund the continuing research and development work of the Blockchain Lab. This way whilst we cannot guarantee the spot rate in any given future, we can guarantee what you paid into the ICO is fully backed.

- Initial transaction costs when the coin is being traded will be 2.5%. This figure will reduce over time as relative overheads diminish.

- Each coin is linked by value sets, not by a common exchange rate. For example, the Islamic Coin[7] is linked to the price of gold.

- All transactions are recorded in the public ledger which provides transparency, but of course not the details of the sender/receiver. Above all, however, it provides us all with a track of impact provenance.



[7] http://ow.ly/9nD3306wUdk

Comparative Advantages

FEATURES	TRADITIONAL IMPACT INVESTING	VALUES BASED BLOCKCHAIN
Economic Impact	√	**√ can be exchanged for FIAT currency**
Circular Economy	X	**√ Transactional Legacy**
Impact Measurement	X	**√ Any Impact Metric converted to S/E Ratio**
Investment Contingent on Impact	X	**√ Smart Contract makes automatic decision**
Social Impact	X	**√ If you can measure it, you can influence it**
Values Alignment	X	**√ part of Family of SDG coins**
Branded Interventions	X only as launch marketing	**√ Branded Coin**
Administration Efficiency	X substantial fees to middle players	**√ Zero fee structure**
Transparency	X diversion of funds common	**√ Public Ledger**
Economic Inclusion	X reliant on banking infrastructure	**√ Democratization of access to funds**
Empowerment to Service Users	X	**√ Coin carries governance vote, delivers voice**

Proof of Impact: SDG

Proof-of-Impact (PoI) is a unique mechanism that establishes the impact an entity makes though its social interventions. PoI is powered by the Seratio Blockchain and, as its name suggests, proves efficiency of impact interventions constructed to ensure sustainability in all forms. Together with PoV (Proof-of-Value)[8], PoI offers a new approach to maintaining trust in dApps. In the core of PoI is the Social Earnings Ratio – umbrella metric that measures non-financial "soft" value.

[8] Seratio Blockchain 2.0: Values Based Interventions, 2016

General case:

$$\widetilde{SE}(t_0) = \frac{1}{n}\sum_{i=1}^{n} SE_i(t_0) \quad (1)$$

$$\widetilde{SE}(t_1) = \frac{1}{n}\sum_{i=1}^{n} SE_i(t_1) \quad (2)$$

$$n \geq 1 \quad (3)$$

$$I = \widetilde{SE}(t_1) - \widetilde{SE}(t_0) \quad (4)$$

$$I = \begin{cases} < 0, & negative\ impact \\ = 0, & no\ impact \\ > 0, & positive\ impact \end{cases} \quad (5)$$

where t_0 and t_1 – time before and after the intervention respectively;

n - number of goals targeted (same organisation or many), or alternatively number of organisations targeting a social goal (if only one goal is targeted);

$SE_i(t_0)$ and $SE_i(t_1)$, $i = 1 \ldots n$ – per sustainability framework adjusted SE ratios before and after the intervention respectively;

$\widetilde{SE}(t_0)$ and $\widetilde{SE}(t_1)$ – mean SE ratios at time t_0 and t_1 respectively;

I – impact made by means of the intervention.

As many of the global challenges are covered by the UN Sustainability Agenda and grouped into Sustainable Development Goals [9], we choose to use the former as a common standard and to differentiate interventions according to the Sustainable Development Goals (SDG). Therefore, further in the work "intervention" will indicate any social campaign, project and/or targeted event that contributes to the implementation of one or more SDGs.

For all seventeen goals targeted by one organisation the impact intervention system will look like:

$$\widetilde{SE}(t_0) = \frac{1}{17}\sum_{i=1}^{17} SE_i(t_0) \quad (6)$$

[9] Transforming our world: the 2030 Agenda for Sustainable Development, 2015

$$\widetilde{SE}(t_1) = \frac{1}{17}\sum_{i=1}^{17} SE_i(t_1) \qquad (7)$$

$$I = \widetilde{SE}(t_1) - \widetilde{SE}(t_0) \qquad (8)$$

$$I = \begin{cases} < 0, & negative\ impact \\ = 0, & no\ impact \\ > 0, & positive\ impact \end{cases} \qquad (9)$$

where t_0 and t_1 – time before and after the targeted event(s) respectively;

$SE_i(t_0)$ and $SE_i(t_1)$, $i = 1..17$ – per SDG adjusted SE ratios before and after the targeted event(s) respectively;

$\widetilde{SE}(t_0)$ and $\widetilde{SE}(t_1)$ – mean SE ratios at time t_0 and t_1 respectively;

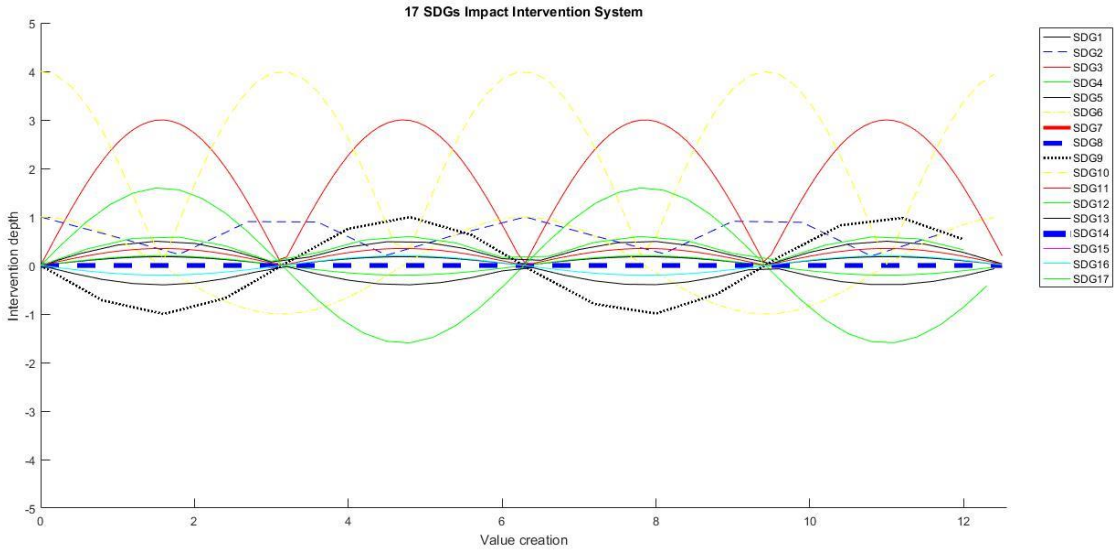
I – impact made by means of the targeted event(s).

Modelling: Intervention layers & levels

Our approach is to introduce 17 different (per SDG adjusted) Social Earnings Ratio (SE) prodigy metrics. Each ratio metric becomes a basis for the intervention layer. Thus, we get 17 impact intervention layers each with different impact intervention depth, value creation velocity and value creation acceleration. Every single impact intervention layer is computed according to the principles of the Theory of Total Value (described in the previous white papers) and shows value created through specified interventions - they can be (social) programmes, campaigns, events and services run by the organisation / entity. It is worth mentioning that value created by the organisation / entity via different interventions is mostly intended (deliberately designed company policies & actions), however there are rare cases when an organisation / entity creates value in an unintended way (e.g. often, a small locally operated businesses will create clear social value but may not be designated as a social enterprise). [10]

As it was said earlier, impact intervention layers are determined via impact intervention depth (later on simply "depth"), value creation velocity (later on "velocity") and value creation acceleration (later on "acceleration"). Depth of the layer shows the level of effect the intervention had on the community. In other words, the depth shows whether corresponding intervention had individual, family, community, region or global effect. For instance, not only do women empowerment campaigns tend to impact individuals but also communities at whole. These described campaigns impact community level and hence the depth of such an intervention will stand at the community level.

[10] WMFS Impact Model with Values Alignment, 2016



Whilst this is a multi-layered diagram, and essentially 3D dynamic model as with the ones illustrated in the CCEG Research playlist[11], for the sake of brevity we have given here for illustration in the asymptotically stable state which of course does not occur (only in rare conditions like a Soliton wave). In real life the above wave could diminish impact value or grow impact value, so the state in the diagram is merely a cusp point or perhaps more commonly known as the impact 'tipping point'.

Case Study: West Midlands Fire Service

The following example is used to demonstrate how Proof-of-Impact works from a live commission CCEG has been undertaking since February 2015. West Midlands Fire Service (WMFS) is one of the largest impact providers in the West Midlands region (UK), and the largest Fire Service provider outside London. Besides direct services, WMFS delivers (social) value though its prevention, safety and engagement campaigns and/or targeted events. Most of the targeted events are aimed at engaging communities through: a) vocational & fire prevention trainings and b) recruiting women and people from minority ethnic groups. Although community members are recruited mainly as volunteers and relatively few become paid employees, Women and Minority Groups empowerment-through-recruiting events have proven to be comparatively successful. [12] [13]

Considering the latter, it is useful to turn to the general demographics of the West Midlands region. Our research shows (and is in line with previous research on the subject matter), the Muslim Women community stands out for its low indices. Despite being relatively large group, Muslim women are among most deprived and socially inactive communities. There are several factors contributing to it, including:

- Traditional family pressures (parental dominance)

[11] https://www.youtube.com/watch?v=T72AIcxaZcE&list=PLyF9vaRnnfNOlYW8Xpmvp4L4HWIbhveo3
[12] Written Evidence Submitted by West Midlands Fire Service, 2016
[13] Beyond fighting fires: The role of the fire and rescue service in improving the public's health, 2015

- Gender discrimination
- Poor education
- Early marriages (especially among Asian Muslims)
- Islamophobia and religious prejudices
- Limited finances

To demonstrate the scale of the problem it is worth mentioning that Muslims in West Midlands (and the UK at whole) represent the 2nd largest religious group. The community has the highest rate of unemployment in the region (and country). Its members tend to live in close communities and are highly aligned with each other. Combination of the three results in low rates of social activism, which makes integration with the rest of population particularly challenging. [14] [15] [16]

However, the situation is different with Muslims in employment. Recent research shows, employed Muslims show better tendencies of interacting with people not only within the community but also beyond it. [17] They are also more willing to participate in the "targeted events" and consequently these events yield better impact. So, bringing more Muslim women into employment (even if unpaid), through capturing their values would mean growth of the employed community and engagement in general and hence greater impact. Besides, that may thus help with unemployed prone-to-radicalization youth as more people will be in employment.

Summarizing, through women and minority groups empowerment events, WMFS creates value for one of the most disadvantaged communities. Although the intervention happens on individual basis, the impact of such an intervention goes from individual level to family level to community levels. The following parts of the research are dedicated to illustrating thus created value as well as to proving impact made by WMFS.

Using SDG language, the service provider contributes directly to the Gender Equality (n. 5) and Reduced Inequality (n. 10) Goals and indirectly to the Decent Work and Economic Growth (n. 8) and Sustainable Cities and Communities (n. 11) Goals. Then, for the four goals targeted by WMFS the impact intervention system will look the following:

$$\widetilde{SE}(t_0) = \frac{1}{4}\sum_{i=1}^{4} SE_i(t_0) \qquad (10)$$

$$\widetilde{SE}(t_1) = \frac{1}{4}\sum_{i=1}^{4} SE_i(t_1) \qquad (11)$$

[14] Portrait of the West Midlands, 2011
[15] Employment Opportunities for Muslims in the UK, 2016-2017
[16] Charts which show the employment barriers faced by British Muslims, 2016
[17] British Muslims in Numbers: A Demographic, Socio-Economic and Health Profile of Muslims in Britain drawing on the 2011 Census, 2015

$$I = \widetilde{SE}(t_1) - \widetilde{SE}(t_0) \qquad (12)$$

where t_0 and t_1 – time before and after the targeted event respectively;

$SE_i(t_0)$ and $SE_i(t_1)$, $i = 1..4$ – per 4 SDGs adjusted SE ratios before and after the targeted event respectively;

$\widetilde{SE}(t_0)$ and $\widetilde{SE}(t_1)$ – mean SE ratios at time t_0 and t_1 respectively;

I – impact made by WMFS by means of the targeted event.

Now, if to assume: $t_0 - Q1\ of\ 2015$

$t_1 - Q4\ of 2015$

$SE_1(t_0) = 2.4$

$SE_2(t_0) = 2.1$

$SE_3(t_0) = 1.7$

$SE_4(t_0) = 1.8$

$SE_1(t_1) = 2.45$

$SE_2(t_1) = 2.19$

$SE_3(t_1) = 1.73$

$SE_4(t_1) = 1.9$,

Then

$$\widetilde{SE}(t_0) = \frac{1}{4}\sum_{i=1}^{4} SE_i(t_0) = \frac{SE_1(t_0)+ SE_2(t_0)+ SE_3(t_0)+ SE_4(t_0)}{4} = \frac{2.4+2.1+1.7+1.8}{4} = 2 \qquad (10.1)$$

$$\widetilde{SE}(t_1) = \frac{1}{4}\sum_{i=1}^{4} SE_i(t_1) = \frac{SE_1(t_1)+ SE_2(t_1)+ SE_3(t_1)+ SE_4(t_1)}{4} = \frac{2.45+2.19+1.73+1.9}{4} \approx 2.07 \qquad (11.1)$$

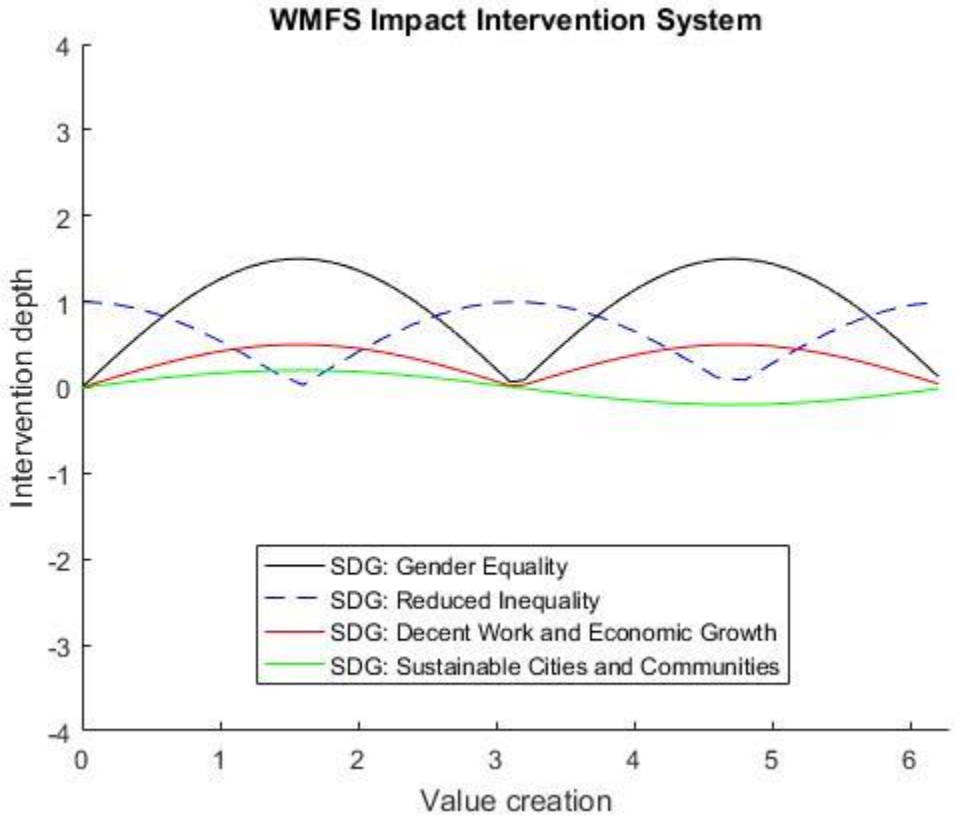
$$I = \widetilde{SE}(t_1) - \widetilde{SE}(t_0) = 2.07 - 2 = 0.7 \qquad (12.1)$$

Hence,

$$I = 0.7 \rightarrow I > 0$$

Given (12.1) and (5), it is established – impact created through WMFS intervention from the 1st quarter to 4th quarter of 2015 is positive and is equal to 0.7.

Now once the impact made by the service provider is proven, we can build a model of this impact intervention. The latter is made deploying the principles of the Theory of Total Value. Four layers of the model show 4 different SDGs covered through the WMFs intervention.

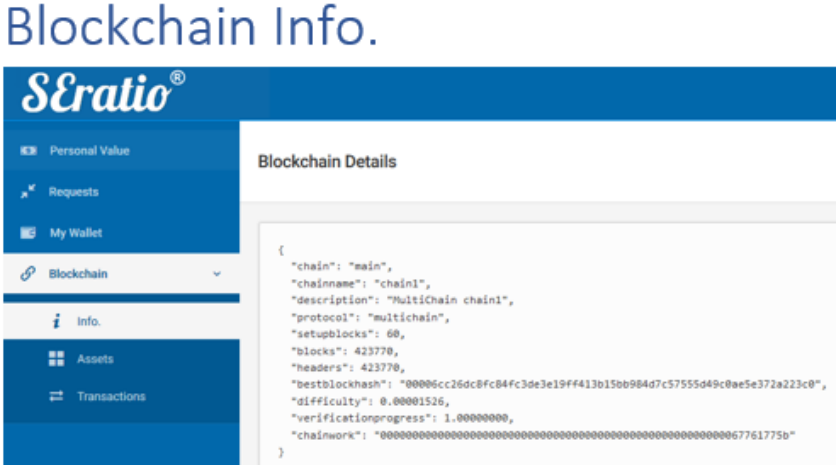


As before, the above illustrates the 'tipping point' for sustainable impact propagation within the region. This is of particular use in city planning.

Proof of Concept

The Seratio PoC used a Multichain protocol to build the Seratio Blockchain and was successfully completed at the end of January 2017. For PoI we used the existing PoV system – of c. 10 SaaS platforms

existing on the Seratio platform. This has given us the confidence to release this paper ahead of our participation in the Shanghai ETC Hackathon at the end of February 2017.[18]



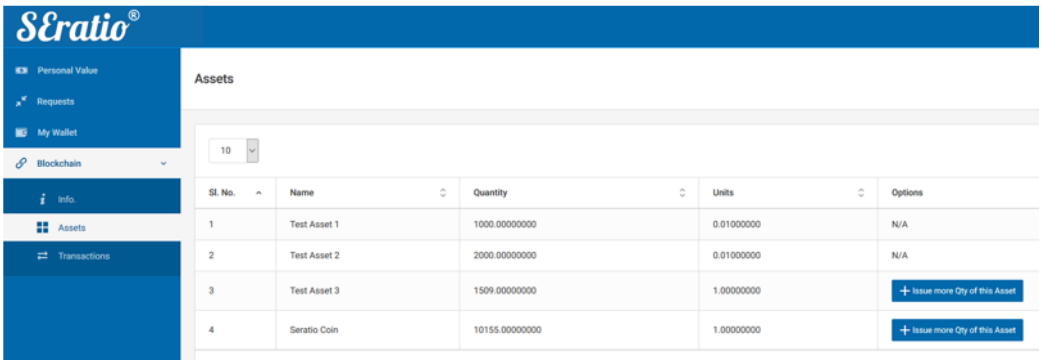
Sender	Receiver	Sent On	Status	Replied On	Options
reshma@markuplab.net	athira@markuplab.net	01/02/2017 10:53 AM	APPROVED	01/02/2017 10:53 AM	
athira@markuplab.net	reshma@markuplab.net	31/01/2017 05:49 PM	APPROVED	31/01/2017 05:49 PM	
athira@markuplab.net	Libin@markuplab.com	30/01/2017 10:19 AM	APPROVED	30/01/2017 10:19 AM	
athira@markuplab.net	Libin@markuplab.net	30/01/2017 10:18 AM	PENDING	-	
Libin@markuplab.com	athira@markuplab.net	30/01/2017 10:02 AM	APPROVED	30/01/2017 10:03 AM	

My Wallet

10

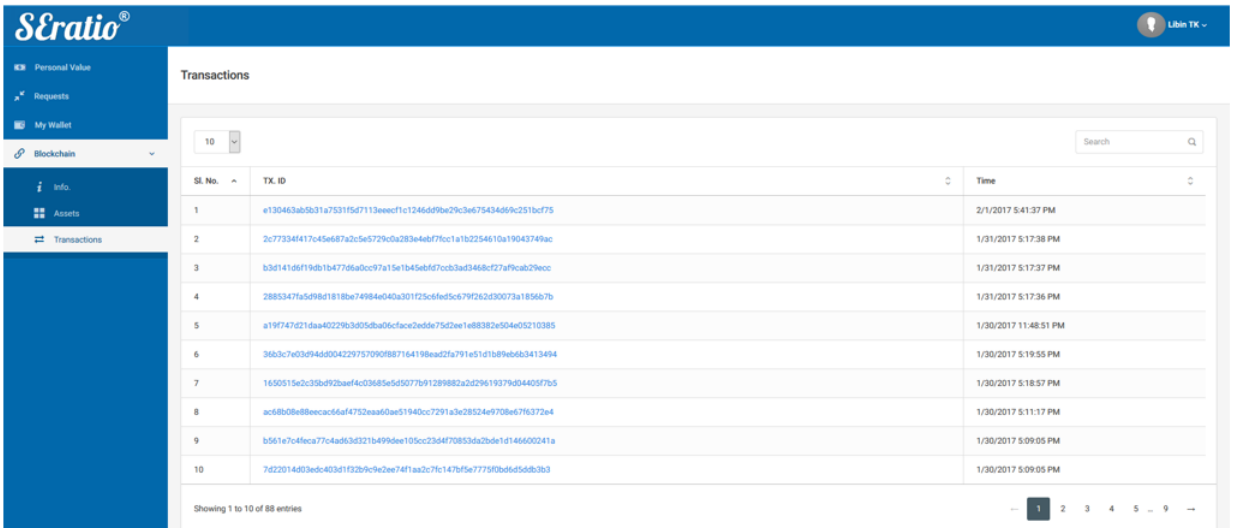
Sl. No.	Name	Quantity	Current Gold Price in GBP for 1 gm	Total Value in GBP
1	Seratio Coin	1043.00000000	30.488	31798.984
2	Test Asset 3	9.00000000	30.488	274.392

Issue Assets



[18] http://ftconnect.org/html/index.html#page1

Transaction Log of the entire Blockchain



Schedule

Design: Jun-Sept 2016 — Complete

Whitepapers: Oct-Feb 2017 — Complete

Proof-of-Concept: Nov-Jan 2017 — Complete

Hackathon: Feb 2017

Alpha Blockchain: April 2017

Blockchain API: June 2017

Beta Blockchain: Aug 2017

Partner PoI: Sept 2017

Release v1: Oct 2017

Release v2: Dec 2017

Convening Power CCEG Blockchain UN Lab

Open Source

The Seratio platform is an open source development and available freely to members of the CCEG Blockchain UN Lab under Creative Commons 4.0 (Attribution-NonCommercial-NoDerivatives 4.0 International) to ensure integrity. Members are able to host the solutions themselves, or have it hosted by CCEG at a service cost integrating with their own Proof-of-[...] value proposition. The Centre for Citizenship, Enterprise and Governance remains an academic not-for-profit vehicle to curate both the Seratio Blockchain and the Social Earnings Ratio.

Membership

As is the practice with great and successful open source projects, we welcome and encourage others to convene and collaborate with us. We welcome individual contribution and support and have put in place a governance structure for membership allowing participation by: Corporates, Not-for-profits, Foundations, Government, NGO's and Academic entities. It does not have to be a full scale provision, experimentation is also encouraged with testing smaller portions of impact responsibility and non-critical projects that provide a more gentle glidepath to success.

Membership will give an organisation Blockchain and Social Innovation capability within an open source convention. Expertise, real world application, experience and a robust test bed environment to experiment in are available to learn from and use. There are two categories of membership: Associate and Full Membership.

Associate members are provided with:

- A structured pathway to determine an entity's blockchain participation strategy from the very start point through to complete platform build.
- An ability to develop member blockchain applications in any field of choice.
- Design input into the blockchain platform that enables financial and non-financial value to be transacted.
- Issue of guaranteed, branded SDG family of digital Coins (cryptocurrency).

Full Membership has all the benefits of Associate membership above plus voting rights. Voting rights influence and determine:

- The strategic direction of the lab's work
- The current priorities and funding imperatives
- The governance structure of the lab

Voting criteria is based fairly on the amount invested. For example, the University of Northampton has already invested US$100,000 giving them 100 votes. Seratio Ltd has invested US$150,000 giving them 150 votes. Smaller organisations have paid commensurate amounts.

As an open source development, the results will be available to all members. For those who wish us to host the blockchain where there are costs, then membership gives a very low cost of entry into these important high-tech fields.

- Discounted fees to run their branded blockchain on their behalf by our professionally dedicated team.
- Discounted rates to access the Software-as-a-Service Seratio® API's to integrate into any existing project or system
- Discounted rates to accurate impact forecasting, consultancy, reporting and improved delivery through the developed Social Earnings Ratio®

We invite your membership to the CCEG Blockchain UN Lab

Background Note

Information on the open source Social Earnings Ratio® (Creative Commons, 2011) may be found at the not-for-profit Think Tank, Centre for Citizenship, Enterprise and Governance (www.cceg.org.uk) which focuses on Movement of Value. CCEG has received over 100 commissions, shown at www.socialearningsratio.com and operates 10+ SaaS platforms through the trading arm Seratio Limited (www.seratio.com). CCEG has over 55,000 members including 7,000 heads of CSR of the world's largest companies and 2000 politicians. Members receive the journal Social Value & Intangibles Review https://issuu.com/seratio. CCEG has founded the IoV Blockchain Alliance for Good (Bisgit.IoV) at www.bisgit.org

Whitepaper Schedule

Updates are available at:

https://github.com/seratio/whitepaper

1.0 Currency of Intangible Non-Financial Value (October 2016)
2.0 Values Based Impact Interventions (December 2016)
3.0 IMPACTING WITH VALUE: Capture-Translate-Transact-Report (February 2017)
4.0 Transference of Value across Scale
5.0 Zero Sum Gain Acknowledgement of Value – where value is not transacted, lost or gained
6.0 Niche Applications (Ethical Leadership, Mental Health, Health & Wellbeing, Eternal Value, Brand Value, Provenance, Capacity Development, etc)

Contact

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