

# TTP: The Consortium of Supply Chain and Procurement Professionals, Groups, Organisations, Agencies, Trade Bodies, Institutions and Companies collaborating on 4<sup>th</sup> Industrial Revolution Technologies



WWW.TTP.CENTER  
TTP Not-for-Profit Foundation

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Seratio Whitepaper 14.2  
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## PROCUREMENT WITH VALUE(S)

Procurement is facing unprecedented challenges from AI, and transformational opportunities through blockchain. As we drive towards the United Nations 2030 SDG goals, the hallmark of this next decade will be our ability to balance between financial and non-financial assets bringing profound social change. Procurement is one of the world's greatest instruments to drive our future, bringing absolute clarity linking purchasing contract reward with behaviour compliance adoption. Recent innovations include Facebook Libra and IBM Trust-Your-Supplier are most welcome attempts to bring consortiums of companies to impact payments and digital compliance, however, they are by design a view of the world through a top-down corporate lens with commercial interests. By contrast, the TTP Foundation is an inclusive 4IR consortium that combines these two motives and more but as a not for profit. Building on this global movement, we are establishing an inclusive, equitable circular economy of procurement bringing tangible and intangible rewards to the sector. This includes investigation of payment transactions with distributed ledger technology (DLT) transparent certification to enable a true value exchange between large and small players. The transnational transparent procurement (TTP) foundation is a not-for-profit NGO to pioneer 4th industrial revolution technologies (AI, DLT, IoT, 5G) providing scalable and sustainable solutions to the benefit of all participants. TTP is not just about efficient payments, alignment of buyer-supplier values, blockchain logistics, sustainability or modern slavery ... it's about all of it; total value supply chains and procurement.

# 1 TTP Foundation Executive Summary

The Transnational Transparent Procurement (TTP) Foundation is a free not-for-profit membership consortium for any stakeholder interested in the effects of 4<sup>th</sup> Industrial Revolution Technologies (4IR) on supply chains, procurement and purchasing. We aim to explore pathways to safely incorporate Artificial Intelligence (AI), Blockchain (DLT), Internet of Things (IoT) and Fifth Generation (5G) technologies into our collective and individual road maps. TTP will deliberate on solutions, pilot, iterate and implement for the industry as a whole so we can agree on common functions and standards. Given the rapidly burgeoning sector it is important that the industry meets the opportunities and challenges head on as leaders in the field and not simply follow what others dictate what use cases we must adopt.

Most if not all the world's resources including natural sustainable riches, intellectual assets, community and organizational wealth, even financial instruments such as nation and business revenues are extracted, exploited and utilized through the supply chain usually ignited by procurement spend. Markets, communities, organisations and nations competitive strengths may differ, but the supply chains apply a common set of principles to achieve results and avoid problems. It is when one or more of those principles is ignored that supply chain defect sets in. The penalty to be paid can vary. It can be anything from evaporating profits, mounting job dissatisfaction, bankruptcy, liquidation, insecurity, unemployment, inequality, poverty to deaths. Better products or services, more taxes, retrenchments won't help us get out of the abyss if the defects in the chain are too big or too many and this can be devastating and extremely difficult to recover from.

The threat inherent within 4IR, however, will only improve supply chains to the point where process driven procurement systems will give way to large scale automation of the purchasing function. The advent of 5G mobile networks with greater bandwidth and lower latency, for example, will allow corporate utility and even ideology in code to be embedded in all our products, projects, organisations and even people through data slices. There will be no requirement for processes driven professions who will fall victim unless we can equip young professionals, business and industry leaders to strategically incorporate 4IR for growth whilst impacting the wealth of their organisations, their communities, and ultimately their nations. This will involve a switch from transactional purchasing to value(s) based procurement functions.

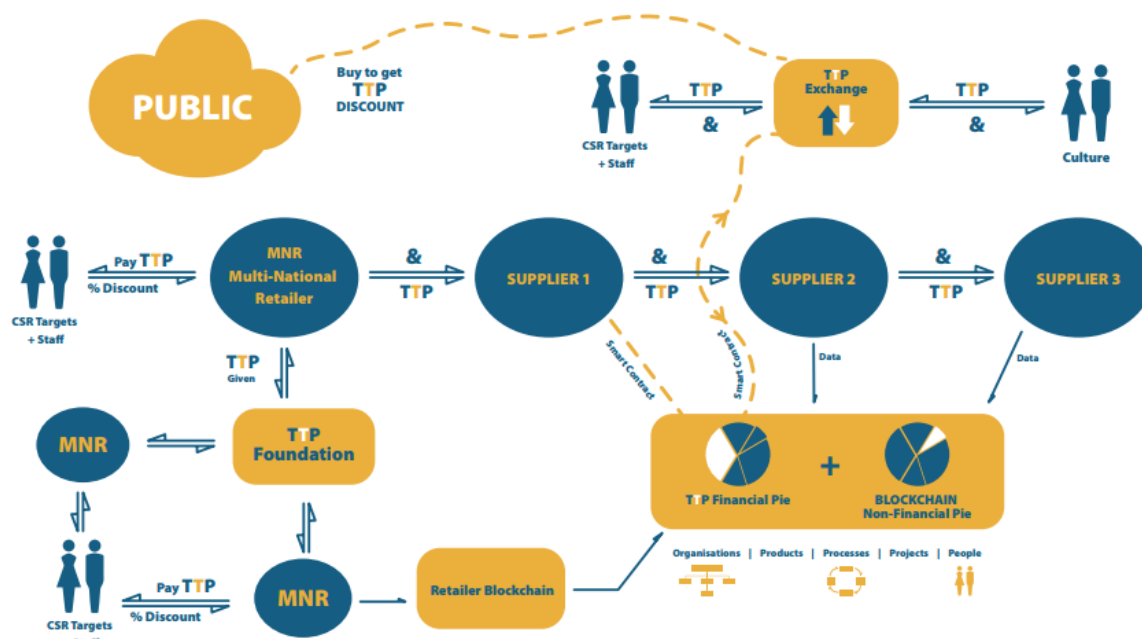
TTP will link and deliver to your businesses, communities, organization and nations consistently through a transparent, fair, equitable, immutable and compliant growth, sustainable improvements and performances in ...

- Revenue and cost bases
- Cash, working capital and return on assets
- Gross profit margin
- 4IR programs and initiatives
- Risks management and governance
- Improvements in contract and relationship management
- ESG (Environment, Social and Governance) management, Compliance and CSR (Corporate Society Responsibility) management
- Embedding inclusivity, diversity & sustainability (SDG 2030)
- Industry 4.0 technologies (Blockchain, AI, IoT, 5G etc) readiness and early adoption

We invite you to join us as members as Advisory Board and pledge your personal commitment at no cost, for individuals and organisations to partner with us, business and industry leaders to develop this legacy together. We at the TTP Foundation, in return, pledge to provide education, discussion and debate forums, develop innovation, pilots and standards, as well as employment and empowerment opportunities for our members.

The model of engagement for the TTP consortium is a more inclusive version of Facebook Libra and IBM Trust-your-Supplier which are worthy private initiatives. Nevertheless TTP will, on behalf of its members, directly engage with all stakeholders with attending commercial benefits available for all in the value(s) chain including customers, suppliers, corporates, staff, communities, government and the environment. This whitepaper will kick things off with some ideas to spark the debate, and to identify and agree the direction of travel. We will describe the starting proposals for creating, together, our TTP future:

- A trusted TTP blockchain to carry out all compliance and ESG requirements
- A circular token economy that carry the strategic non-financial values of the stakeholder
- Guaranteed financial rewards across the entire chain including for all members



TTP is backed by the Centre for Citizenship, Enterprise and Governance, the world's leading not-for-profit Think Tank on the Movement of Value (measurement, transaction and delivery). With over 162,500 members, CCEG has been in existence since 2011 and provides TTP with an unrivalled pedigree of Thought Leadership. TTP Foundation will rely on the combination of academic and commercial know to remain non-partisan and neutral in its agenda with only its members, the procurement profession and society at the heart of all endeavours. We believe procurement to be the single greatest instrument to change the world and through TTP we intent for you to have a place at the top table on a global platform.



23<sup>rd</sup> December 2019

**Re: Transnational Transparent  
Procurement (TTP) Foundation**

Invitation Letter

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**CHIEF/EXEC EDITOR**

*Frontiers in Blockchain:*  
frontiersin.org/blockchain  
*Social Value & Intangibles Review:*  
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**BLOCKCHAIN**

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CryptoCurrency: seratio-coins.world  
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**SOCIAL MEDIA**

#GoodisTrending #Procuredvalue5

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**Why Join?**

As one professional to another, I thought I would share with you some thoughts for you to consider.

I think we all know that our future is somehow going to be intertwined with AI, IoT, 5G, and Blockchain. We can all agree that 4<sup>th</sup> Industrial Revolution Technologies is a 'thing' filling all our media channels, but the dilemma we are all faced with are:

- ✚ What does all this mean for us and our organizations – we want **independent** advice and not to be shoe horned into products and offerings from particular parties with biased commercial interests so early in the game?
- ✚ It's too early to know if there are successful user cases in supply chains, procurement and purchasing; nevertheless can someone help us develop our very own **tailored** strategies, tactics, products and processes that actually give us a competitive advantage?
- ✚ We hear of limitless riches and **financial** gains from individuals and players in these markets; we don't want to be mere observers or passengers of this phenomena but can we somehow enjoy the benefits of leadership both personally and for those whom we act?

To be blunt, the answer is yes to all three. Please don't waste time, contact us today and see how you can join your very own foundation, created by you and for you.

Yours faithfully

Professor Olinga Ta'eed  
Director



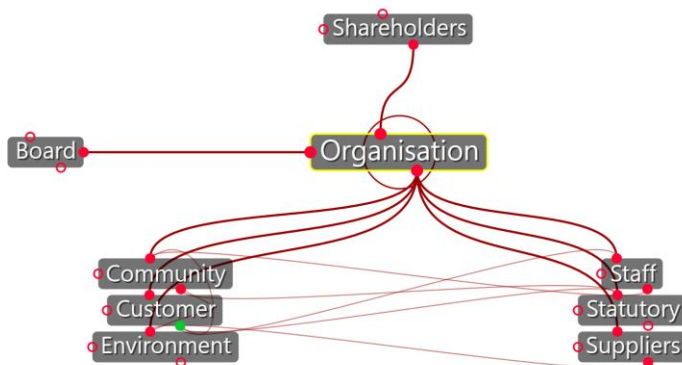
**Centre for Citizenship  
Enterprise and Governance**



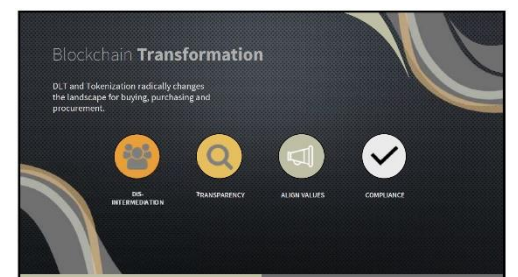
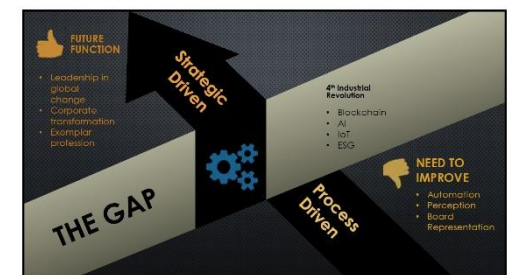
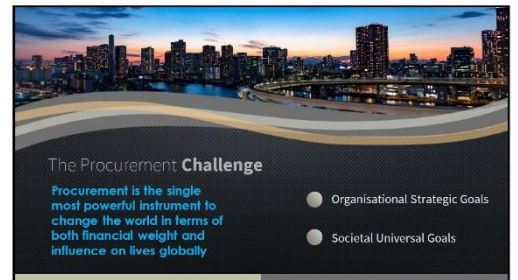
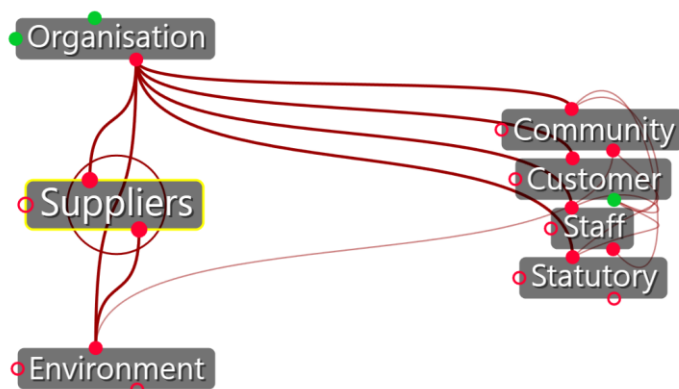
## 2 TTP Foundation Membership

### 2.1 Strategic Position of TTP: Internal Procurement to External Facing

In your typical multi-stakeholder environment, suppliers are subject to organisational control which effect a top down approach to customers, government (statutory bodies), their staff, community and environment. Other professions and stakeholders have bodies that represent doing good in society – even banking, construction, gambling, drinks, etc have outwardly facing trade bodies who are responsible for representing their collective agenda into industry futures such as 4IR. Procurement, however, is considered an internal function and has no such interface or trade bodies that push the external edges of what society will need from them. TTP aims to be that body.

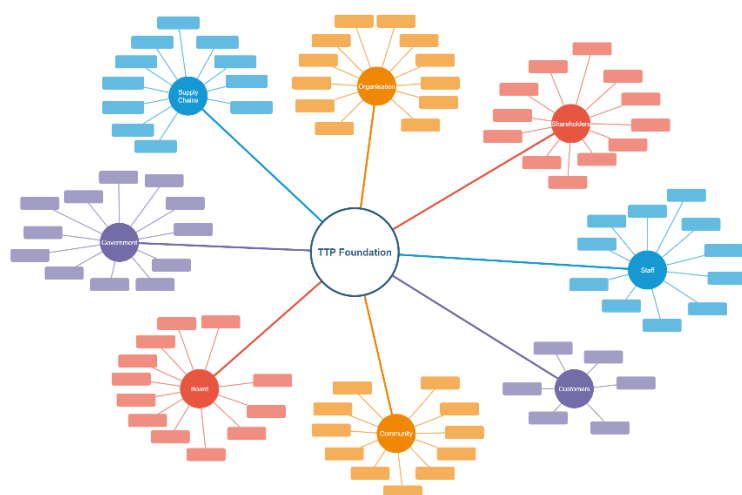


If we attempt to remedy this by putting the procurement (Suppliers) process at the heart of the map, it becomes very evident that Procurement and Purchasing have no direct interaction with any stakeholders except for the corporate, and sometimes with a responsibility for Sustainability. If, as TTP Foundation believes, Procurement to be the single largest instrument to change the world, then clearly we need to redefine this map to ensure the profession has direct ability to nudge behaviour and administer its influence on the direction of society.



## 2.2 Making TTP Scalable: A Seat at the Top Table with Multi-stakeholder Representation

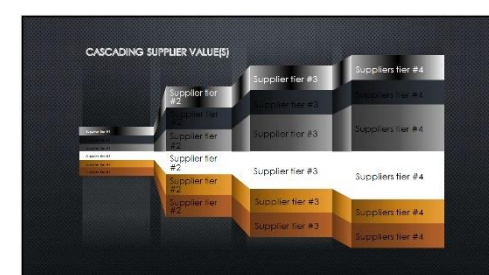
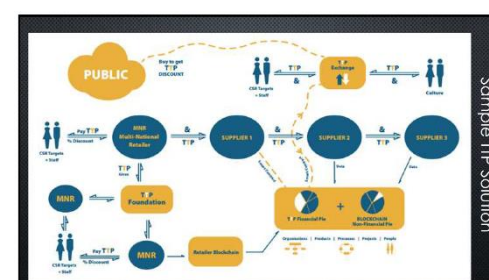
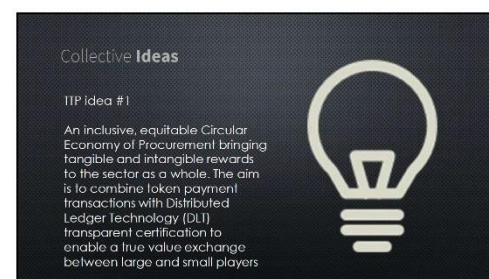
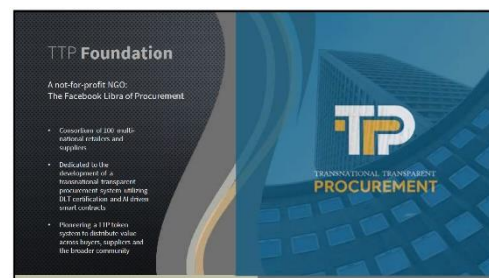
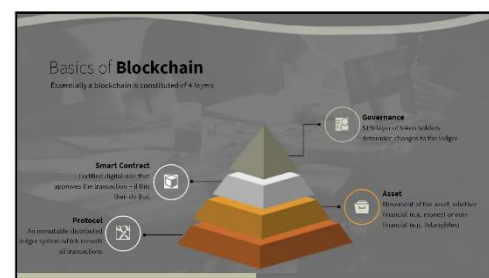
TTP Foundation will, on behalf its members, address this historic position by seeking agency stakeholder representations whether individuals, institutional, organisational, NGO's, government, environmentalists, etc to become a powerful voice for the industry through direct engagement. In short, TTP will invite not just procurement professionals and bodies to join free of charge, but also members from all stakeholders who wish to use the power of procurement for betterment of the world. This will include representation on their boards and organisations, partner status on behalf of the procurement profession, and forming a collective view of how 4<sup>th</sup> Industrial Revolution Technologies will transform the supply chain and its interaction with all key stakeholders.



TTP will engage with other industry bodies to shape our direction and draw on the knowledge base of our members to shape our 4IR future.

## 2.3 Making TTP Sustainable: Rewarding our members for their contribution

So if membership is free, how will we ensure TTP is sustainable? Once again, we will turn to the 4IR instrument of tokenization by developing our own TTP Token (TTPX) to reward members, staff, investors and the TTP Foundation for their thought leadership. The rise of tokens, cryptocurrency and other digital currencies has been certainly a phenomenon worldwide but one that has equally drawn negative influencers. Since 2018 the G20 countries have agreed to regulate the sector and we are proud to have been the only team to have issued a token in 2017 with guidance from the Financial Conduct Authority (UK's financial regulator); we remain in that



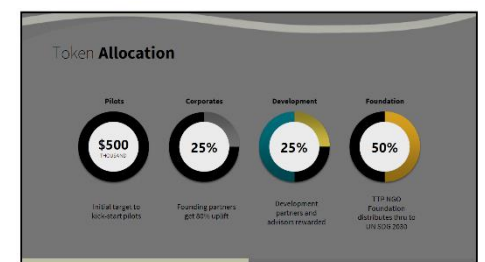
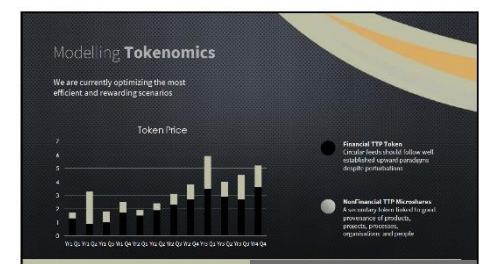
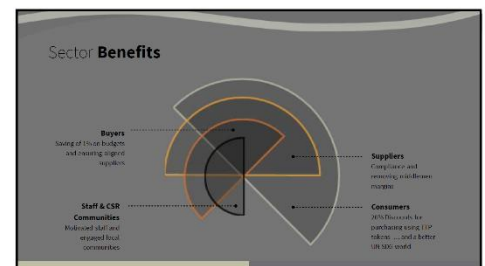


position even now as we enter 2020. TTPX will be given to companies, NGO's, advisors, board members, individuals, researchers ... all members ... to say thank you for sharing your ideas and supporting TTP as we grow. The TTP Token will have a procurement utility for the circular economy we wish to establish, and be part and parcel of the offering from our Think Tank with value that should grow to the UN SDG 2030 and beyond. At all times the token will meet government regulation and come under the scrutiny of legislation as well as the transparency that blockchain technology affords. It is estimated that c. US\$ 500k is required to fund TTP pilots on behalf of the members and there are plans to raise in 2020.

## 2.4 Not-for-Profit, Non-Partisan and Neutral

Unlike other procurement consortiums, TTP remains not-for-profit, non-partisan and neutral supporting by global academic institutions with an international pedigree. Founded in 2011, the UK based Centre for Citizenship, Enterprise and Governance (www.cceg.org.uk), the world's leading think tank on the measurement, transaction and delivery of value, will underpin and guide TTP to become an independent body of international stature. Already renowned as a world authority on impact metrics and blockchain, CCEG is supporting the TTP Foundation. Other CCEG projects include ideology in code in 5G networks for IoT applications and AI bots on mobiles, DLT banking, establishing university 4IR research centres, and rolling out further peer reviewed journals in the field. A key benefit will be the participation of universities to undertake the TT{ research, modelling and peer reviewed publications of the work on behalf of TTP members. This ensures the highest level of scrutiny and challenge.

This is as no-risk no-fee membership opportunity to shape the future of procurement, purchasing and supply chains and ultimately participate in the adoption of 4<sup>th</sup> Industrial Revolution Technologies not as a passenger but as a leader.



## 3 Procurement Challenges

Organisations globally face several challenges related to supply chains. These include changing consumer expectations and segments, compliance with international and national regulations/tariffs/free trade agreements/policies, the need for the use of digital technology and innovation, difficulties in talent acquisition and retention, and the increasing complexity and interconnectivity of globalised trade networks.

Negotiation of contracts and payments for commodities can be complicated, time consuming and paper intensive. This complexity in the supply chains and the business systems employed, means there are large variations in productivity, profitability and risk exposure for different actors within a given supply chain. Approaches that can serve to manage this complexity would therefore be crucial in increasing productivity and profitability<sup>1</sup>. Indeed, most organisations now have as much as 80% of their turnover comprising bought-in goods and services<sup>2</sup>. Effective management of supply chains are therefore crucial not only in managing costs, but also in increasing profitability.

Traceability and compliance for the movement of the commodities from suppliers to buyers can also be challenging, expensive and is often inefficient for key stakeholders (e.g. consumers, regulators and financiers).

### 3.1 Sustainability and Transparency

The sustainability and inherent transparency of the operations of organisations is largely driven by the policies, business models and personnel involved. For example, different business models and values chains will have different risk and investment profiles. Thus, they will face different costs, challenges, and opportunities to implement more efficient and sustainable practices. This means that understanding which business models and actors are willing and able to take on which risks, and at what cost, is critical to developing appropriate policy and finance instruments to drive the transformation toward more sustainable organisations and sectors<sup>3</sup>. This understanding needs to be informed by detailed evaluation and analyses of supply chain data, and the development of transparent networks of stakeholders.

### 3.2 Disintermediation in Sourcing

Within most supply chains, intermediaries play a significant role. Acting as a link between buyers and sellers, they determine market access and pricing. Increasingly, stakeholders are looking to employ direct trade models<sup>4</sup>. These models and the way they operate can vary widely, from a 'simple' direct buyer-seller link, to a more integrated model. An overarching aim is often to eliminate the intermediary and thus exert control over the transaction; ultimately aiming to deliver added value.

Increasingly, direct trade models are utilising online platforms. Think for example, of entities such as AirBnB, Amazon and Alibaba, etc. Use of technology has the benefit of facilitating huge networks,

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<sup>1</sup> Cole et al. 2019 'Blockchain technology: implications for operations and supply chain management', Supply Chain Management, 24(4), pp.469-483

<sup>2</sup> The Chartered Institute of Procurement and Supply

<sup>3</sup> Frisari, G., Hervé-Mignucci, M., Micale, V. & Mazza, F., 2013. Risk Gaps. CPI. Available at: <http://climate-policyinitiative.org/publication/risk-gaps/>

<sup>4</sup> Borella et al. 2015 'Smallholder Farmers in the Speciality Coffee Industry: Opportunities, Constraints and the Businesses that are Making it Possible' [online] [https://opendocs.ids.ac.uk/opendocs/bitstream/handle-/123456789/7721/IDSB\\_46\\_3\\_10.1111-1759-5436.12142.pdf?sequence=1](https://opendocs.ids.ac.uk/opendocs/bitstream/handle-/123456789/7721/IDSB_46_3_10.1111-1759-5436.12142.pdf?sequence=1)



opening up wider market opportunities, delivering products and services (and resulting payments) globally and quickly.

### 3.3 Towards Equality of Opportunity in Supply Chains

Smaller players in the supply chain often face disadvantages (e.g. they cannot realise economies of scale or are unable to be listed on preferred supplier listings). They have limited access to resources and markets. They often face challenges in their negotiation and bargaining powers, as well as their ability to undertake due diligence. This power imbalance can result in a focus on financial factors, with a downward pressure on prices, single large entities with thousands or millions of smaller suppliers, and in some cases to unfair practices. As a result, monies received do not always cover production costs, and are not delivered in a timely manner, thus impacting on cash flow and business model viability. Competition is reduced and markets become distorted. In developing countries, there might be limited or no infrastructure (e.g. road access to move products from the farm to the ports), training and skills development opportunities or viable local markets.

### 3.4 Aligning Buyer-Supplier Values

While initiatives such as fair trade have been touted as market levellers, certification is often too expensive for small producers, and in most cases does not deliver significant financial value to them. Power is dependent on the size, and in some case the geographical location of the buyer. Initiatives that better enable not simply financial value to large multinational, but also realise socio-economic value, build communities and well-being, and address global inequalities are therefore crucial.

Fair and equitable contractual arrangements between both buyers and sellers are of paramount importance. Producers should be able to get paid quickly to alleviate problems with cash flow. More integrated supply chains would enable exchange of information on costs, demands and quality. This integration would lead to improved efficiency and compliance, as well as a better understanding supply and demand, and therefore improving price negotiations.

### 3.5 TTP Supply Chain and Organizations' Success

Organizations with global supply chains, a portfolio which includes a fast-growing number of corporations, medium-sized companies and even small businesses—can be standing on a cost base of which 90% is attributable to procurement expenditure. It does not matter whether you are a procurement professional, internal customer, external customer, senior executive, or supplier. Directly or indirectly, you are affected. Procurement is what sets entire supply chains and their organisations in motion. How procurement handles itself and its activities set the tone for all the events that follow, right up to the final delivery of goods and services to the end-customer.

Organizations face continuing pressure to transform their procurements and deliver value. To be sure your business will be thriving through to the next 5-10 years and beyond, your procurement must be at the centre of management attention.

#### 3.5.1 What is the opportunity?

Are you meeting the organizations procurement objectives? TTP helps you **>create, >procure, >protect, >assure, >improve and >deliver** value by having the **• Right product • Right quantity • Right quality • Right time • Right place • Right price • Right supplier** fortified by our TTP blockchain.

Some key honest questions to ask yourself on why you should join TTP;

1. Do you have closely aligned procurement, business and CSR strategies? Have you thought about your stakeholders?
2. Do you regularly review and optimize your procurement network? Are you capturing all the opportunities, savings, benefits that you could?
3. Are you continuously and actively seeking procurement service improvements? Are you connected to your suppliers? Do you have a digital strategy?
4. Do you have visibility and control of procurement costs? Industry Benchmark and Market Intelligence? Is your information in order?
5. Have you implemented a supplier performance management, enterprise, and supplier development & diversity programs? Are you measuring the right things?
6. Are you taking steps to mitigate risk in your procurement? Do you have visibility? How are you mitigating risk?
7. Is your inventory being managed effectively? What of product quality? How about your working capital? Do you have the insights you need to make good decisions? What of your payment to terms?
8. Do you have an active contract management and administration program? Do you know how to execute? How do you monitor & measure performance?
9. Are you worried of unethical issues and losses due to fraud in your procurement?
10. Have you ever wondered if your procurement team, suppliers and stakeholders are well equipped, knowledgeable to deliver? Do they have the right skills?

So, if the honest answer is “NO” to any of these questions, then definitely there are golden opportunities to improve your procurement and supply chain operation with TTP — and drive your business towards a bright and successful future. Developing a best-in-class procurement is no easy task, and it takes time. The time is worth taking and investments worth making.

Whether you are the CEO of an expanding corporation, or the owner of a fledgling enterprise, its fortunes are subject to an undeniable truth. The success of your business is inextricably linked to the performance of your procurement. If you want business success (and who doesn't?), you must make your procurement successful too. Governments world over already recognize that procurement is one of the greatest instruments to achieve national objectives and are enacting laws to align it with their values.

### 3.5.2 How Transnational Transparent Procurement Makes a Better World

The World Economic Forum (WEF) reports that approximately US\$2 trillion are wasted every year by purchasing decisions. Some of those poor decisions may be intentionally unethical; most of them though, are unintentional and rather, a result of an error-laden, misguided procurement process. The WEF also reports that at least 18% of our global GDP is spent in the public sector annually - In most developing countries this percentage is as high as 30%+ of the GDP. With such high figures, imagine how different our world would be if people made the right purchasing decisions every time? If corruption, quality and value weren't a concern? Hospitals would have better equipment for better patient care; universities and school districts would have better resources for better learning experiences; citizens would have better roadways, parks and services.

A better world can be uncovered when smart spending decisions lead to equal opportunity, more innovation, better healthcare, better education, better infrastructure, market competition, higher quality products and ultimately, improved quality of life. By “fixing” procurement, a hidden lever will be unlocked that will drastically transform the world.

### 3.5.3 Procuring with our Values

In our daily lives we procure not with money, but with our values. We buy cars that bring us 'joy', purchase clothes that 'empower', acquire services that make us 'happy' ... and reject offers that do not match our 'hopes'. Institutional procurement is moving in the same direction - we no longer decide only on price, speed and quality ... but factor in sustainability, modern slavery, and social value. TTPF is not just about efficient payments, alignment of buyer-supplier values, blockchain logistics, sustainability or modern slavery ... it's about all of it – Total Value Procurement.

### 3.5.4 TTP, Blockchain and Organization Success, By the Numbers

If you want business success, you must make your procurement successful too; 30-90% of business turnover and country's revenues are spent on procurement similarly 4.5% total purchasing cost reduction has the same impact on profit as 28% increase in revenue/sales/turnover in most leading industries/sectors.

This illustrates how critical the interrelations are between an organization and procurement. It can be deduced that poor procurement performance commonly contributes to corporate or business failure. Similarly, it can be safely assumed that in many cases, businesses that fail, do so because of financial problems. It's not difficult to see how the financial health of a business depends on procurement, or how probable it is that procurement costs feature prominently in the demise of many companies.

Here are a few more sobering facts, to complete the big picture of organization success and its dependency on supply chains.

1. In many businesses, the supply chain has never been subject to a design process but has instead just ... evolved.
2. Supply chain strategy is critical to business success but is often underestimated in its importance and hence receives less strategic attention than other areas of operation.
3. It is also not uncommon for the supply chain to be the least understood area of strategic business management, which for an activity generating up to 90% of overall business costs, is alarming indeed.

So, where does this all lead us? It highlights just how important the supply chain and its management are to the success of businesses operating in today's local and global markets.

### 3.5.5 Transparency TTP

Transparency means unimpeded visibility and is paramount in all procurement activities. What we buy, what we eat, the suppliers we partner with, what we sell, what we produce, represent the values by which we transact. AI will change this process dramatically. Procurement risks, purchasing fraud, bribery, social risks, slavery, can and do happen to the biggest companies with several high-profile examples.

Therefore, central to TTP is achieving procurement probity, to;

- provide accountability & fair competition;
- maintain procurement process integrity, impartiality and immutability;
- ensure authenticity and traceability of the procurement cycle
- maintain organization corporate image and brand;
- ensure compliance with processes and CSR targets;
- ensure that all offers will be evaluated against the same criteria;
- preserve public, consumer, buyer and supplier confidence in Organization's processes;

- minimize potential conflicts and the potential for litigation;
- ensure the procurement activity provides the best outcome; and
- avoid the potential for misconduct, fraud and corruption
- maintain integrity, competence in staff, suppliers and stakeholders
- discover market opportunities, enable informed buying decisions
- identify, highlight, clarify and mitigate procurement risks
- ensure processes are consistent, transparent and auditable
- ensure market equality, inclusivity and diversity ...

No longer can decisions be based solely on price, speed and quality ... but factor in sustainability, fraud, modern slavery, social value. Brands can no longer afford to associate with actors whose values do not align; because of transparency afforded by media platforms these intangible assets can rapidly decimate tangible assets.

*"It's for us to buy products, services and works from suppliers that are aligned to our values."*

We have seen an explosion in the number of commercial brands suffering tarnished reputations and loss of revenue as a result of unethical practices in their procurement. Corporate governance & social responsibility issues can impact any business,

even if unethical practices are discovered two or three tiers deep in the supply chain. Association with unethical partners might very well lead to financial disaster and business failure, as customers react to what they perceive as "wrongdoings".

If operating procurement across international borders, out of sight must never be out of mind. Suppliers hold business success (or lack of it), in their hands. Therefore, a **need** exists to manage supplier/buyer processes, contracts and agreements effectively. For customers, there is no distinction between the performance of suppliers and the company. The supply chain is only as strong as its weakest link. It is time for procurement professionals to break away from the equivalence to the mundane world of accountants, auditors and actuaries, but to actively drive change.

### 3.5.6 Ensuring the Right Partnerships

In almost every industry, supplier-buyer, stakeholder, regulator synchronization can either make or break an organization's ability to service customers responsibly and reliably while maintaining cost effectiveness and managing assets effectively. Industries, markets and organisations may differ, but the supply chains apply a common set of principles to achieve results and avoid problems. It is when one or more of those principles is ignored by either player (s) that supply chain "sin" sets in. The penalty to be paid can vary. It can be anything from evaporating profits and mounting job dissatisfaction to bankruptcy and liquidation. Better products or services won't help an enterprise get out of the abyss if the kinks in the chain are too big or too many.

TTP helps you validate and align your supply chain as it ensures;

- the seller is who he says he is
- the buyer is who he says he is
- all parties have the same and the right information
- the object of the transaction corresponds to what the purchaser thinks he is buying



- the seller owns the object of the transaction
- the buyer has the means to pay for the object of the transaction
- the seller is aligned and compliant to the buyer values
- there's contract reward linkage with behaviour compliance adoption
- timely settlement, when the set criteria are met

Businesses aren't just about what they produce. They're also defined by what they purchase – quality of life necessities, development, health, safety, comfort, sanitary conditions, customers, employees and communities. Every company, whether in times of economic boom or scarcity, is faced with the need to mitigate supply chain risks, cut costs, generate cash, manage CSR targets in order to achieve growth & secure their future. Effective collaboration and supply chain synchronization with key players, stakeholders and suppliers are critical success factors in serving customers, managing CSR targets and meeting strategic goals.

### 3.5.7 The Supplier's Point of View

There is an assumption sometimes that villains in a procurement scandal must include the supplier. After all, if people involved in procurement have been corrupted, there must be a corruptor and suppliers can make good scapegoats. Yet many suppliers have their own written CSR targets, policies for employees about how to conduct sales activities and contract negotiation and management with clients across sectors. Procurement teams would also do well to remember that suppliers that have behaved ethically and won business honestly also need to be paid in a timely way as well as recognized/celebrated. Otherwise, not only can motivation dwindle for upholding ethical, CSR standards and ensuring adherence to social values, but also there may be fewer surviving ethical suppliers to do business with anyway.

The immediate reaction to the idea of unsatisfactory procurement values is that it will be damaging for public relations if those values become known. This is true. In this information-rich and communication-enabled age, bad press can spread rapidly. Consumers and other members of society wield considerable power in the form of associations, forums and networks, whether online or offline. They know how to use that power to punish enterprises and organisations they consider offenders. Sanctions can include boycotting purchases of a company's products or services or voting governments out of power.

Supply chains and markets have globalized to such a degree that even some of the smallest businesses have supply chains spanning one or more international borders. It no longer matters that a business is an unwitting victim, or that the perpetrators are a supplier of a supplier of a supplier. There is an ethical chain of responsibility, and to be considered ethical and socially responsible, businesses must find ways to ensure they are squeaky clean and that no tier in the supply chain can be associated with such practices. This where you turn to TTP for these guarantees.

Procurement can find itself embroiled in events and situations that make world headlines. Values, Ethics—or lack of them—is often at the heart of the discussion. From the deaths of factory workers earning pittance to corruption and kickbacks in government contracts, procurement can be a hotbed of horror stories and scandals.

TTP completely mitigates such headlines from emanating from within your organization. It ensures that suppliers are rewarded for complying to buyers, regulators values and barres those who do not comply from winning contracts or participating in the value chain. Across all tiers of your supply chain TTP has you covered.

We help supplement the skills within your organization and are an extension of your team through our TTP, experts, technologies and networks, we help fortify your organization against critical supply chain issues, errors, lapses, challenges and risks.

We never assume that doing the right thing in terms of procuring with our values is automatic. Ignorance, conflicts, partiality, vulnerability, doubt, temptation, and fear are dispersed and replaced by a clear social value model for all to follow under TTP. The advantages to your organization (s) are greater efficiency and total value from procurement activities, a better brand image, and increased loyalty from suppliers, buyers to end-customers/consumers and appreciation from the public in general. TTP helps ensure good behaviour is rewarded by the buyers, stakeholders, regulators and the general public.

## 4 Blockchain, Tokenisation and AI

Machine learning (e.g. Artificial intelligence – AI), is better at managing structured data, as it is free of the ‘cognitive biases’ held by humans. When faced with large quantities of data, humans tend to utilise ‘heuristics’, and in so doing, make snap decisions that in some cases are not viable in the long-term. AI assisted decision-making would enable informed insights into buying and selling, as algorithms learn from human behaviour.

### Key areas for potential cost savings from utilising blockchain

Blockchain is a distributed ledger providing an immutable, reliable and shared view of transactions (e.g. buying and selling of goods and services), between engaging parties in a fully untrusted environment. It is an innovative and disruptive tool that enables institutions to operate a lot quicker and in a cheaper way, with a far lower error rate, with less resulting risks, lower capital requirement and is less vulnerability to cyber-attacks. Distributed ledger technology could reduce financial services

infrastructure cost between US\$15 - 20 billion per annum by 2022<sup>5</sup>, providing the possibility to decommission legacy systems and infrastructure and significantly reduce IT costs. A 2018 study by Accenture<sup>6</sup> found that key areas for cost savings included central finance reporting, business and centralised operations, and compliance. There were potential savings of approximately 30% annually.



<sup>5</sup> A Santander FinTech 2017 study

<sup>6</sup> Banking on blockchain. <https://www.accenture.com/acnmedia/accenture/conversion-assets/dotcom/documents/global/pdf/consulting/accenture-banking-on-blockchain.pdf>

Using the Internet of Things (IoT), cars, electronic devices or home appliances could for example have their own insurance policies registered and administered by smart contracts in a blockchain network<sup>7</sup>. For example, an insurance smart contract would be embedded in a car and register a wide range of driving information (e.g. speed, time of drive, driving style, weather, road risk and traffic conditions), thereby providing a data to determine the insurance premiums based on predetermined factors. Alternatively, the contracts could automatically detect damage, and trigger the repair process, as well as claims and payments.

Customers, who for example, are involved in fewer accidents or retain their electronic devices for a set period, could be rewarded through tokens. Token holders could also receive discounts when they purchase items from partners of the TTP Foundation. In this way, 'good behaviour' is encouraged and there is facilitation of social value and the Sustainable Development Goals (SDGs) in the buying and selling practices of organisations and individuals.

## 4.1 Key Features of DLT Certification

Distributed Ledger Technologies (DLT) have received growing attention in recent years as an innovative method of storing and updating data within and between organisations. The key features of DLT/Blockchain, as distinct from other databases, are associated with its distributed nature. Multiple copies of the ledger are held by different parties, with data added by consensus and without the need for a third party<sup>8</sup>. To this end DLT certification offers several options to challenges for acceptance. For example:

- Standards could play an important role in ensuring interoperability between multiple DLT/Blockchain implementations and, in doing so, could help reduce the risk of a fragmented ecosystem;
- Using standards to establish a stronger consensus on consistent terminology and vocabulary could improve understanding of the technology and help progress the market;
- Establishing standards to address the security and resilience of, and the privacy and data governance concerns related to DLT/Blockchain could help create trust in the technology;
- Standards could play a role in digital identity management and foster end-user trust in the technology;
- There are potential opportunities for standards to play a role in sectors where provenance tracking is important;

## 4.2 Circular Economy: from concept to application

The concept of a Circular Economy (CE) is a relatively recent shift in economic thinking but has increasingly gained legal status in some developed countries (e.g. Germany and Japan) and has become increasingly influential among businesses and government bodies in the UK and a number of other leading economies globally (see work in the UK, Netherlands and China)<sup>9</sup>.

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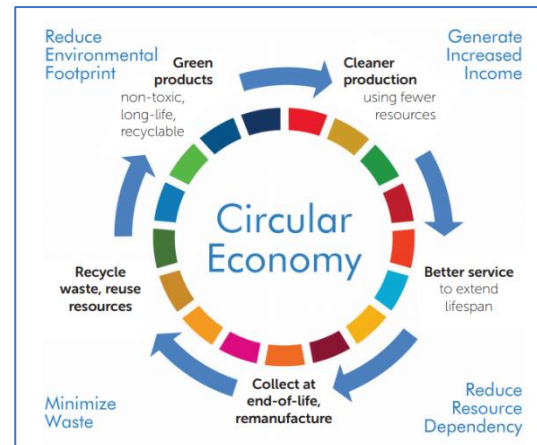
<sup>7</sup> Blockchain, a new tool to cut costs. <https://www.pwc.com/m1/en/media-centre/2017/articles/max-di-gregorio-me-insurance-review-feb2017.pdf>

<sup>8</sup> See BSI 2017 for a more detailed assessment of challenges  
[https://www.rand.org/content/dam/rand/pubs/research\\_reports/RR2200/RR2223/RAND\\_RR2223.pdf](https://www.rand.org/content/dam/rand/pubs/research_reports/RR2200/RR2223/RAND_RR2223.pdf)

<sup>9</sup> <https://sustainablebrands.com/read/product-service-design-innovation/report-scaling-circular-economy-in-china-could-save-businesses-households-70t-by-2040>

### Underlying principles of the Circular Economy (Source: UNIDO, 2017).

The conceptual origins of CE were primarily focussed on laying down a set of principles which would be useful for practitioners to move away from traditional linear economic models where material wastage was often seen as an unavoidable by-product of industrial production and consumption of goods and services.



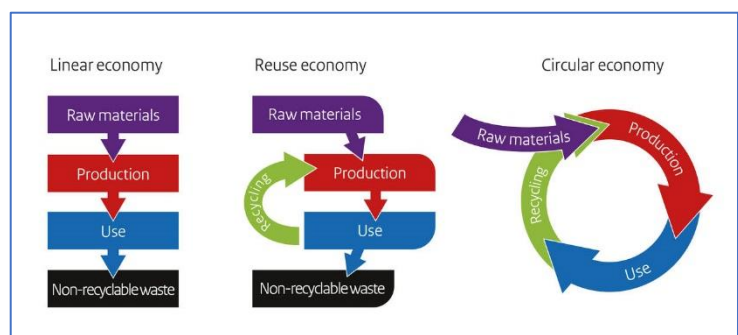
An early adopter of the concept was China, which has gone on to lead and further develop the research field through case studies of regional scale and industrial sector implementation of CE principles, further empowered and enshrined into law. In Europe, the UK and the Netherlands have been two significant proponents of the CE concept but have diverged from the centrally planned approach of China to one of smaller scale applications among private sector organisations (see Gatwick Airport<sup>10</sup>, Surrey; Phillips campus, Eindhoven; Port of Rotterdam; Schiphol Airport and Industrial Parks), primarily as a result of low levels of government investment (one notable exception being the devolved Scottish Government's delivery body Zero Waste Scotland<sup>11</sup> and it's Circular Economy Fund).

#### 4.2.1 Advantages of a Circular Economy

There are a great number of opportunities to be harnessed and an equal number of challenges to be overcome in order to achieve a sustainable circular economy. Indeed, there is a strong business case to be made for a circular economy. Nike, Google, and H&M are already implementing aspects of the circular economy in their global business. Dutch technology company Philips refurbishes medical equipment such as MRI systems. Chilean pump technology company Neptuno Pumps remanufactures energy-efficient pumps from reused and recycled pump material, and its common practice for automotive manufacturers to use recycled plastics in components under the hood and for vehicles' internal parts.

#### The transition from a linear to a circular economy (Source: GOTN, 2017)

Indeed circular economy principles can align well with procurement for large organisations (both private and public sector), with large purchasing budgets for MNC's across government departments offering a catalyst for embedding such



principles with their subsequent roll-out to the wider supply chains (for example in relation to the pharmaceutical sector supplying the NHS in the UK or catering suppliers across multiple large volume sites). Traditionally procurement managers have been focussed on sourcing and purchasing

<sup>10</sup> See <https://www.gatwickairport.com/business-community/communitysustainability/sustainability/sustainability-our-10-point-plan/>

<sup>11</sup> Zero Waste Scotland, Our Role in the Circular Economy, <https://www.zerowastescotland.org.uk/circular-economy/our-role>

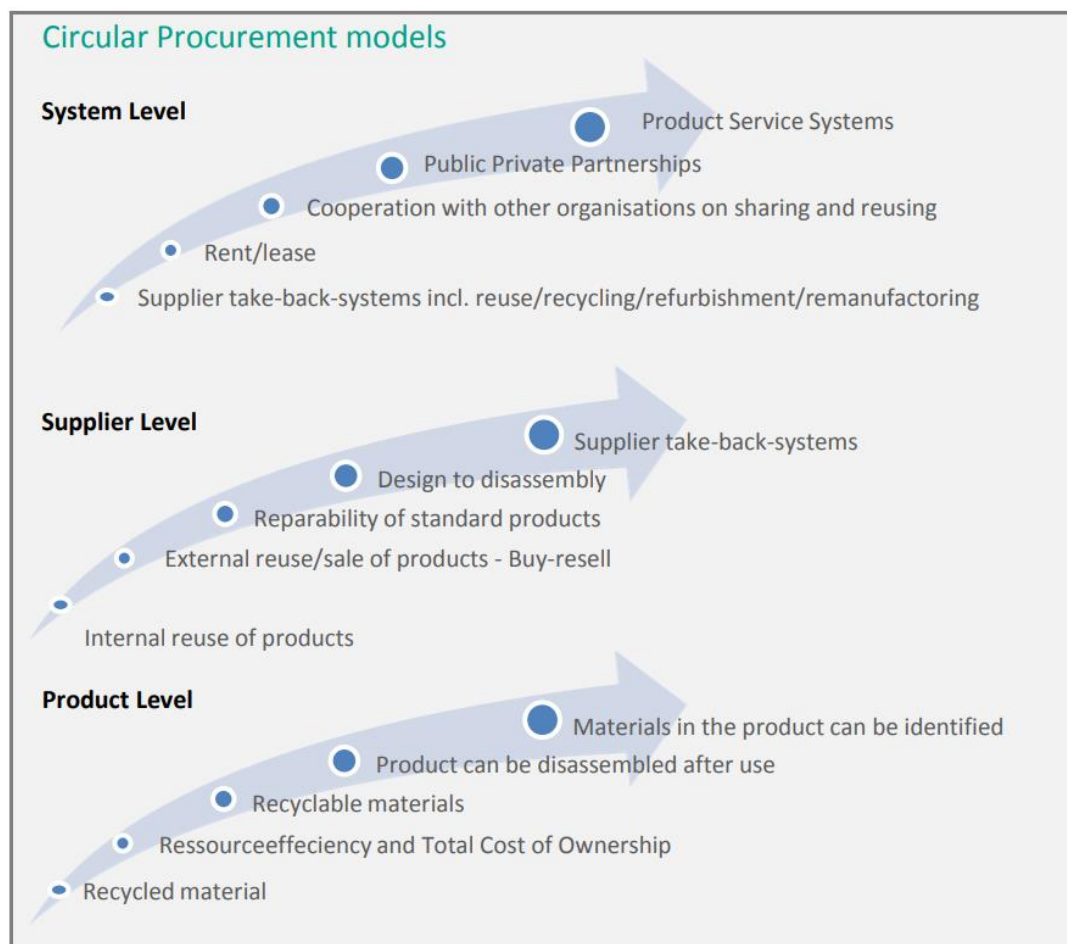


new products to meet customer demands, however there is not always visibility of products end of life stages.

#### 4.2.2 Public sector opportunities for transition to a CE: Circular Procurement

In Europe the public sector has increasingly been an enabler for moving beyond consideration of the principles (albeit with an emphasis beginning with reducing the environmental footprint; reducing resource dependency; reduction of wastes produced; through to generating income via new business models) to a position of adopting practices with demonstrable and measurable circularity.

To this end, the concept of **circular procurement**<sup>12</sup> has enabled organisations to maximise the lifespan of their products through repair and reuse as well as how products are recycled once they reach their end of life stage, with a view to minimising the consumption of finite resources. By understanding how products are going to be disposed of at the start of the product cycle, organisations can structure the overall specification, thus accounting for a products total direct and indirect costs across its life cycle.



#### Circular procurement models at the system, supplier and product levels

However, circularity is not, yet, standardised across products. Consequently, markets will need to benchmark, pilot, produce case studies, challenge business practices and undergo evaluation

<sup>12</sup> See SSP Regions report 'Circular Procurement: Best Practice Report' 2017

processes to determine what works on a product by product basis. The challenge for procurement is thus to identify, through market input, the most appropriate cycle for given products and services.

#### **4.2.3 Blockchain as a vehicle for embedding circularity into procurement**

There are several significant opportunities within the blockchain field which can enhance the dynamism of implementing a circular economy. In particular; the use of smart contracts is one such tool which has the potential to embed the four key circularity principles and deliver these in a manner which aligns with business practices while allowing the creation of new business models which ultimately create value; require new skills and educational practices; increase resource productivity and efficiencies through extending life cycles as well as creating demand for secondary materials via reuse and recycling practices; and reducing the environmental footprint of industrial production associated with reduced primary material inputs per unit of production.

There are many examples of smart contracts being introduced for specific reasons (e.g. proof of concept initiatives such as those in Australian wheat production designed to allow farmers to track movements / shipments and speeding up the payment process within the wider supply chain).

### **4.3 Tokenisation and Smart Contracts**

Using block chain technology, it will be possible to develop 'smart contracts' between buyers and sellers, and related stakeholders such as technical experts and financiers. A smart contract is a digitally signed computable agreement between two or more parties containing some business logic that can initiate certain actions when predefined conditions are met.

The use of AI will be employed in the TTP tokenisation against the social and financial metrics set in the blockchain. In this way, the processes will be transparent and fair, as well as facilitate wide networks. Combining the AI assisted insights with the knowledge and expertise of the team will provide for more informed, contextualised decision-making in procurement and the development of strategic stakeholder links. AI would not only allow the identification of stakeholder connections that would not normally be apparent, but also opportunities and risks that should be avoided. Use of AI programmes such as chatbots would also facilitate dialogue.

### **4.4 Facebook Libra of Procurement**

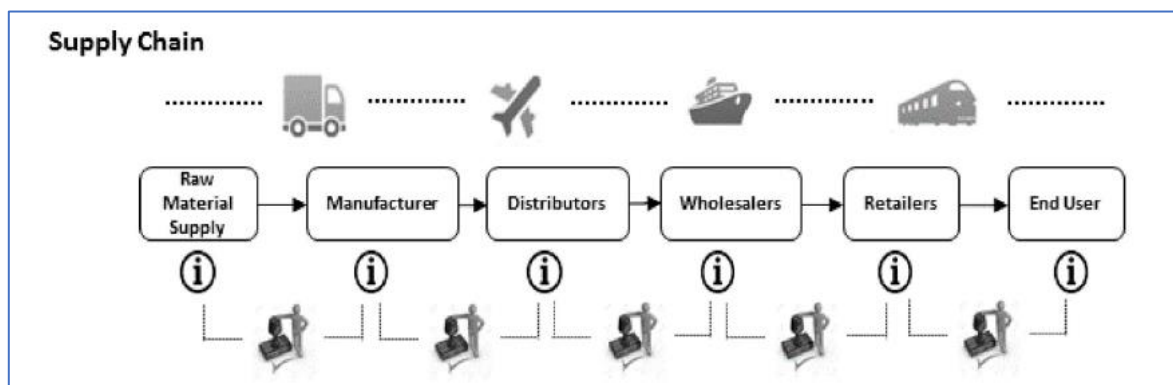
Within recent months there has been significant media coverage of the proposed launch of Facebook Libra. Five years in development, Libra is a 20+ company consortium run by a Facebook subsidiary Calibra, to shake up the global financial services sector (specifically the payments network market), using a blockchain-based cryptocurrency (stablecoin). However, the venture has met strong regulatory scrutiny, and concerns over consumers' data, with Facebook itself stating that Libra will be delayed.

The TTP Token will be the antithesis of Facebook Libra. We are not aiming to create a new global currency, or to be the fiat currency outside of the biggest countries in the world. What we are aiming to do is to serve as a vehicle via which organisations of all sizes and from all sectors do good by their staff, their communities and by other entities along their supply chains (including customers). It is about ensuring that financial and non-financial values alike are embodied and encouraged in the manner in which we buy and sell goods and services.

## 5. Transnational Transparent Procurement

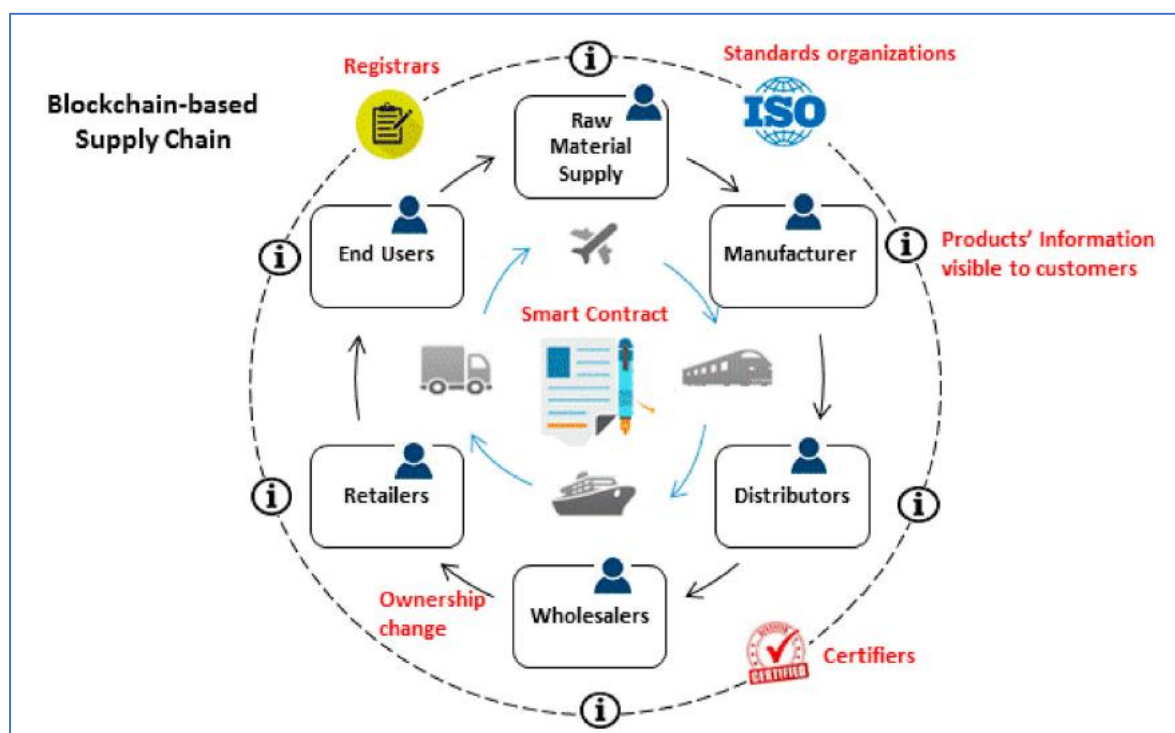
### 5.1 TTP Circular Economy

Given the scale of purchasing budgets for large MNC's as well as governmental and non-governmental organisations, TTP's approach to implementation of circular economy principles via new business model arrangements, is to propose a CEBP<sup>13</sup> model / mechanism through which tangible values (assets, resources, labour, etc) and non-tangible values (beliefs, norms, cultures, etc) can be defined and accounted for (initially through a procurement lens, as this represents the policy / business juncture for supply chains within the wider economic model).



**Traditional linear supply chain structure**

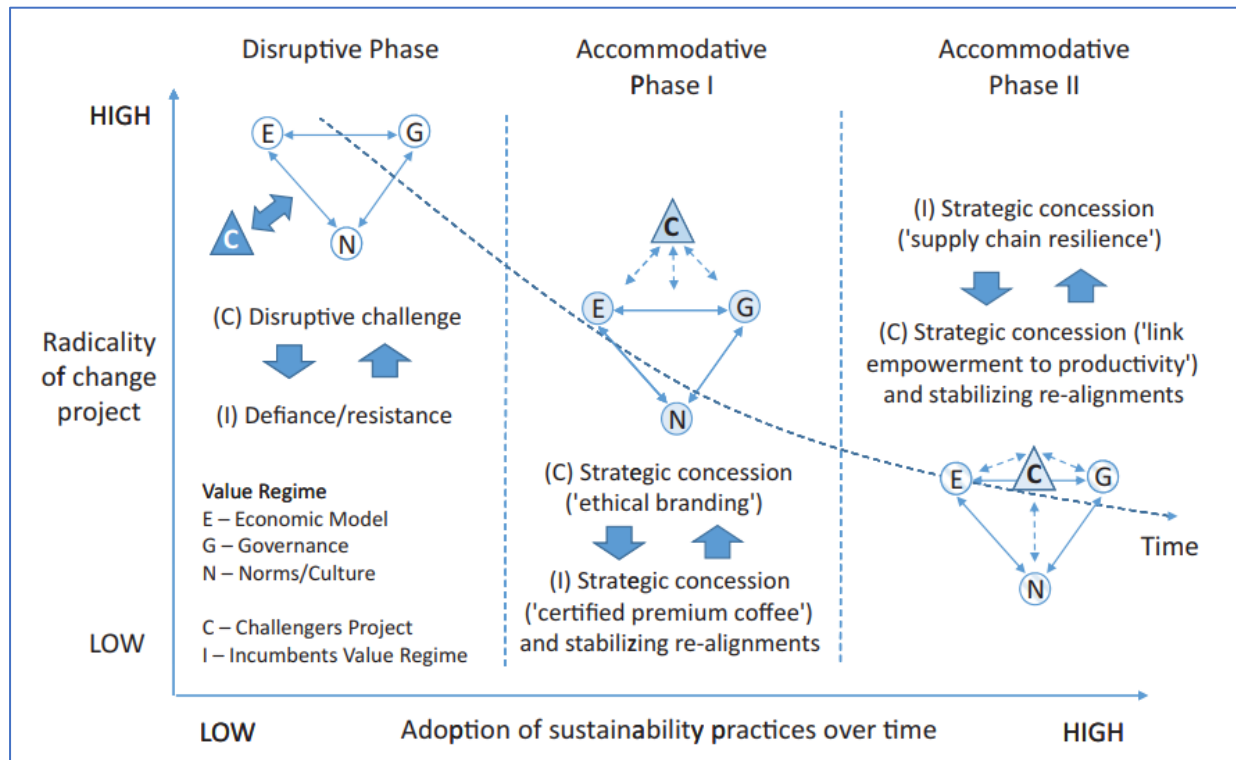
Indeed, blockchain's ability to guarantee the reliability, traceability, and authenticity of information, along with smart contractual relationships for a risk averse environment all foreshadow a major rethinking of supply chains and supply chain management.



<sup>13</sup> CEBP – Circular Economy Blockchain Procurement model / mechanism

## Supply chain transformation with blockchain technologies

A primary feature and goal of the CEBP model is to offer a robust and resilient method of aligning circularity principles and the disruptive characteristics of transitioning to a circular economy blueprint with procurement practices which can exploit blockchain technologies (e.g. smart contracts; AI and IoT) in order to provide a structure around which a tokenisation programme can catalyse in order to provide long-term sustainability to supply chains.



### Disruptive business models and value chain transformation (see Levy et al. 2015)

Such disruptive business models and transitioning to long-term sustainability can be visualised with an initial disruptive phase with characteristic resistance to change, slowly becoming accommodated through concessions and development of new business models in Phases I and II.

## 5.2 Compliance through TTP Blockchain

The use of blockchain would enable the operation of voluntary self-regulatory agreements. These agreements would be underpinned by an agreed set of core principles or 'Bill of Rights' (e.g. Codes of Conduct and Codes of good practices), which should lie at the heart of all negotiations and transactions. Transactions will be faster, with lower fees. It will be possible to improve the transparency of operation of the supply chains. Organisations would be able to reduce the need for manual intervention in aggregating, amending and sharing data<sup>5</sup>. Regulatory reporting and audit documents would become easier, with less manual processing. For example, there would be a reduction – if not a full prevention – of fraud since multiple payment claims for the same transaction would be rejected by the system because the initial claim would be stored. In addition, storing historical claims information on the ledger will enable identification of suspicious behaviour and therefore the need to improve fraud assessment<sup>5</sup>. Employees could therefore focus on value-added activities. The use of blockchain for the execution of the smart contracts would also enable increased transparency and prove trustworthy for consumers as no central authority would control their operation.



## 5.3 TTPs 7 functional models for CE within the extended supply chain

### 5.3.1 Corporate staff (System Level)

Large organisations, by their nature have long and complex supply chains. The procurement actions of these organisations and their staff will therefore have significant impacts on the viability and livelihoods of the stakeholders along these supply chains. TTP will allow for the incorporation of social good into the procurement processes of not only the organisations, but also of its staff. This 'good' can be cascaded along the supply chain to enhance the stakeholders in these chains, as well as the regions and nations within which they operate. A 'happier' and more satisfied supply chain will be more responsive, productive and profitable, thereby delivering benefits for all. In addition, TTP will facilitate compliance with a range of national/international policies and pieces of legislation, related for example, to Modern Slavery and Social Value. Finally, through the metrication of sentiment value and 'good', organisations and their staff will be able to articulate their engagement with doing 'good' to a wide array of internal and external audiences.

Circularity modelling criteria

- Adding circular economy metrics to procurement tenders and weighting these accordingly (e.g. durability, resource efficiency, reuse, refurbishment/retrofitting, recycling, recycled content in goods purchasing)

### 5.3.2 Government (Supplier and Product levels)

Governments play a crucial role in setting out the fiscal and general policy contexts to facilitate more circular and fairer economies. For example, in the UK, social impact is taken into consideration in public sector procurement through the Social Value Act 2012. Similar policies are in place globally, for example, in the EU through the Non-financial information Disclosure 2014, and in India through the 2% gross profit law on CSR. TTP will serve as a vehicle through which the social impact and good of organisations can be 'captured' and measured. In this way, it will be possible to determine the extent to which they are in compliance with the increasingly stringent global social impact legislation and policies. TTP will also facilitate the flow of value along the value chains of societies, and serve to enhance the socio-economic standing of individuals, in line with the sustainable development goals (SDGs). TTP will NOT be a FIAT currency. Indeed, we are in no way aiming to influence either the monetary or fiscal policies of any country.

Circularity modelling criteria

- Setting standards for CE metrics
  - quality and durability standards
  - minimum life guarantees and availability/sourcing of spares
  - parameters for energy, fuel, materials use and waste outputs per unit of input
  - setting requirements for packaging reusability (e.g. transport and shipping)
  - service contracts for appliances and/or furniture (e.g. kitchen units, office desks, etc)
  - specify ability to dismantle items used to separate materials for next use
  - require sourcing of low toxicity products
  - specify minimum values for recycled content (e.g. textiles, paper, packaging, etc)

### 5.3.3 Communities (demand side – System level)

An S/E community is grounded on the interconnectivity between stakeholders to create and share social value. It is a collective, for the benefit of all, rather than solely for the individual. It is about creating the environment to enable the flow of values between a collective of stakeholders. This flow changes with time and direction (i.e. between stakeholders).

#### A citizenship map of the flow of values between stakeholders

In the case of TTP, the specific nature of these communities will vary and will be at different levels. For example, a community may be between a multinational organisation, its staff, and its suppliers, or it may be within that organisation, but between its various offices/departments. TTP will act as a mechanism through which these various communities can be formed and can engage with each other, by facilitating the circular flow of values and social good, in a manner that is equitable, fair, and bidirectional. A more 'circular community' has been shown to realise significant benefits.



#### Benefits of a more circular approach

Circularity modelling criteria

- Community involvement in decision-making process (e.g. schools, council offices, hospital committees, outreach and engagement membership for stakeholder oversight)
- Number of local groups, organisations and businesses commissioned through tendering process
- Number of locally based side projects supported (e.g. special educational needs individuals doing voluntary work / work experience)



### 5.3.4 Shareholders (System; Supplier and Product levels)

Shareholders are by and large driven by encouraging the financial profitability of the organisations within which they have invested. However, there is a growing realisation, globally, that a focus on environment, social and governance (ESG) factors, in addition to ensuring compliance, can also deliver competitive advantage through the development of opportunities for new products/services/markets.

TTP will enable shareholders to clearly evaluate both the financial and non-financial impacts of an organisation's operations. It will enable the reporting of social value in financial currency. This is particularly important in the context of multinational companies which often have a global footprint, and in some cases, operate in many different sectors. TTP will enable measurement of the performance of C-level executives, and thus inform their remuneration, as well as areas of focus for investment to increase competitive advantage by organisations.

Circularity modelling criteria

- Core companies embedding CE principles and sharing best practice with suppliers
- Agree uniform reporting and detailed measurement against CE metrics to establish baselines and standards using tiered levels (e.g. ISO and BREEAM approaches)
- Contributing time and resource to steering committee with reporting duties (or commissioning third party to achieve independence)

### 5.3.5 Suppliers (Product level)

In the increasing complexity of supply chains, the value which can be realised by suppliers of both goods and services can often be low. Indeed, in some sectors, such as retail, margins can be razor thin, and subject to the financial profitability of the buyers. This is despite the growing prevalence of schemes/notions such as 'Fairtrade', 'ethically sourced', 'organically grown', etc. The incorporation of 'intangible inputs' of the producer or supplier into the production and delivery of the service or product is often difficult to quantify and/or is invariably not considered in the cost. Difficulties can also lie in small and medium sized suppliers undertaking due diligence on (large) buyers. TTP will address these issues by facilitating the incorporation of both financial and non-financial values using smart contracts. Thus, organisations will be able to better verify the 'practices' of their suppliers, and suppliers can be adequately compensated for their 'non-financial' value inputs. It will also be possible for suppliers to undertake due diligence on their buyers by being able to check on the procurement activities of the buyers. As TTP will be underpinned by blockchain technology, transactions will be transparent and encrypted (and thus unable to be changed).

Going forward, one potential is for TTPX to operate as a two-token system. The supplier could use the tokens as a form of 'collateral' against which s/he could make purchases to benefit themselves, their family or their farm/business. For example, the collateral could be used to gain certification which would allow them to trade, or to pay for the doctor's fee for their sick child, or for equipment/training resources to address the impacts of climate change on their land/property. In addition, the tokens could be traded with other suppliers/farmers/producers or traded up to the co-operative (if one exists). In effect, it would act along similar lines to 'a line of credit'. Thus even though the farmer/producer has no/limited monies, and perhaps does not own the land/property from which s/he operates, they still have the means to ensure the viability of their operation, and also to provide for the wellbeing of their family, and community. This 'collateral' would be packaged and sold to large investors/corporates in a manner that is similar to carbon credits/green bonds. These investors/corporates could purchase the tokens from the original Exchange that issued them or when they are being traded.

Circularity modelling criteria

- Number of smart contracts in place
- Geographic proximity (e.g. local, regional, national, international)
- Footprint measurements provided against agreed standards (e.g. carbon, water, environmental)
- Life cycle measurement and costing for products coded and embedded in blockchain

### 5.3.6 Customers (demand side – System, Supplier and Product levels)

Customers are increasingly demanding that the goods and services they purchase are produced and delivered in a more sustainable and ethical manner. They are making their purchasing decisions based on the values associated with the goods and services. For example, there are increasing demands for energy, consumers are also demanding that the energy is delivered in new ways, with fewer emissions. TTP will convert 'intangible sentiments' into financial value thereby establishing

linkages between the values of the consumer and their purchasing actions. Customers will therefore be able through TTP to procure based on their values.

Circularity modelling criteria

- Full transparency for CE data shared between all B2B customers (e.g. through login controlled / private blockchain)
- Key metrics available to all B2C customers (e.g. QR code scanning; website CE data reporting)
- Sector based customer feedback forum (both B2B and B2C – same access provision)

### 5.3.7 Environment (System level)

The environment must create communities to enable viable communities to exist and effectively facilitate the flow of values. It is therefore not simply the physical environment (e.g. supply chains), but also the enabling factors that facilitate effective flow of values and social good (e.g. creation of belief systems, policies and appropriate goods and services). TTP is a disruptive financial metric based on General Accounting Principles (GAP) that will not only create value in the supply chain but will also facilitate the flow of these values and social good. It converts intangibles sentiment into financial value thereby establishing linkages across the value chain between what forms a 'good' mind, through to the creation of a 'good' world.

#### S/E levels of value

Circularity modelling criteria

- Transparency in measurement and reporting instil confidence for supply chain transactions
- CE social earnings reporting (e.g. initiatives in primary producing regions; skills training; job creation; working conditions; health and safety; etc can all be scored – assigned a tangible value available to all within the supply chain)
- Capacity building utilising all inputs from all economic sectors (e.g. government interactions and delivery via private and third sector delivery partners)



These various elements then all come together to form the overarching context for the creation and flow of the value and social good along the supply chain.

### 5.4 Benefits - Case Study with/without TTP

While Circular Procurement is at a very early stage in it's maturation there is an increasing emphasis on applying the principles of circularity within both the public sector (national, regional and local government with support and involvement from **third sector**<sup>14</sup> entities) as well as for larger organisations with extended supply chains (such as large multi-nationals or large manufacturing companies).

Examples of CP applications in recent years include:

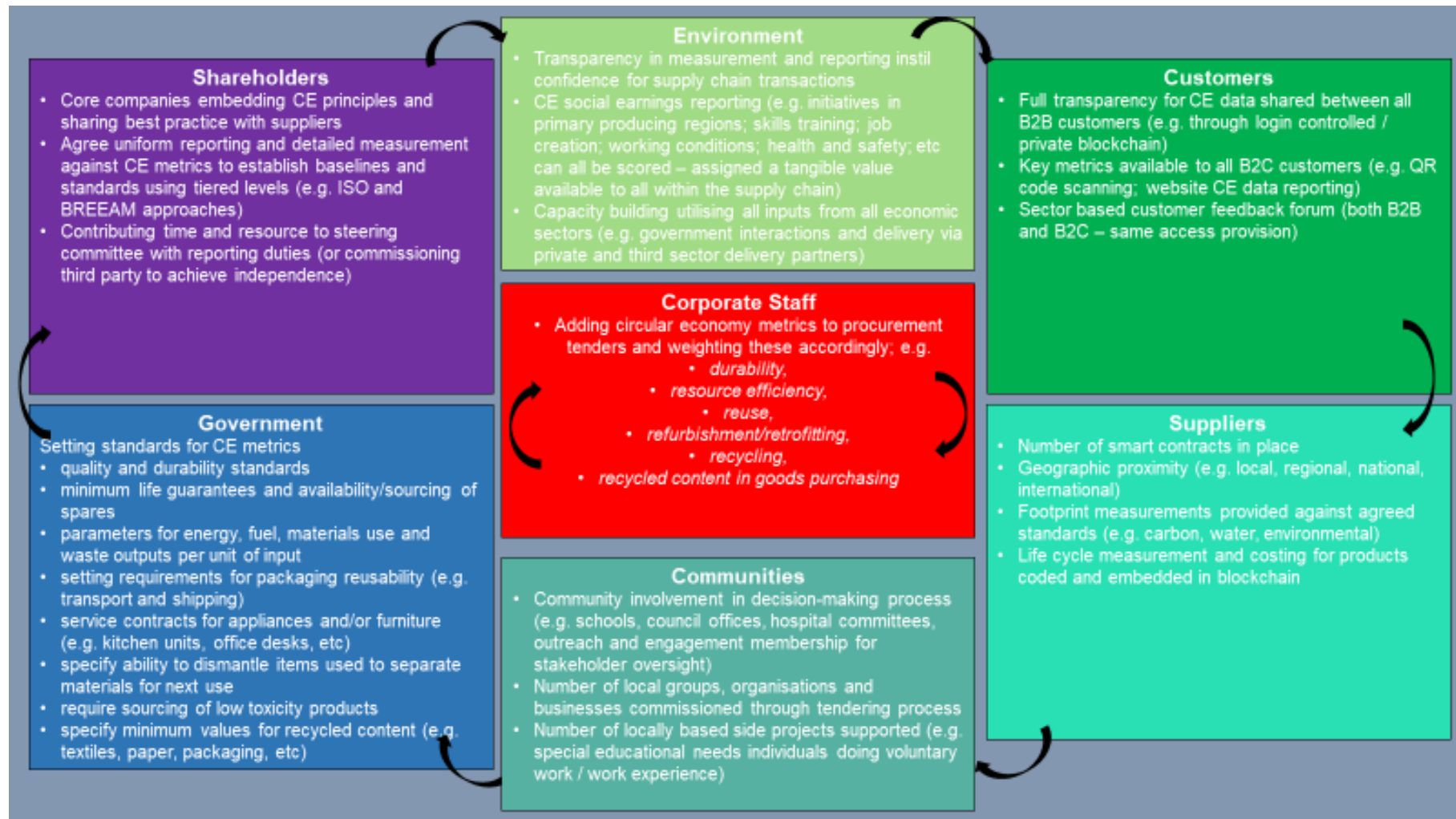
<sup>14</sup> For example; NGO's, charitable organisations, community interest groups, housing associations, etc



- Construction - Construction of Land Rover's £24m BAR headquarters and visitor centre using BREEAM and CE principles
- Road construction - Circular reconstruction of 19 km of the A12 motorway between Ede and Grisjoord junction (the Netherlands)
- Office furniture - Development of a framework for procurement for furniture, fixtures, fittings and flooring by the National Procurement Service (UK)
- NHS/Hospitals - Focus on circular options re-tendering the contract for the provision of 329 mattresses at Cambridge University Hospital Foundation Trust (UK)
- Medical technologies - Co-operation between Phillips Healthcare and Georgia Regents Medical Centre to deploy innovative patient care strategies, inclusive circular initiatives (USA)

TTP will draw upon such experiences and can be applied across multiple sectors. For example:

- Coffee cooperative in East Africa wants to increase the added value from its Fairtrade certified coffee production process which is a centralised plant co-owned by the supplying 100 farms
- Blockchain technology is utilised to identify lots from individual farms with data available to producers through cooperative support
- Smart contracts are introduced for transactions with bulk houses in country as well as new direct trade buyers guaranteeing above market price for raw beans
- Timely payments are achieved, and lines of credit established for cooperative which passes this on to producers directly for investment in operational efficiency measures.
- Above market rate prices allow new educational infrastructure to be built and improvements to sanitary conditions for workers and families with support from voluntary efforts of those linked with direct trade companies



The CEBP model incorporating the overarching context of the flow of values and social good

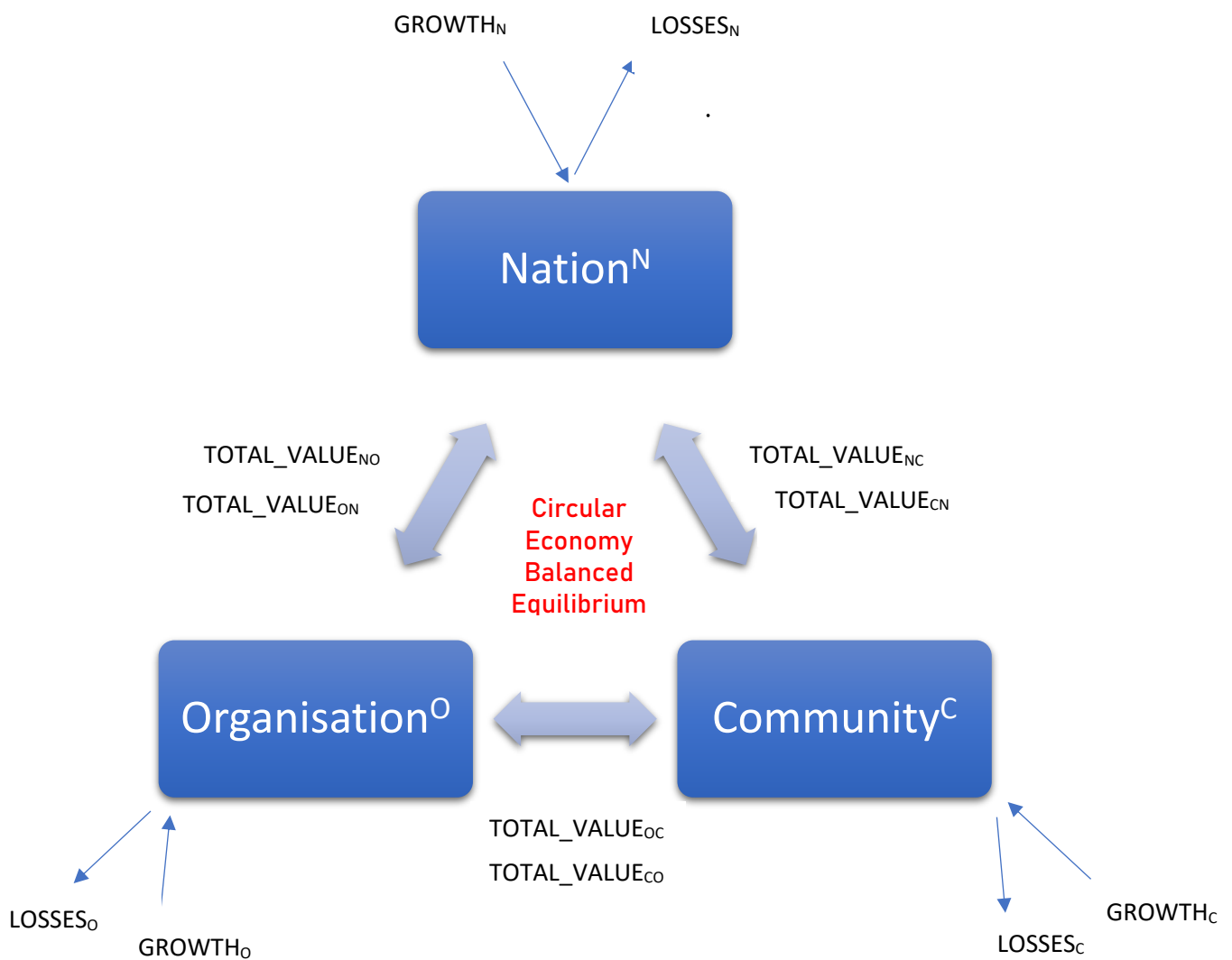
## 6 TTP Token

To deliver wealth based on Circular Economy requires an equilibrium between Organisational 'O' wealth, Nation 'N' wealth and Community 'C' wealth, as well as Growth 'G' and Losses 'L' in wealth accounted for in the system.

$$\text{Total Value (TV)} = \text{Financial Value (\$)} + \text{Non-Financial Value (\$^+)}$$

$$\text{TV} = \$ + \$^+$$

We can build a model of wealth flow (financial and non-financial).



In equilibrium total value circulation in either direction is balanced.

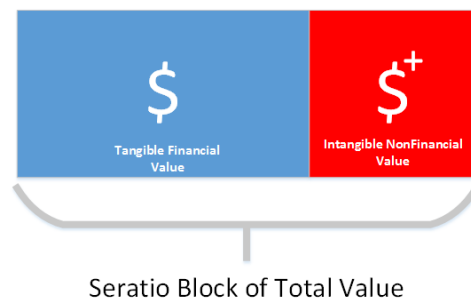
$$\text{Total Value} \quad \text{↻} \quad = \quad \text{Total Value} \quad \text{↻}$$

$$\sum (TV_{NO} \ TV_{OC} \ TV_{CN}) = \sum (TV_{ON} \ TV_{CO} \ TV_{NC})$$

And wealth creation being a combination of growth (gains) and losses

$$\text{Total Wealth Creation/Lost} = \sum (G_N \ G_O \ G_C \ L_N \ L_O \ L_C)$$

The resolution of these formulae have been well rehearsed elsewhere (see 13 whitepapers<sup>15</sup>) and defined as the Seratio® blockchain which can transparently track the circular economy and allocate tokens to make the intangible, tangible.



THE METHODOLOGY TO DEFINE, TRACK AND TRANSACT INTANGIBLE VALUE OF PRODUCTS, ORGANISATIONS, PRODUCTS, PROCESSES AND PEOPLE ARE WELL UNDERSTOOD BUT WHAT IS REQUIRED IS FOR THE **TTP FOUNDATION** TO PRIORITISE THROUGH CONSENSUS THE **NONFINANCIAL INDUSTRY STANDARD KPI'S** THAT MATTER TO THE CONSORTIUM

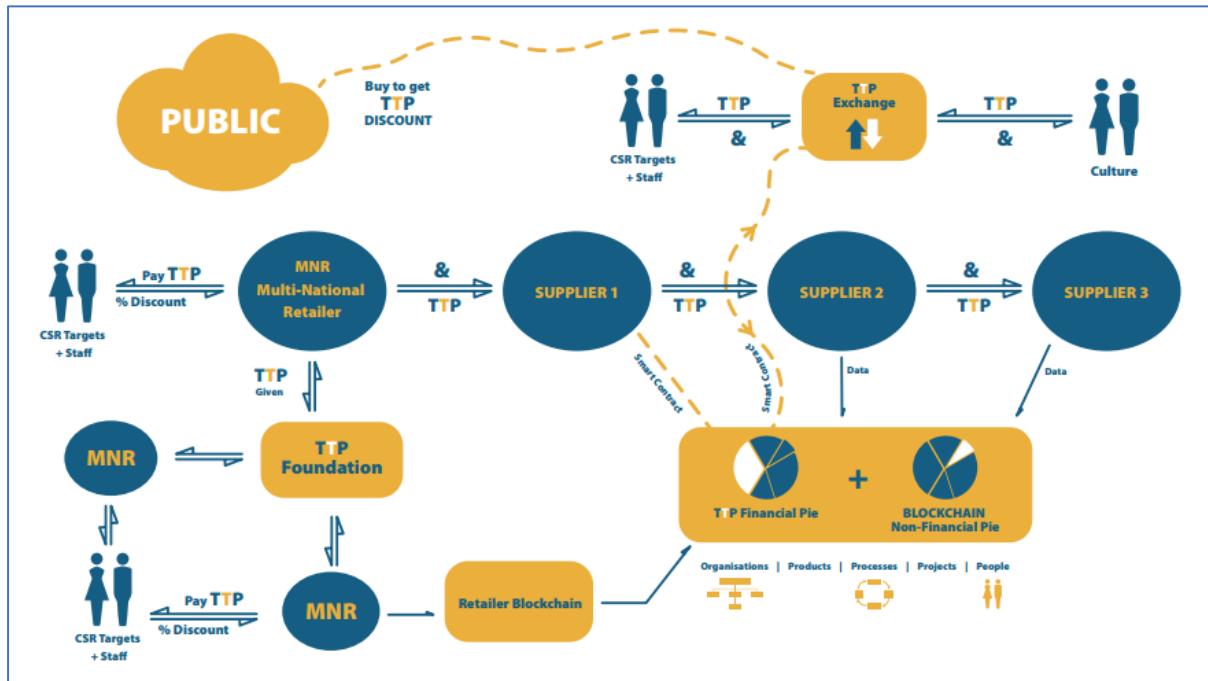
## 6.1 Tokenomics Vision

The Transnational Transparent Procurement (TTP) Foundation is a not-for-profit NGO pioneering 4<sup>th</sup> Industrial Revolution technologies while providing scalable and sustainable solutions under a circular economy framework to the benefit of all participants. TTP is thus about more than efficiency of payments, alignment of buyer-supplier values, blockchain logistics (smart contracts), sustainability or modern slavery... it's about all of it; Total Value Procurement.

This TVP extends from organisations; through their products, processes and projects; to people (on-trade clients and off-trade consumers). But more than merely extending in a linear manner, this total value encompasses and enhances the circular nature of relationships driven by both economic considerations around supply and demand (financial levers) and the beliefs, values and cultural norms (non-financial levers) which drive change by means of individuals collective agency (increasingly shaped by responding to the accelerating interactions within AI, such as social media advertising and ecommerce shopping providing direct access to and feedback from the POS outlets).

<sup>15</sup> <https://github.com/seratio/whitepaper>

In the figure below, this is represented by the top tier of flows where public interaction with the TTP platform at first reflects the cultural influences impacting on procurement considerations (e.g. CSR targets + staff) before developing and building a culture of trust between staff and customers built through AI driven interactions (TTP blockchain (TTPB) facilitated by Smart Contracts), thus growing the TTP financial pie **and** the blockchain non-financial pie (e.g. through establishing trust, a sense of common values between producers, buyers and suppliers).



### Structure of the TTP Foundation and application to supply chain procurement

To elaborate further, organisations including large private, state owned, not for profit, small and diverse corporations will pay their suppliers, staff and their CSR targets using mainly cash (\$) and a small percentage in TTP tokens (TTPX). Suppliers will do the same to their suppliers, staff, CSR targets so it cascades down the supply chain. Those who hold TTPX (suppliers, staff, CSR targets, TTP investors) get discounts at and on organizations products & services determined by the corporate based on smart contracts related to their social value. Exchanges who trade TTPX can only pay out cash (\$) in exchange for TTPX, using smart contracts, if minimum behaviours set by TTP Foundation are met (e.g. if corrupt people appear on the TTP Blockchain they're automatically barred, if environmental, process, statutory compliance, fairness, inclusivity, diversity, impartiality are not met then payment (cash (\$)) is not released, etc). Organizations can also use data in the TTP Blockchain and smart contracts to automate who gets contracts.

The middle tier of illustrates TTP supports and facilitates relationships with Multi-National retailers (MNR) and various suppliers (again through the use of smart contracts) which allows the MNR to gain a % discount on TTX. The TTPX can be used for procurement across the supply chain (Tier 2) and gaining access to secure encrypted data on the TTP Blockchain. These can be utilised for certification, financial planning and CSR reporting as well as providing certainty to suppliers on liquidity, timeliness of payments and aligned values between retailer and supplier.

Finally, through management of the system by TTP Tier 3 allows the building and strengthening of the retailer blockchain, thus providing certainty and secure auditable transaction data which facilitates the growth of financial and non-financial pies by means of the blockchain DLT. **By**



combining token payment transactions with DLT transparent certification is achieved enabling true value exchange between large and small players.

## 6.2 Future Vision 4<sup>th</sup> Industrial Revolution Technologies

We are all searching for new paradigms.  
Democracy is broken, capitalism questionable



My toaster is racist, my kettle  
homophobic but my car my true friend

The New World Order of Ideology in Code: IoT, DLT, AI  
and 5G



and the environment a disaster. Our views used to be simple to be identified, tagged, and sold to, but social media has obliterated that. We now live in a community of one, just me. All social media feeds reinforce my views, exclude challenges to my values, and allow me to live in my own bubble in isolation without the need to consider the opinions of others. This makes democracy unworkable as there is no majority consensus. There is no one Brexit UK, one Trump USA, there are truths all around us and we want to pick and mix just like our social media communities. In the good old days if you drank chamomile tea you were probably lesbian, vegetarian and a tree hugger; now you can love soya latte, hate immigrants, vote Brexit but still demand European travel. The world is searching for a scalable and sustainable future that can accommodate a myriad of values. One nation unity has left the room and switched the light off.

Strategic responses are predictable. The Americans believe money is the currency of life, our sentiment data belongs to corporates in exchange for free services, and market forces will drive social change. The Europeans believe safety in numbers, the sanctity of legislation, treaties and GDPR's my-data-my-way will safeguard us from bad actors. The Chinese believe in government patriarchy, they should own your data to protect you, and use 4<sup>th</sup> Industrial Revolution Technologies of Blockchain, AI and IoT to implement homogenously across all BRI nations. Corporates cling on to various positivity instruments like CSR, Impact Investment, ESG and ethical supply chains to enact their good intentions. The fact is everyone is trying to the best of their capability; even drug lords can do good. Just like people, there are no evil nations or corporates but there are shades of grey.

We have now all become used to technology being touted as the saviour. Facebook, Google, Amazon, Tencent, Alibaba .... bring joy to billions for free by tracking our alignment, value and values in order to sell us more stuff. The science of digitally measuring happiness, hope, love, aspiration, and all such non-financial soft intangible assets are now well rehearsed. What DLT has done is to allow the transaction of those assets from A to B, just like any financial tangible hard asset - money, gold, diamonds - the assets of Christmas past. Tokenisation makes real the tracking and movement

of value(s), injecting life into good intentions and virtues with unprecedented granularity beyond face to face volunteering, corporate ethics and national policies. So now we can codify ideology, and transact them at scale ... just like banks but this time with our feelings.

Enter stage right AI offering us the ability to nudge our behavior in any direction we care for by incentivizing good behavior and removing negative options. That of course, is the heart of the Chinese Social Credit System. Western cultures will frown on manipulation of choices based on behaviours, but that is exactly what Facebook et al already do. Only they decide what jobs we get to see, and which postings are fed to us, and how our personal AI of Alexa, Siri, Bixby, and others guide us depending on the capability of our financial shopping basket. China puts government's paternal responsibilities of the society body corpus above those of the individual rights and freedoms including jay walking, carrying arms, or shooting children in playgrounds. Until now there has been no happy medium but with blockchain democracy you can have your cake and eat it too. Through smart contracts you can identify your alignment, be rewarded for those choices, and equally accept the limitations you have chosen in a transparent way.

But let's go further. The world will not truly change unless every atom of our being embed our ideology - every product, process, project, organization, and people, have our values not just on our sleeves but in our things – the Internet of Things. In the immediate future what enjoins IoT to us will be our 5G phones which, as Professor Karen Pollitt-Cham eloquently puts it, layers our values into a “human centred network slice to nudge value driven behaviour”. Our phones will be a repository of our values alongside our value, already well accustomed to the Chinese WeChat Pay and AliPay. The resident AI (our ‘Ubot’) will guide us how to behave in alignment to the direction of what we hold dear, eschew things which do not conform to our wishes, and we will be able to imbue everything around us with our value(s) set.

To put it simply, our ideology can now be codified, transacted, nudged and embedded in the world around us. In a miniscule way, we started this process back in 2011 by measurement of non-financial value through the Social Earnings Ratio®, moved to transaction in 2016 through the Seratio® blockchain, visioned a world where AI Ubot would embed sentiment like love and hope into all our decisions, but to be truly adopted in time for UN SDG 2030, it needs the spread of 5G's data slices to embed these values in everything around us so even our kettle can be driven by our values.

Naturally, there are dangers. The racist doorbell will not ring when a black man presses the button. Indeed, institutional racism is nothing but codified ideology but primitive and minute when compared to the guaranteed future ubiquity of 4IR. History advises that neither Chinese behavioural codes, nor West Coast marketing algorithms could be necessarily trusted as centralized guides arbitrating our moral compass. Herein lies the true advantage of the decentralized nature of IoT, that the pantheistic nature of small bits of ‘good’ code authored by billions of diverse contributors and embedded in trillions of devices, will safeguard the threat of dominance and control from bad actors or evil AI robots. In this pluralistic society there is no going back. DLT is conceived not only to provide us solutions to live in Hong Kong without embracing all Chinese values, or live in a frictionless trading Brexit Britain but embrace Europeanism, but also to expand our ‘me’ bubble to include everything around us.

In the future we will have a different relationship with technology which will, for the first time, industrialize doing good en masse; not a bolt on, not an afterthought, but mainstreamed and integral to our daily lives. Irrespective of whether there is higher meaning to our lives, whether there is a god metric or even a god code, what stands before us is our collective responsibility to make our society a better place for everyone regardless of values and ideology including at the extremes. This

is an opportunity for universal participation paid for by the commercial interests of corporates, the blessing and regulation of governments, and our values. We pray, for the sake of mankind, that it will come soon but what is exciting for us is to finally see a pathway to a vibrant New World Order.

## 7 Initial Team

The TTP Foundation is looking for senior professionals to join the Advisory Board and lead the organisation into the next decade toward the UN Sustainable Development Goals in 2030. The following individuals are merely the starting line up. Please contact us if you wish to join the team.

### Benard Odote

Benard is the Group Managing Director House of Procurement and the Executive Director House Of Procurement Nigeria, Tanzania and Uganda Limited. He has over 10 years of experience in procurement and supply chain management in industries such as Oil and Gas, Energy, Agriculture, FMCG, Manufacturing, Consulting, Service, ICT and Telecommunications. He has led various companies such as House of



Procurement and Camusat East, Central and West Africa and was the Global Commodity Buyer for Fiber Optic for Camusat Group and has been in-charge of sourcing for all EABL manufacturing sites including KBL, UDV, CGI and EAML based in Kenya; Serengeti Brewery Sites in Tanzania (Mwanza, Moshi, Dar); and IDU and Uganda Breweries both in Uganda. He was also the Regional Strategic Buyer for Nestle' Equatorial Africa where he looked after factories in DRC, Zimbabwe and Kenya

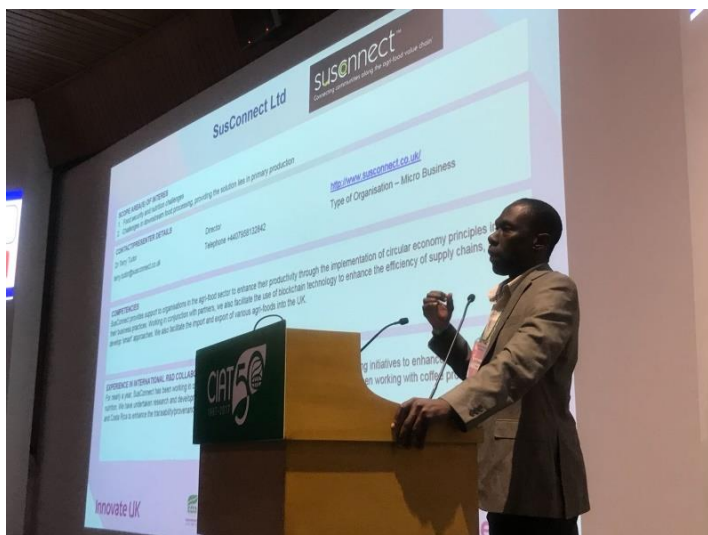
### Dr Nicholas Head

With a passion for embedding sustainability across all types of organisation, Nicholas has developed considerable experience in working with clients around application of circular economy thinking to develop new business models and adding value to their operations and wider value chains. With over 13 years' experience in the environmental sector, in both commercial and academic roles, Nicholas' specialism is around circular economy business model development and applications, building on his earlier PhD work in this area. He has worked extensively with a range of clients from commercial, public sector, third sector, government departments and agencies (for example; with DEFRA, WRAP and the EA) as well as sector wide organisations such as the British Coffee Association, ALUPRO (Aluminium Packaging Recycling Organisation), Plastics Europe and a wide range of SME's from multiple business sectors.



## Dr Terry Tudor

Terry Tudor is a director of SusConnect Ltd. In the past two years, he has led on stakeholder engagement for the onboarding of farmers and producers globally, including from Colombia, India, Peru and Brazil. He has over 13 years' consultancy and academic experience in the area of sustainability and resource efficiency. He has worked on projects in the UK and abroad (e.g. for the UK Government and the EU Commission). He has worked in the UK, Italy and Barbados.



## Professor Olinga Ta'eed

Olinga is Council Member and Expert Advisor to the Chinese Ministry of Commerce's "China E-Commerce Blockchain Committee" responsible for growth to US\$ 100 trillion and maintaining its current 70% global market share. He is also Head of the EU PROCUREMENT FORUM Social Value & Transparency in Supply Chains group. He is Chief Editor of peer reviewed academic journal *Frontiers in Blockchain* with 482 editors, *Social Value and Intangibles Review* with 125



editors, and UK government sponsored *Efficiency Exchange*; in 2020 he will launch the peer reviewed industry journal *The Token: Cryptocurrency, Value and Values* with New York publisher Peter Lang. He is director of the not-for-profit Centre for Citizenship, Enterprise and Governance which is the world's leading think tank on the movement of value (measurement, transaction and delivery). He is Visiting Professor in Blockchain at Birmingham City University, and previously Professor in Social Enterprise and Northampton University. He conducted the UK's first (and only) ICO in 2017 with FCA guidance, the Seratio Token focusing on Non-Financial Assets. He is currently preparing to launch the UK£ 210 million Seratio DTL Open Bank, regulated in London by PRA and FCA.

## 8. Appendices: Centre for Citizenship, Enterprise and Governance

## 9 Contact



TRANSNATIONAL TRANSPARENT  
**PROCUREMENT**

TTP Foundation

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#ProcuredvalueS

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World Leading  
Think Tank  
Centre for Citizenship, Enterprise and  
Governance



## GOVERNMENT ADVISORY & IMPACT METRICS

United Kingdom (2 laws)

European Union (5 commissions)

China, India, Indonesia,  
Mauritius, Switzerland



## CENTRE FOR CITIZENSHIP ENTERPRISE AND GOVERNANCE

UK not for profit

## JOURNALS

Frontiers in Blockchain (peer reviewed,  
publisher Frontiers, Switzerland)

The Token: Value & Values (peer  
reviewed, publisher Peter Lang USA)

Efficiency Exchange, publisher  
HEFCE/JISC/LFHE, UK

Social Value & Intangibles Review, UK

14 Whitepapers



## GLOBAL NETWORK

### OUR MEMBERSHIP

162,500 Members worldwide  
7000 C-suite corporates

### MEMBERS OF

650 UN PIME universities

### RESPONSIBLE FOR

20 Cyberfutures universities  
3 University JV partnerships  
2 ac.uk domains  
1 EU Forum



# THINK TANK

## 4<sup>th</sup> Industrial Revolution Technology in Action

The Centre for Citizenship, Enterprise and Governance is the world's Think Tank on the Movement of Value (measurement, transaction and delivery). It has a global following and held audience at the United Nations, at The Vatican, the House of Lords, and many more important institutions.

CCEG was created in 2011, established in a British University in 2013, incorporated as a not-for-profit in 2015, and is now independent. CCEG currently several large scale initiatives with external partners, these include:

- The TTP Foundation ([www.ttpcenter.com](http://www.ttpcenter.com))
- The Seratio Bank ([www.valuesenabler.com](http://www.valuesenabler.com))
- Digital university (launching 2020 at [efficiency.ac.uk](http://efficiency.ac.uk))
- 5G Values Network Slice Lab (opening 2020)

Barbara Mellish MBA ACIB MIRM is the CEO of CCEG. Previously a career built in Financial Services, Barbara's senior industry Director roles include the Bank of England's Payment Council, transacting over £385 billion per day, responsible for the cyber security and systems resilience for the UK's Banking Infrastructure. As Director of Card Scheme Global Governance for Barclays Bank Plc, Barbara was responsible for a global portfolio of 35 million card holders over 25 countries. She remains a Non-Exec Director of a British Bank.





# CCEG Resources for TTP

- Membership at [www.cceg.org.uk](http://www.cceg.org.uk) of c. 162,500 including c. 7000 major multinationals at C-Suite level
- UN Blockchain Lab ([www.ccegblockchain.com](http://www.ccegblockchain.com))
- Five year research agreements with Fordham University (USA), Chengdu UESTC (China), Birmingham City University (UK)
- Provider of independent non-financial metrics ([www.seratio.com](http://www.seratio.com)) to governments of UK (Social Value Act 2012 [www.publicvalue.online](http://www.publicvalue.online)) Modern Slavery Act 2015 [www.modernslavery.uk](http://www.modernslavery.uk)), 2% CSR Laws in India / Indonesia / Mauritius, 5 EU Commissions [www.socialvalue.eu](http://www.socialvalue.eu), and on personal value ([www.seratio.io](http://www.seratio.io)).
- Academic journals (480 editors at [www.frontiersin.org/blockchain](http://www.frontiersin.org/blockchain) 125 editors at <https://issuu.com/seratio>, 200 editors in our new journal from [www.peterlang.com](http://www.peterlang.com) (New York), and owners of British Government sponsored [www.encyclopediaexchange.ac.uk](http://www.encyclopediaexchange.ac.uk)
- Run leading 4<sup>th</sup> Industrial Revolution Technologies consultancy based in Zurich [www.rothbadi.com](http://www.rothbadi.com)
- Open source thought leadership with 14 whitepapers [www.github.com/seratio/whitepaper](http://www.github.com/seratio/whitepaper)
- Cryptocurrency Sandbox ([www.seratio-coins.world](http://www.seratio-coins.world))
- Leading c. 20 universities and colleges consortium in AI, DLT, IoT, 5G [www.cyberfutures.net](http://www.cyberfutures.net)
- Strong presence in China with government appointed to Chinese Ministry of Commerce committee [www.cecbc.org.cn](http://www.cecbc.org.cn) with access to 10,000 Chinese investors
- Head of EU PROCUREMENT Social Value & Transparency in Supply Chains [www.procurement-forum.eu](http://www.procurement-forum.eu)
- Membership of 650 universities at United Nations [www.unprme.org](http://www.unprme.org)
- Active 150 social media channels #goodistrending #ProcuredvalueS
- Sponsors of industry forums and conferences including associations [www.bisgit.org](http://www.bisgit.org), education [www.seratio.org](http://www.seratio.org), etc.
- Sponsors of social projects Golgotharism (<https://bit.ly/2Kvpzxo>) and [www.childrenseechildren.org](http://www.childrenseechildren.org)

