Abstract

This white paper is an in-depth, conceptual, non-technical exploration of the **Process of Things** (PoT) application. PoT is an open source, wide-ranging, multi-purpose digital application able to connect people, and the processes of the everyday 'real-world' with the virtual world, the internet of things and the web. The totality of the PoT application is built upon three building blocks, **Process**, **Trust** and **Transactional Cryptocurrency**. PoT can digitise and help manage any **process**, anywhere, at any scale. As well as numerous business and logistical applications, PoT can allow supply chains to become far more efficient and accountable, and allow producers, marketers, consumers and the **objects** of production to communicate and relate in entirely new ways. PoT can enable, support and enhance social processes allowing new communities of interest to form, regulate themselves and manage their resources safely, effectively and efficiently. PoT enables users to establish and maintain an anonymous **Trust** personae through the use of a blockchain dedicated to Trust. Association or entanglement with the trust blockchain will enable an entirely new kind of 'public-but-local', or 'compartmentalised-by-location' blockchain to be employed, free from the vast security overheads necessary for the fully public blockchains such as Bitcoin to function. One such development will be **local transactional cryptocurrencies**, an entirely new addition to the cryptocurrency field that can securely facilitate the high volume of local, low-value, cost-free transactions demanded by society.

Introduction

This paper is a conceptual, non-technical introduction to PoT. Our Technical whitepapers can be found at https://processofthings.io. The challenge for us in writing this paper is that PoT is a platform whose use is so wide and application so universal, that any description will inevitably be limiting, narrow and specific. PoT is a whole new way of thinking about everyday processes, digital functionality, the internet of things, trust, and the cryptocurrency and blockchain space. We cannot address all the potential uses in this document, so in this paper we hope to give a thorough introduction to the concepts and thinking behind the technology, and draw attention to the most exciting possibilities.

Another challenge for this document will be appreciated by anyone that has tried to explain blockchain in a conceptual or technical way to anyone who does not have an advanced understanding of it already. It is hoped that this document will be of interest to coders, idealists, pragmatists and investors without being too technical for a general audience or too general for a technical audience.

As its main goal PoT serves the purpose of being a sandbox for communities to adapt, change and implement it for their local needs and their unique local requirements. We provide the tools and leave it to the open source community to decide how to use them.

This document is a call out to connect with people across the web who might be willing to consider and test the claims made in this document, and contribute their skills and/or funds in order to help us fully realise the Potential. The idea of PoT is to be an open source platform which will become the basis for many future innovations and opportunities. Anyone investing time, skills or resources now will be able to help shape its development and will be best placed to make use of it and the many social and commercial possibilities which are already arising.

The PoT Building Blocks - Process, Trust and Transactional Cryptocurrencies.

There are three main building blocks to understanding the 'totality' of PoT. Each block builds upon and enables the next, the blocks are **Process**, **Trust** and **Transactional Cryptocurrency**. Each building block has great social and commercial application and value in its own right, solving significant problems and limitations in several fields, but in combination they become exponentially more powerful and virtually limitless in scope and opportunity.

Process

The first block is understanding that PoT can manage any given process. If you have a problem, need or ambition; if you have a **process** whether it is social, domestic commercial, logistical, industrial, political, technological, environmental or whatever, then PoT can make your process easier, more efficient intuitive and secure, faster, safer, cheaper and far more seamlessly integrated with all the digital and information resources now available, such as the web and the internet of things.

The process application of PoT stands alone and is already being taken up by businesses to successfully manage, streamline and enhance their logistical processes.

The global 'meta-process'

At the largest, global scale we can say that rapid migration towards becoming a sustainable, resource based economy fully integrated with the biosphere is the human species' 'meta-process'; a process which we have no choice but to engage with and succeed at. All the best minds and bravest hearts around the globe are engaged in one way or another with the myriad tasks presented by this global meta-process.

With blockchain, cryptocurrency, artificial intelligence and smart contracts, distributed, decentralised global governance arising out of an emergent consensus of all participants is now possible. Producers, suppliers and consumers will in the very near future be communicating directly with each other; through the medium of immutable, decentralised, public databases. This can simultaneously result in less secrecy alongside greater privacy, enhanced accountability, and far less reliance upon centralised middlemen and institutions such as dealers, lawyers, transporters, warehousers, financiers and retailers. Consumers will be able to order and exchange value directly with their chosen producers anywhere around the globe, and commission the most efficient transport and storage without the huge distortions and externalities of the multinational, colonialist, mega supply chains, sales organisations, banks and governments harvesting and extracting unsustainable profit, removing it from circulation and holding it 'off-shore'.

Let's briefly look at one small aspect of this vast new potential and offer some examples. With PoT and blockchain technology all information pertaining to an **object** can travel with it, as its own

distributed public (and/or private) database, even as it moves and evolves through the successive **processes** and transformations of production (raw material to consumer item). This means an object's real (or total) cost, set against its real advantage (use value) may be publicly inspected and accounted for through a much wider audience and value consensus than the exclusive, secretive and narrow price determination that currently exists between producer, retailer and end user. This artificially narrowed and privatised price consensus inevitably seeks to externalise costs and extract profit, and rarely represents the true cost to the wider global system. Costs not met in an object's price are borne by future generations and the global commons. Politics aside, a far more resource efficient, needs driven, peer to peer and widely accountable needs based economy that can make sense of incredible global complexity is becoming almost instantaneously possible, right now, should we choose to demand and start using it. To briefly sketch two examples of this - every diamond sold could have a provenance, an unforgeable pedigree which records where, how and who it was mined by, and who has received money for it as it changes hands. The market and legal structures can decide the price of well documented, pedigree diamonds relative to the price of undocumented ones, which in the absence of recorded, tamper proof blockchain information can be assumed to be mined by enslaved children, funding bloody civil wars and to have been hoarded by cartels of price fixers. Or, a bottle of milk can have with it what herd it came from, what they were fed, what drugs they were administered how and where it's been bottled and stored, and at what temperature, how far it has travelled and what the total energy costs, and gas emissions of its production are. Any information which can be falsified, can be verified and checked in an immutable public record. Any one adding information to the record can be anonymous as to their real world identity but accountable through their **trust** profile.

The sudden proliferation of digital and blockchain applications and platforms such as PoT can be both the means and a driver of the meta-process of global system change, literally within everyone's hand. Without requiring a steep learning curve for users, or even the political or ideological desire for change, profound change will come through the nature of the new technology and what it enables.

Just a few years ago the internet arrived and disrupted and changed the human meta-process. It did this without being lead by ideology, politics or the widespread desire or understanding for the changes it wrought. Idealists and early adopters espoused its potential before the mainstream got hold of it, and then the internet became naturalised in everyone's everyday experience within a few short years; not because of ideology or principles but because of its use value. Blockchain applications such as PoT have an even greater potential to disrupt and change the human meta-process than the internet that came before. As the climate destabilises and anxiety and authoritarianism increase in response, we hope that the technology described in this paper and shared with the open source and crypto community will be taken up and further designed by idealists, pragmatists, philanthropists, environmentalists, coders and anyone wishing for the tools to help us manage the process of migrating to the better world our hearts know is possible.

The Process of Things - PoT

PoT uses an entirely new approach to digital and real-world processes. We realised that any and every **process** can be broken down into a series of **tasks;** a finite set of directional but variable, step by step interactions between, people and **objects** in a particular **location** - and we have developed a way to manage such processes on any device, usually a smart phone. This realisation is incredibly simple and extremely powerful so that as with many great ideas we might wonder 'why didn't anyone think of this before?'. It also has the quality of being difficult to explain it has to be seen and used to be fully understood.

It is the user letting PoT know their location that triggers and defines the process options for that location, according to the users **trust** and access status, their preferences, community and business

affiliations and the location specific **processes** they choose to interact with. They might want to open a security door, check out tonights offers in preferred local venues, or select which fruit trees to harvest, it is the location and personal settings and permissions that will determine what process options are relevant and available. The interface, menu options, buttons and even the entire appearance of the application will seamlessly change according to the user's location, process, task, services, subscriptions, permissions and the objects in the user's current location. The interface and the functionality is always recognisably PoT but will differ greatly according to whether the user is attending a cultural event downtown, logging soil temperatures in a greenhouse, or shopping for vegan shoes.

With PoT each successive task in a process has an easily coded microservice written for it, so PoT can walk the user through all the variables, the decisions and actions needed to complete the task and move the process forward. Microservices are designed so they can easily be created with anyone with basic web programming skills. Most microservices or tasks have already been written, and will be part of an open source library so the 'process provider' only needs to fit them together in the particular order required for any particular process. Most microservices will be used many times in many different processes. Understanding an organisation's processes, and compiling the open source microservices in order to allow PoTs to manage those processes will likely become a marketable skill. Processes are often aggregated (by organisations, groups, businesses and individuals) with many process-streams feeding into each other to become larger more complex processes. Even the most complex multi-stream, multi user processes can be easily and intuitively managed by PoT.

Objects are often produced, transformed or consumed in some way during a **process** or **task**. Pre-existing objects may change status or are transformed into something new; stock becomes a sale, raw materials become a product, an off light switch becomes on, a stranger becomes a friend, an unoccupied restaurant table becomes occupied. With PoT, **objects** can communicate their location, their present status, and what they need to further the process or task to the user in that location. They can even communicate their entire history to users, and authorised users in the object's vicinity can communicate with those objects and update their status and history in real time.

Using PoT and blockchain technology it will be theoretically possible to publicly verify all the details of an object's supply chain, the entire history of a product/project; where and how raw materials were sourced, who handled/processed/transformed it, how where and how long it was stored and at what temperature, who bought and sold the object and at what price, how it was broken and how/who fixed it and so on. For example, a garden chair is an object that arises out of a number of unrelated process streams and transformations that just happen to converge in its production and are only related to each other by its production. The chair can reliably let merchants middlemen and consumers know the details of multiple process streams that are otherwise unrelated and unavailable. The object itself can let us know what forest the timber came from, how that forest is managed and through what environmental protocols the trees were selected for felling. But also the previously separate details of the entire process regarding the preservative chemicals which have been applied can be added to the chair's database. The constantly updating and aggregating information belonging to that object moves and travels with it through time and space in its own distributed (non-centralised) database, to be retrieved or added to by the chain of producers and consumers along the way. When this information is committed to a blockchain it cannot be altered or erased and it can be verified. However, some (or all) information regarding the chair and its production streams may not be recorded by PoT, or it may be encrypted or privatised, requiring private keys to unlock portions of the information now belonging to the chair. So for example a sawmill may entirely privatise the name of the particular sawmill operator that day (only available to the company in case of complaint), make the price paid for the timber available to particular users (their accountants), whilst choosing to make entirely public their company name and location for retrieval by anyone that interacts with the

object's database further down the line. Ultimately the extent to which information is made publically available will be subject to consumer demand and uptake of PoT along the process of production but PoT provides the means by which whole new realms of communication and accountability become possible as demanded. In reality there will likely be gaps in information and a mixture of private and public information, but this will still massively enhance efficiencies, as producers, consumers and middlemen learn to converse with each other publically and privately, directly and indirectly in all kinds of ways generating new demands that have not been conceivable up until now.

It is important to re-iterate that use of PoT does not ever require, store or broadcast personal data unless specifically authorised by users. Hard anonymity and encryption is ensured by personalised public/private keys.

With PoT an object's needs and status, it's own history and process, can continually be updated in real time by the object itself, by other users, by the location, or by other objects. This can enhance efficiencies and prevent wastage. An object can accumulate information through feeds of data from many different sources and communicate them to the process in hand, updating the task and the user. In this way the huge potential of internet of things will start to become realised. For example a bottle of milk could update its use-by date and communicate that to a domestic consumer via their fridge, according to the temperature data previously logged in a transport container.

Social Processes - 'Communify'

Up to this point we have described PoT with regard to the processes and information regarding production and consumption of objects. PoT also has wide ranging capability with regard to social processes, the formation and interaction of real world, locational communities of interest and commonality (as opposed non location specific, whole world, virtual communities).

PoT can be the means for local communities to define, engage, interact and support themselves and each other. One way to do this is with tags. A user can have any number of tags which identify their interests (such as yoga, soccer, sports fishing) these tags can be turned on or off and changed at any time. People in the same vicinity with the same tag can choose to identify themselves to each other. In this way PoT will enable local communities of interest to identify, form, grow, and manage themselves very easily. Communities of interest might be geographical, commercial, social, political, intellectual or based around leisure activities or any other commonality. They may be private or public, commercial or non-commercial, or a mixture of both.

A location is defined by scale, it might be as small as a table, a room or building, or as large as a district, village, city or region. In any location PoT may inform a user if there are other (trusted) users or user groups that match their own interests or tags, so that with mutual consent they can connect in that location. Users can interrogate available information at concentric or nested levels of scale and privacy can be determined at each level of scale. So for example, someone with 'yoga' as a tag can turn that tag on when they are downtown. They can start to connect with other individuals who have also chosen to identify themselves with that tag, more closely, in a particular building, street, or more widely in a village, downtown area or whole city. They can apply to contact or join relevant public groups or use their services, or offer their own service, expertise or resources in some way to local groups. PoT does not use GPS for this service, nor does it require biographical or biometric information. It will know that people with certain tags are in the same vicinity, but it does not know where that vicinity is and so cannot be used to stalk, trace, identify or follow anyone. Anonymity and privacy are integral to the platform - unlike GPS based applications.

In any given vicinity a user can receive an anonymous notification that another user or service relevant to their tag is also in their vicinity. If the user chooses to interact they effectively subscribe to that service, they can then send messages to each other, or agree to meet, but they can unsubscribe at any time. Messages only come to the user if they have actively chosen to subscribe and are in the same vicinity. Businesses and services will have to use traditional means of advertising to get a user's attention or subscription in the first place. There will be a cost to messages sent, cost structures will ensure only highly relevant information is sent. If a user wants to find other groups and services they can search for them in their current vicinity. In this way interaction is chosen, or 'pulled' not 'pushed' and will be highly relevant or valuable to both parties. For example a user can choose to subscribe to a coffee shop that they like. Next time they are in the vicinity they might get a message from them to say 'we haven't seen you for a while - we'd like to offer you a half price coffee before 11am today, would you like to book your favourite window seat?'. Or the user can search for yoga classes in their vicinity subscribe to a school that they like and then receive messages such as 'we have a new advanced yoga class starting at midday, bring a friend and one of you will be half price'.

We are taking great care to favour and enable only highly targeted, relevant, location-specific information such as offers, updates, events and loyalty schemes relevant to current location and user demand. The charges for commercial and less targeted, less local, (more spammy) information will be higher than for highly targeted and specific local information, which provides an inherent, effective, anti-spam cost structure to the application. Only businesses and services with previous, elected subscription can access users. If a user goes somewhere new, businesses will not even know they are there and cannot 'see' the user until and unless they subscribe. PoT is not structured to be a marketing tool for new business. Businesses will have to have money on the blockchain in order to send messages and their subscriptions will be managed on the blockchain.

Another invaluable aspect will be community and organisational resource management. As objects, group and community resources can have their own decentralised database and so can be easily be tracked; where they are, who has entitlement to use them, who has used, serviced, broken, borrowed, leased, rented and so on. This information can be available to all members. A resource can even have its own wallet, so that an object can effectively manage its own needs and finances, rents, servicing, parts, replacement and so on, notifying users without having to go through centralised accounting.

Trust

When the **Process** functionality of PoT is combined with further blockchain innovations it becomes possible help solve a very significant and longstanding problem in the digital, virtual and crypto currency fields, which is the issue of **Trust**. Trust is the second of three building blocks to understanding the application.

The internet of things has so far been very vulnerable to hacking and misuse of data collection. Furthermore people's precious identities have also been widely exposed to fraud, theft and manipulation in both the 'real' and virtual worlds.

The **Trust**, and cross blockchain application that we are developing for PoT will make it inherently anonymous and secure, yet provide the opportunity for users to maintain a unique Trust profile. To do this PoT does not require biographical or biometric data, and so does not store it. PoT is location aware but cannot be used to track or trace a user, nor can it be used to transfer real world biographical identity to malicious actors. Nonetheless it will be possible for users to establish a self-asserting Trust identity.

If Trust can be digitally and reliably established, it enables an entire new realm for further technical innovations, economic opportunity and social and democratic inclusion, participation, suffrage,

enfranchisement and 'bankability'. **Trust** can provide a way for cryptocurrencies to become truly transactional for everyone everywhere, and not just an impregnable store of value for the technically literate. It will also reduce reliance on centralised institutions.

Trust is an emergent property of PoT, meaning it becomes available, reliable and more useful through widespread (local) adoption, as well as regular use by each individual user. We believe the incredible simplicity and high use value and of the **process** function of PoT, and the fact that it is open source means it can quickly gain the widespread use upon which the trust functionality depends. To explore this further we first need to understand the concept of Trust more fully.

Weak Trust in an insecure world

Whilst seemingly abstract, Trust proves to be a necessary and indispensable means for human communities to function. Thus far, Trust has been functionally precarious in the virtual realms. Trust such as it is, is only established by surrendering privacy by reference to real world identity (either biometric and/or biographical) such as a signature, a passport, an address, a password, a code, an oath, a card or a fingerprint. Such weak trust is not self-asserting i.e. it requires permission or validation from a third party (such as a bank or government agency), and it is still vulnerable to falsification, theft or manipulation. Anyone's digital or real world identity can be hacked, sold, copied, forged, lost or destroyed and requires permission from other parties to exist. The problems with establishing a trusted digital identity are highlighted by the manifold problems that increasingly large populations of migrants and refugees encounter.

So, up until now only a weak, vulnerable form of Trust has ever been established through externalities and centralised third parties.

Lack of Trust in a hostile world means that the technological architecture of Bitcoin (and altcoins based upon public blockchains) has favored its evolution as an extremely secure means of value storage (despite fluctuations in the exchange rates). However, there are significant costs for that strong security which introduce limitations and costs to its application. The main cost to Bitcoin of establishing such strong security in a world without trust is the huge and increasing physical processing power and energy demand of the proof of work structure, where computer miners alll over the globe solve complex algorithms to process and encrypt data onto the secure blockchain. This in turn means that new coins are only issued to those that can afford to bear this proof of work cost. Furthermore, it means that the public blockchains require a processing fee for miners which makes Bitcoin unsuitable for micropayments, and in its current form it is unlikely to be able to handle the transactional volume required by humanity, or become the instantaneous means of cost free exchange which is being demanded.

For cryptocurrencies to continue to evolve and reach their full Potential as a means of universal, incorruptible, high-volume and anonymous value exchange from anyone to anyone, it is necessary for a new means of Trust to be established. Many projects and innovations are working on this problem.

PoT is the technological means through which digital Trust can be established, necessary for cryptocurrencies to become widely and easily used without surrendering anonymity or security. A technological and blockchain architecture able to establish Trust will also enable many kinds of further social, technological and economic opportunities as yet undreamt of.

Satoshi Nakamoto solved the double spend issue which allowed a distributed database to become Bitcoin a staggeringly elegant and robust solution to a seemingly intractable problem. The Ethereum blockchain allows smart contracts to enter the field, where governance through distributed and decentralised consensus and participation become possible. These are truly evolutionary leaps

forward, the implications of which are beginning to unfold through space and time in many new and exciting directions. Few people actually grasp or understand the full potential of these innovations, even in the cryptocurrency space because developments are moving so fast and because the principles and technology are, thus far, unfortunately beyond the learning and experience of most people. It takes sustained effort to understand and keep track of the space. We believe that the Trust issue is of a similar magnitude to the problems of security and governance which Bitcoin and Ethereum are beginning to address, and is just as easily overlooked and difficult to explain amongst all the noise and hype of ICO's, exchange values, market cap and the froth and hype of all the other exciting innovations flowing from these innovations. We believe PoT has the potential to become another major element of the emerging blockchain ecosystem.

PoT Trust identity

PoT allows users to establish and maintain a self-asserting, anonymous, digital Trust profile or identity, and it requires this Trust identity in order to use it fully. What that means is the ability to demonstrate that I am a real person, with a real life, in the real world, that I am only one person and that I exist and am sovereign, and only I (its creator) can be me and use this identity. My Trust identity cannot be sold, stolen, forged, or hacked, and it cannot be used against me because it has to be earned through the unique complexity of having a complex life in the real world. The more I use PoT the greater the trust I earn. My PoT Trust identity is self-asserting, it needs no permission from anything or anyone to exist and it cannot be turned on or off by anyone but me. Even better, this trusted identity does not require biometric data, or any biographical data from the real world to function, in that sense it is a completely anonymous, secure digital representation of me.

Trust is perpetually earned and maintained by everyday use of PoT in many different ways, by the **processes** of my life in my location. If I cease to use and perpetuate it, it diminishes and eventually ceases to exist. If I move location, or step outside of the established routines and connections of my life, it decreases until I re-establish or earn it through the regular **processes** of my new life circumstances and through the unbroken connections to my previous life.

This Trust identity is like my digital shadow, it gains its existence only from me, follows me everywhere and simply cannot convincingly be used by anyone but me, because anyone else will inevitably change its 'shape' and thus instantly reduce its trust value. If anyone else tries to use my identity it will quickly morph and become the identity of their real world life and will lose its conformity to me, and thus its Trust value. It derives its form, its unique signature and its resolution from the uniqueness and idiosyncrasy of its creator and user's everyday **process**(es). Just as I cannot cast two shadows simultaneously, nor can I convincingly maintain two robust Trust identities. I cannot sell it or give it away because the recipient is not me and cannot artificially pretend to be me whilst maintaining their own trusted identity, because they would have to inhabit my life in order to represent me. If someone does 'inhabit' my life and try to mis-represent me, they must do so in my locality and they must forgo their own original and unique trust identity; users cannot inhabit two identities. Nor can my precious, three dimensional, real world identity be identified by any party interacting with my digital shadow unless i choose to reveal it. If my Trust identity is compromised in any way I can simply turn it off and re-establish a new one.

The PoT Trust Blockchain

PoT will launch an entirely public blockchain dedicated to trust with its own native token to establish and maintain trust for users. The trust blockchain will also act as a gatekeeper, only allowing trusted users to interact with an unlimited number of other, entangled blockchains behind the trust 'gate' (cross chain applications). Everybody will be able to become a node and/or use the Trust blockchain not just users and developers of PoT.

Users create a private key on the trust blockchain which is then used to sign and authorise applications or the creation of other blockchains.

The trust blockchain means that even public blockchains associated or entangled with it can in effect be compartmentalised, or localised, only ever being seen or interacted with by people that have established and maintain trust in a specific locality. Trust on the trust blockchain is established and maintained by users in a particular location, and so the public trust blockchain can be used to direct local users to local blockchains. If a user has not established trust in a given locality they cannot even know what blockchains exist in that location and they cannot be viewed or interfered with remotely. Applications and chains associated with or regulated by the public trust blockchain are in effect public-but-compartmentalised, since anyone can theoretically start or run a node or subscribe to its services but only so long as they are a trusted user in a specific locality. This will enable the creation of local **transactional cryptocurrency** without the security overheads of Bitcoin and the other (fully) public blockchain cryptocurrencies, which will leave them to do what they do best, being a secure store of value and means of large and international transactions.

The trust blockchain will make centralised and/or remote attacks impossible, it can establish chains that distribute and circulate value or wealth locally, and will allow localised instantaneous transaction processing without fees. This also negates the risk of quantum attacks as they would have to be very targeted and would only provide a very small segment of information and potential gain.

The candidate pc or device used to create or download and run a local (compartmentalised) transactional blockchain node is an **object** which has to be assigned trust by a trusted user in order to become a node. To run such a node, the device must be continually trusted by at least one trusted user. If the node device has only one trusted user assigning their trust to it, if that user loses trust then so does the device, and both are excluded until trust is restored. Or, if the node behaves badly and loses trust, the single assigned user will also lose trust; either way both user and node device lose trust and are excluded from the network. However, any **object** (such as a node device) can be assigned trust by more than one trusted user. In this case, if any single user loses trust the node device will still be trusted by the other trusted users and can continue to run the node. But if the node behaves badly all the associated users of the node will lose trust.

Users Trust Rating

So how do users establish and maintain a trust profile? This can only fully be explained in the technical paper not this conceptual document. Briefly, trust is established and maintained through the use of native tokens on the trust blockchain. We can compare these native trust tokens to a money account for easy explanation here, however users will not see the native tokens, they will only see a representative trust rating on the PoT interface relative to their balance of tokens. This native token trust accounting is automatically governed by smart contracts and oracles. Trust is gained slowly and lost quickly.

PoT Trust is spent by interacting with new environments and is restored by repeated interactions with familiar real world environments. In these environments factors such as wifi, cell towers, objects, businesses and other people create a cryptographic landscape of unique hash values (so that they can never be used to track or locate users). The first time users interact with this cryptographic hash landscape they will lose trust, as they spend trust tokens establishing many connections, effectively lending trust to objects in the new environment. Subsequently, interacting with those objects in the environment repeatedly, will return trust tokens to the user to regain a neutral balance. However, when multiple users can also 'see' the same, cryptographic representations of a complex real world environment, the trust tokens restored to users from that environment are slightly magnified in value, thereby allowing users to establish and maintain a positive balance. This confirms that users are real people, in a real, shared-world (not a virtual) location.

So, users of PoT spend trust when they do something new, and gain trust when they inhabit a routine or distinct pattern of connections through regular use of the application. For honest users losing trust may be an inconvenience but not a disaster, they will not irretrievably lose value or functionality for example, and can revert to standard verification methods such as passwords and two factor authentication (2fa). Applications for which loss of trust would be a disaster will simply not evolve on the platform.

Localised Transactional Cryptocurrency

The entangled blockchains behind or beyond the trust blockchain will have many and varied application, but in this document we will focus on exploring the concept of local, **transactional cryptocurrencies** which PoT makes possible. Transactional Cryptocurrencies are the thrid building block to understanding the totality of the application.

Let us recap and reframe what we have discussed so far in order to explain the potential for PoT to enable a new kind of localised and transactional cryptocurrency.

Cryptocurrency such as Bitcoin is immensely exciting to users through freedom of exchange, and idealists for its decentralized consensus. It also attracts malign users in their droves to the honeypot of value.

Bitcoin and other public blockchains not only have to deal with active hackers but also third party onlookers that can examine and test everything from the comfort of their own office, den, lair or armchair anywhere in the world looking for cracks and weaknesses and ways to manipulate it. When quantum computing and AI come on line in the near future it is likely that they will be able to affect and manipulate the public blockchains unless there are significant security innovations in the meantime, however let us assume that BTC continues to evolve as a safe store of value.

PoT is a whole new way of thinking about the blockchain and cryptocurrency space. Our solution is to start with a very wide ranging and universally useful **process** application, use of which can generate a unique and secure **trust** profile or rating. This trust profile is regulated by a public blockchain whose sole purpose it to regulate trust. The trust blockchain effectively takes the flack of public exposure and does not have the demands of value transactions placed directly upon it. As with other public blockchains anyone can join or use the trust blockchain and anyone can become a node. Trust is established through a new equivalent to proof of work, being the circumstances and unique pattern of your life, which you would be doing anyway. The more you use PoT the more depth and resolution your trust persona will have. No personal, real world, or biometric data is required or stored. Trust is the only purpose of the trust blockchain and it regulates access to any amount of other effectively localised or compartmentalised yet public blockchains associated or entangled with it.

Blockchain creation through established Trust

Once trust is established and only for so long as it is maintained, users will will be able to interact with and create other blockchains which provide other services. In theory all blockchains that wish to could move behind the trust blockchain in order to reduce their exposure to bad actors and the time and energy costs of unrestricted public exposure.

PoT can deploy an unlimited number of further blockchains allowing cross-chain applications to be developed. There are unlimited possibilities for subsequent and entangled blockchains where trust is required such as voting and democracy, decentralised local food and/or energy production and distribution, local fundraising, loyalty programmes and so on; but the focus of this paper is to look at what we call localised transactional cryptocurrencies.

Transactional Cryptocurrencies

A transactional blockchain would be one that exists behind the trust blockchain. Because of this it has far lower security overheads and thus it can handle thousands of simultaneous transactions and can be used for everyday real-world purchases. The originators can set their own rules, value parameters, cap etc and choose what processes will be the mining and proof of work which can be as simple as inviting others to join, for example. In this case, every thousand successful invites might generate the issuance of a thousand new coins assigned proportionately to those who gained the sign-ups. This unique concept of new coin being issued directly to users as a result of real-world work would result in new coins being distributed far more widely to its users than with BTC, which requires a prohibitively costly and specialised mining outfit. It would also remove the achilles-heel of cryptocurrencies where the large majority of users who do not operate mining servers have to rely on centralized exchanges to obtain currency. By creating a decentralized issuance and exchange every person can become their own independent bank, exchange and miner. This will introduce a whole new order of decentralization to the cryptocurrency space.

The process of invitation also means the transactional currency would be local and bad actors would have absolutely no access to the transactional blockchain unless their trust personae was invited to join by another trusted individual, both being required to be in the same location, ensuring that cost and effort expended would be greater than potential gains. Value can easily be exchanged between Bitcoin, and fiat currency and any local cryptocurrency to which the user has access. Users can use the local cryptocurrency like cash for low-value, everyday transactions; we have not designed it to become a store of value.

Transaction technology

In order to secure transactions on those blockchains there will be nodes in the local vicinity. Initially the nodes will be provided by our Distributed Autonomous Organization (DAO), but to encourage local uptake of nodes individual businesses and shops will be encouraged to deploy either pre-flashed routers or other micro devices or download the open source image that will be accessible via the website and can be installed on any PC. This will provide offline functionality in the event of internet failure so the business can continue to use the transactional currency for their own business. These nodes will provide other functionality such as paper wallets in less developed regions, or where only one party has a smartphone or computer.

In this new ecosystem the public cryptocurrencies such as Bitcoin would continue to serve the world with what they are good at, as trusted stores of value and international and high value exchange, whilst transactional currencies behind the trust blockchain would be local and relatively 'small change'. PoT can act as the internal exchange between public and transactional cryptocurrencies via further blockchains behind the Trust blockchain. At any point if an actor's Trust is lost, access to all subsequent blockchains is also automatically suspended until Trust is regained.

Community value of the technology

The possibility of any trusted actor having the ability to create their own transactional currency based on their own parameters will create a natural laboratory where new ideas, values and communities can be incentivized and flourish according to local need and demand. This will allow society to develop new models for value, financial systems and community participation and for local communities to circulate and share value and values without intermediation, regulation or value extraction by centralised institutions.

There are certain parameters that cannot be broken in a Trust environment. A person can only exist in one place at one time. PoT knows where your Trust personae is, and the Trust blockchain can be instructed only to allow access to local transactional blockchains. Transactional blockchains created and operating in remote geographical (and social) locations cannot even be seen let alone joined or

therefore hacked. Anyone willing to risk their Trust personae by acting badly can only act badly in their current location and upon local blockchains.

Transactions within the Transactional currencies will have no fee and will be instantaneous. The public blockchains such as Bitcoin have to charge a fee, and necessarily take time to confirm transactions both of which highly dis-incentivise micropayments. The Trust blockchain can be the gatekeeper to a new transactional network which will allow localised and regional transactional blockchains to focus on the job of safely and instantaneously handling thousands of micro transactions in real time. Users can store their value in bitcoin, or national currencies and easily transfer spending money to and from their preferred local transactional currency depending on where they are at the time.

Conclusion

The original purpose of PoT was to generate resources and tools for our mother project - Land in Action. Once developed to a stage where we can give PoT to the open source community we can focus our time and resources to develop the Land In Action project more fully. Land in Action aims to develop and disseminate the technology for low-cost, super efficient, small homes, which anyone can build for themselves which provide food, power and water for residents and exchange surpluses on an infinitely scalable peer to peer network. We believe that human security and economic freedom will only be achieved when everyone enjoys a home that works for them to provide the basic needs of life; especially as the climate destabilises, decreasing food and water security around the globe. There will be no need for Universal Basic Income if your home works for you and produces exchangeable surpluses. We aim for the best whilst preparing for the worst.

PoT will provide the means for us to set up as a Distributed Autonomous Organisation (DAO) a new form of organisation enabled by blockchain in which anyone can participate and earn according to the value of their contribution to the goals of the Organisation. Once PoT is given over to the open source community, it will generate value in perpetuity through micro exchange-fees. These fees will be charged to exchange between transactional currencies, and between transactional currencies and cryptocurrencies and fiat, there will no charge for any transaction within a particular transactional currency. Anyone who contributes to the evolving aims and values of the DAO can help further the aims of the project. Our values are Earth First (if every human being currently alive adopted our tech tomorrow it would support and not diminish the biosphere), Open Source (knowledge should be universally available), Peer to Peer (decentralised, distributed consensus and autonomy), and Universal (everyone born and unborn should be able to have it, or no-one should have it). We hope that this technology will enable the need for humanity to migrate towards sustainable integration with the biosphere.