BLOCKCHAIN
FOR GOOD
HUMANISING THE BLOCKCHAIN
Why we need a duty of care today, for a humanised blockchain future tomorrow

Can this radical new technology create the underpinning of a safer, fairer more prosperous society?
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A TRANSFORMATIONAL AND SYSTEMIC IMPACT THAT NEEDS A DUTY OF CARE

Many commentators suggest that we should be looking at the blockchain as if we looked at the Internet back in the 1990s. We agree.

According to the World Economic Forum, it’s estimated that over $1.4bn has been invested into blockchain technology over the past three years - despite many projects still being in experimental phase. Also known as distributed ledger technology, a blockchain is a sequential, ever-growing, timestamped set of records that are grouped in blocks and maintained by disparate participants. Each block is inter-dependent, making alterations of records economically difficult if not outright impossible.

As a technology often described as trustless in its concept, it is delivering a new type of trust.

This is compared with the current model of many organizations and businesses, where one party, whether it’s a bank or a government agency, is entrusted to maintain a "digital truth" composed of disparate ledgers and systems that are reconciled periodically but could differ at any one time.

Given blockchain technology fundamentally changes existing structures, in our view, this is not merely an evolutionary development, but it has the potential to become transformational technology.

However as this technology develops, we need to explore the underlying duty of care that needs to be considered. This is why we hosted a high level roundtable discussion in London, bringing the greatest minds from the worlds of entrepreneurship, investing, academia, sustainability, charities and policy making, to tackle this challenge.

This paper reflects some of the thoughts and insights from that discussion – in particular around the opportunities that blockchain technology can offer, the consequences of not getting it right and identifying some guiding principles on how we can shape an underlying duty of care.

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HUMANISING THE BLOCKCHAIN: DEFINING GOOD IN AN AGE OF NEW VALUE

So far, the majority of investment has been concentrated within the financial industry, attracting the majority of headlines. Yet one area that has not yet received the same level of attention or investment is the human aspect of the blockchain – how it could underpin the technologies that impact our everyday lives.

Theoretically the blockchain can also be applied to tackle global humanitarian issues. For instance in human trafficking, rescued people are often re-entered without a clear identity - making them vulnerable to being re-targeted by human traffickers. Another example is in improving success in clinical trials, by opening-up the results of trials and making benchmarks more transparent.

We are living in a world where ‘for good’ has become zeitgeist and is often interpreted as “social good”. However to set the scene of the discussion it is really important to note that “for good” is not limited to non-profit activities or the third-sector. Business that will continue to thrive tomorrow, will be those with a clear purpose which is underpinned by a commitment which balances the triple bottom line of people, profit and planet.

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It is perhaps not surprising that in our discussion, there were incredibly varied views of what "for good" meant - for creative industries, it is transparency and fair distribution of royalties; for refugees, it is establishing or protecting identity; for charities, it is about accountability and for government, it is about delivering better services to the public.

But what was interesting is the commonality between everyone's interpretations of “for good” – the notion of creating new value, under a framework of ethics and clear moral intentions. When considering how blockchain can be used for good, it is important we look at its relationship with creating new value.

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A BLOCKCHAIN UTOPIA
AND TODAY’S GRASSROOTS INNOVATORS

There is certainly a powerful thought experiment to be considered on how the implementation of blockchain technology into the heart of society. Imagine a utopia where blockchain technology is used to underpin applications that addresses real-world problems – with a vision of shepherding a better future.

Let’s first look at a real world experiment that’s already happening today.

Estonia’s e-residency scheme offers anyone, anywhere, a digital identity issued by the Estonian government, allowing non-residents to access the country’s services including having a local bank account. E-Residents can digitally sign and verify contracts online anywhere in the world, therefore reducing its borders, especially to businesses.

In particular, the government has partnered with Bitnation, to offer a public notary service to e-Residents, underpinned by blockchain technology. This will allow individuals to electronically record their marriages, birth certificates and business contracts, regardless of their residency.

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What blockchain technology offers in this particular example, is a frictionless way for individuals to access a government’s services. Government records are trusted due to the immutable nature of the blockchain and automated authentication is breaking down geographical borders. Estonia is offering new value to users of its services.

Aside from government, we are already seeing a grassroots movement of innovators and start-ups that are looking to blockchain technology to solve real world humanitarian and economic problems. For instance, we were fortunate enough to have four start-ups as part of our discussions who are playing a fundamental role in using blockchain technology to shepherd a better future:

- **AgriLedger**, who are using the technology to give small farmers in developing countries a fairer deal;

- **Provenance** who are using the technology to certify the provenance of fishing stocks;

- **BitPesa**, who are reducing the cost of cross-border payments in Africa to reduce the cost of entry for small enterprises to access liquidity and the global economy;

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• **The Safe Haven Project**, who is developing a solution to help refugees to re-build their lives and with a view to help immigrants port their identities.

All four of these start-ups are in their own right, delivering new value – not in monetary value, but empowering social and economic change. And there are of course many more, including BVrio, which tracks timber in Brazil to combat illegal logging.

The blockchain is most relevant across these applications, as the structural immutability and trusted authentication features offer a single, shared source of truth - which we can trust. As R3 articulates, “I know that what I see is what you see.”

We can also imagine these benefits in more serious issues such as bringing to justice criminals committing crimes against humanity. As history dictates, it is when you bring a mass of people to bring forward evidence against these, that you can bring a stop to wrong-doing. Unfortunately this is often difficult as records will be held in disparate locations and evidence will follow witnesses that are dispersed, escaping these crimes and sometimes losing their identities. This is why high profile crimes against humanities can take many years, even decades to prove and convict.

In a blockchain-enabled world, one can imagine a world where a shared, immutable ledger which brings evidence together can be used as a single shared truth. This can provide evidence of someone's humanity and bring together the evidence to convict criminals.

Trust is fundamentally at the heart of blockchain.

“I know that what I see is what you see.”
BLOCKCHAIN DYSTOPIA:
TWO WAYS OF GETTING IT WRONG

Where this a vision of utopia, there is an equal possibility of dystopia. The Red Queen phenomena refers to the scenario where criminals are able to adopt technology faster to gain an advantage. Imagine a scenario where criminals are able to manipulate systemically important organisations from banks to pharmaceuticals by targeting the blockchain.

We have already seen cases where bad actors have manipulated projects based on blockchain technology quicker than the community can prevent attacks. Earlier this year we saw an attack on The Decentralised Autonomous Organisation (The DAO) – a crowdfunding campaign where transaction records are maintained on a blockchain and executed through smart contracts.

Unless there is an unambiguous ethical system which is clearly defined, there can be no ethics.

It should be noted that in this particular instance, the vulnerability did not lie in the fundamental design of the Ethereum blockchain, but a bug in a high-profile project that sat atop it. (The culprit was merely two transposed, adjacent lines of code.) The bug allowed the hacker to drain funds. Before the community managing The DAO were able to patch the bugs, a hacker was able to drain over $45 million from the ledger within the space of three hours.

In fairness, while one might refer to the heist of TheDAO as Ethereum’s “too-big-to-fail moment,” resulting in a largely community-supported rollback of the ledger, there is a fundamental difference between this and the financial crisis of 2008--participants in the ecosystem could vote on the solution. Those that didn’t agree created “Ethereum Classic.”

There is a second way where we do not get the blockchain right, which can be equally systemic. Unless there is an unambiguous ethical system which is clearly defined, there can be no ethics.

A lack of an ecosystem and perhaps worse still, a manipulated ecosystem would fundamentally undermine the principles on which the blockchain has been built on – a transparent, immutable and distributed ledger.

The best case scenario is that we end up with a large number of unconnected, private blockchain networks. But the worst case scenario is that see the emergence of monopolies that shape the development of blockchain technology that benefit the privileged few at the cost of others.
RECASTING TRUST: FIVE CONSIDERATIONS

Blockchain can recast trust relationships between government, people and business. As the Edelman’s Trust Barometer, a survey of over 30,000 individuals globally, suggests, there is a widening trust gap between these three groups.

Blockchain technology offers a new model which can help solve this point of crisis. During our discussion, we distilled five areas that should be considered when developing duty of care manifesto:

1 | Distributed Power

Blockchain technology does not allow vested interest in any one individual and power is given by consensus. As such, this creates network integrity and enables transparency by design. The principle of users being able to use, but not be able to manipulate the system should be an underlying principle for enabling the technology to be used for good.

A related point worth pointing out is that power has a direct correlation to data. However by re-distributing power, you also need to re-distribute the data. Yet today, data is restricted or limited by borders – especially under evolving data residency rules.

If we want to realise the benefits, we need to approach the paradigm of power it is accustomed to. There is a role for policy makers to influence countries as well as the developing world to make sure their policies will allow frictionless sharing of data.

The UN is talking about identity - but they’re not talking about the data that will be on the blockchain and how that will establish and protect our identities.

As a technology often described as trustless in its concept, it is delivering a new type of trust.
2 | Authentication and new Trust

One of the fundamental benefits of blockchain technology is that it offers security by design as there is no single point of compromise.

The multi-way authentication model means that there is enough confidence in the values held in distributed ledgers, to ensure it is considered a single source of truth. As a technology often described as trustless in its concept, it is delivering a new type of trust.

However with great power, comes great responsibility on the individual or organisation. One aspect that needs to be considered is how a distributed ledger would impact data privacy, data ownership and misuse of data. Access protocols already enable varying degrees of access and permissions to users such as contributor, editor, access only. However this does not necessarily circumvent misuse of data.

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(As a side note, it will be interesting to square this concept against “right to be forgotten” laws, as well as European Union’s General Data Protection Regulation (GDPR) regulation.)

On one hand, it is clear that as a community, we need to begin to define clear terms and intentions around data control.

On the other hand, to secure trust and confidence of an application, it is important that there are clear consequences in cases of misuse. For instance, in Estonia, one of the key successes is not only the government communicating its benefits, but also imposing consequences for unauthorised access of data.

It was clear within our discussion that it is important that as a community, we begin to define clear terms and intentions around data control, as well as define consequences for misuse.

3 | Transparency and balance

There must be balance and compromise. There is no point using blockchain with the same frame of mind of our existing economy and system. It fundamentally changes the way existing organisational models are designed and how we are programmed.

One key point raised during the meeting is the ability for different entities to verify information by querying a distributed ledger. One such example referenced was the role of regulators querying companies, without the need for companies to divulge sensitive information. Since the ledger becomes the single source of truth, a simple query against the ledger can generate a “yes” or “no” answer.
There is no point using blockchain with the same frame of mind of our existing economy and system.

Smart contracts is a technical manifestation of governing this and even access control is a point for consideration. The real question is how these functionalities can be used to enable good.

4 | Incentivised and accelerated value

Throughout history, value has been an incentive for action. Whether this is through driving fiat currency, or in our daily lives, it is a key driver that keeps society and economies going. However under current model value gets mediated by large organisations or governments to ensure broader political, economic and societal objectives are met.

On the other hand, the decentralised structure of blockchain passes value through to individuals. There is no central authority setting economic policies or regulating the distribution. As such, the incentive for action is open and put in the hands of everyone as there is a fair value exchange.

5 | The role of Communications

Finally, a key success factor for blockchain technology is trust and communications.

In 2006, the UK brought in the Identity Cards Act 2006 with the aim to introduce national identity cards similar to those found in countries such as Hong Kong. One of the points raised during the discussion is why the UK failed at delivering the system, while Estonia has successfully rolled-out its e-Residency scheme.

The underlying issues is that the UK introduced the ID card system without communicating any clear benefits to the individual. Conversely, Estonia was successful communicating the benefits and the fair value exchange.

If we’re integrating blockchain technology into government infrastructure, it is essential that we focus on deployment in places where it is needed most. It is important that decision makers and policy makers are properly engaged. To safeguard the future of blockchain technology, ensuring it is being used for good and trusted, there is an onus for everyone - industry and government, and those communicating on its behalf, to do so responsibly.
A BLOCKCHAIN MANIFESTO:
A FEDERALIST DECLARATION

What was clear from our conversation is that regardless, we do require a federated model - a guiding hand, to set the vision and principles to enable its success, for the greater good - whilst allowing verticals or countries to govern their specific areas. To be clear, this is not a government, a centralised organisation or even regulation - but policy and principles that document a duty of care for blockchain technology.

Blockchain is commonly associated with open structure by its design - however there could also be situations where a closed or restricted structure is required.

From a humanitarian standpoint, as an example if you are leaving an oppressed country and you wish to take your data to re-build your life, then a closed system might be preferable. Whereas property deeds, where it is not a matter of life or death, may be more effective under an open system.

Another point of consideration is the role of regulation as opposed to policy. What was clear in our discussion is that you cannot regulate technology itself, but you can regulate systems. Interestingly blockchain is the convergence of the two – where it’s both a system and a technology in one.

We recognise that blockchain innovators need to be part of existing infrastructure and as such, regulation is not necessarily a bad thing. For instance, blockchain innovators that aim to democratis finance will ultimately need to comply with regulation to be properly integrated into mainstream financial services.

Instead, there is a need to have a set of agreed vision and principles to enable blockchain’s success, for the greater good - whilst allowing verticals or countries to govern their specific areas.

If we look at other areas of the internet – for instance ICANN – the Internet Corporation for Assigned Names and Numbers, a non-profit corporation created in 1998 to assume responsibility for managing the Internet’s addressing system globally. ICANN adopts a model that can only be described as a “bottom-up, multi-stakeholder decision maker model”.

Or consider the Linux Foundation, a non-profit organisation which promotes, encourages collaboration and provides the standards for Linux.

In other words, a distributed model with a central committee may be an approach to developing a ‘guiding hand’ for blockchain technology. If we are to strive for a blockchain utopia, we need more than an agenda. We need a genuine global answer on who guarantees the system, as well as consider how this can be underpinned by “good” at its heart.

It is clear that there are many questions that are too complex to be answered by a small elite. However what we do need is a manifesto which collaborates and promotes blockchain technology to enable a future for good.

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We hope this document helps inspire and encourage further discussion on what a guiding hand and even a federated model for good can look like.

Blockchain For Good brings together the greatest minds around the world to explore and debate the development of blockchain, for the greater good of humanity, society, economy and our environment.

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