

Workshop Report: Considerations from the 2nd OIX Blockchain, Identity, Trust and Governance Workshop

London – June 15, 2018

The Future of Distributed Ledger Technology and
Legal Frameworks

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Introduction

As more and more applications and use cases are coming closer to market on distributed ledger technologies, such as blockchain, we see both the massive potential this technology can deliver, as well as the looming challenges in guaranteeing their fairness and trustworthiness. This is where the intersection of IT and legal expertise will be critical. The convergence of these disciplines is going to be fundamental for developing the governance frameworks and trust mechanisms necessary to propel the success of distributed ledger initiatives including, but certainly not limited to: cryptocurrency distribution, self-sovereign identity management, public and private voting mechanisms; and smart contracts, both from societal as well as regulatory standpoints.

The Open Identity Exchange (OIX), with support from the Distributed Ledger Foundation (DLF), recognizes the significant impact that thought leaders around the world – whether technical, legal, or legislative – can have in providing guidance for the governance frameworks that will serve these applications, the businesses or organizations deploying them; and the people who will depend on them. This recognition led to the organization of the OIX Blockchain, Identity, Trust and Governance (BITGov) Workshop series.

These workshops are one-day educational workshops for lawyers, policy makers, and technologists involved in deploying systems at scale utilizing blockchain and distributed ledger technology. The goal is for participants to share their expertise and create a global community dedicated to interdisciplinary knowledge exchange, and the formation of best practices that will inform private enterprises, public entities, and governmental bodies on how to responsibly and successfully deploy projects using distributed ledger technology. This paper provides insight into the discussions and debates that have been held through these workshops.

Don Thibeau

Chairman & President, Open Identity Exchange

Chairman & President, Distributed Ledger Foundation

Executive Summary

While there is trust in the integrity and authenticity of Distributed Ledger Technology (DLT), technological trustworthiness does not automatically translate into legal validity or trust in the secure use of services built on DLT. This fear of the risks of using DLT-based services could be assuaged through building a trust framework with regulators, and providing trusted accreditation for service providers. However, a significant challenge faced in the UK is that there is still inconsistency in narrative around DLT at the level of national government. This inconsistency creates, among regulators and policy-makers, a sense of uncertainty and doubt in the long-term viability of DLT. Thus, there is limited interest in spending resources on developing the regulations, accreditations, and supportive ecosystem needed to encourage its adoption.

Recommendations

- 1 Work with legal and accounting firms to lobby regulators and government.** Regulators and government officials are comfortable with their incumbent processes - however antiquated and inefficient. There is a steadfastness among regulators and politicians resistant to change, making a case for continuing to do things the way they have always been done. Work with professional service providers - for example, law firms and accountancy practices to lobby on your behalf.
- 2 Engage smaller governments to start setting precedents.** The smaller the government, the more engagement and trust one can establish with important stakeholders. Progress made with smaller governments can set precedents and help accelerate progress in larger markets.
- 3 Raise awareness of the inefficiencies and problems of the current systems.** One challenge faced in the resistance to adopting DLT-based services, is that people using incumbent systems do not acknowledge that the inefficiencies and problems they encounter are real, solvable problems. There is opportunity to increase education around these topics to shift mindsets to acknowledging the issues of current systems.
- 4 Start using DLT with existing legislation, and make incremental changes to legislation as more is learned.** To begin with, allow for DLT to be used under existing legislation. Introduce DLT-specific legislation as the understanding of different implications, issues, and use-cases evolves.
- 5 Require that all actors in the ecosystem perform their own risk assessment and documentation risk mitigations.** In the absence of standards and regulation, we need to self-assess. All actors should assess the foreseeable risks of their offering, and documentation should be required as to how they are mitigating against these risks.
- 6 Establish trusted accreditation to distinguish vetted service-providers from bad actors.** Similar to what the FCA is to financial service providers, a trusted body should be established to vet and provide accreditation within the DLT ecosystem, bolstering trust in the good actors, and allowing users to distinguish them from the bad.
- 7 Promote the interoperability of existing trusted authorities and trusted networks.** Rather than enforcing a new trust model that people may not accept, it was recommended to, instead, invest resources into collaborating with, and promoting the interoperability between, existing trusted authorities and networks. This will allow for smoother and swifter progress in the evolution of the ecosystem, and adoption of services built on DLT.

- 8 For the development of SLCs, investigate further how to address navigating deliberately ambiguous language in legal contracts.** Words such as “reasonable” are deliberately used in contracts to allow for consideration of unforeseeable circumstances, should a contract come into dispute. While the automation of SLCs works well with verifiable claims of binary nature, human attention is still needed to assess some situations. Further investigation is needed to understand how to account for this in the design of SLCs.

Stewarding the Evolution of DLT-Based Services

These cross-border conversations hosted by the Distributed Ledger Foundation convene technologists building services on Distributed Ledger Technologies (DLT), with legal experts and policy makers with domain expertise specific to the geography. In these conversations we explore the current state of the ecosystem in each geography, the progress and shortfalls, the issues that are not currently being addressed, and the questions that we need to be asking. Through doing this we are learning and disseminating learnings between geographies to steward the successful evolution of ecosystems around DLT.

To set the context for the reader, it may be useful to note the significance of these workshops and white papers in addressing the under-examined areas in building systems of trust around services built on distributed ledger technologies. Trust in the integrity and authenticity of the technical system is built into DLT. **Meanwhile, legal trust is not built into DLT.** Transactions are additively signed by peers, but there may be no way of knowing who they are, what they are assuring, what the value is of a transaction or of the ledger, or what the role is of any user. It is imperative at this early stage, therefore, to establish governance and legislation that allow all potential stakeholders in DLT transactions and services to trust in the system.

Current State of DLT in Europe

When it comes to innovation in Europe, the traditional European handicap is the tendency of each member state to focus inward. Each EU country has their own economic and political interests, develops their own legislation, and tends to focus on their own market. This is difficult to then break out of, limiting the scale of EU-based technology companies. This is why the most successful global tech companies are from the U.S., and increasingly from China. If we want to create Europe-wide technologies, from an institutional perspective, the Observatory is a promising initiative - allowing potential partner companies to discover each other, and find out how they can help each other grow. To support innovation and progress in DLT in Europe - if we want to have major European companies, in the same way we have major US and Chinese companies - we need to encourage this type of communication between companies in different countries. We have to make sure that Europe remains open for business between member states, and make it easy for companies to grow outside national borders.

The conversation of the workshop moved to thoughts on the quality of DLT-related laws created elsewhere. It was suggested that for those member states making a point of announcing that DLT can be used for transactions in their jurisdiction, given that there is no default ban on DLT transactions throughout Europe, this is merely promotional legislation to attract jobs and innovation. This “legislation” is politically-driven promotion to encourage experimentation with new technologies and systems in their countries. While arguably important, this was regarded as a poor use of legislative power. No country in the EU has blocking legislation disallowing electronic contracts to be signed on DLT.

Current State of DLT in the UK

Considering the inconsistency in the contradictory comments made by legislatures about DLT, the question was asked whether this may be because UK regulators are not educated enough about these technologies. There were four suggestions as to why this may be:

- 1 The DLT ecosystem is made up of smart, technical people who work quickly, who are often well-funded, and who are used to acting autonomously in building technology - rather than waiting to be told what to do. Meanwhile, regulators who are not as well-funded, operate on a much slower timeline - making it hard to keep up with progress.
- 2 Perhaps in part due to the gaps in understanding of these technologies, regulators and policy makers are not convinced that DLTs and similar technologies are here to stay. So, they do not want to invest resources into this area. An additional factor in this mentality is the fear of looking stupid if they pour resources into this area if it does not take off.
- 3 Regulators are familiar with top-down pressure to drive new initiatives, and this simply is not a priority for high-level government given all else that is happening in UK national politics.
- 4 Given all that is happening in UK politics - not least, Brexit - the coordination of DLT policy is seen as relatively low priority.

Applying Existing Regulation vs Creating New Legislation

There were questions around whether, at this early stage, new regulations are necessary. It was suggested that, this early on, introducing new regulations may hamper innovation. It may be better, for now, to apply existing law as it stands for e-contracts and e-signatures, and deal with specific DLT issues on an individual basis.

It was suggested that this is the ideal option in the near-term, until there is more clarity around what exactly the gaps are in regulatory requirements, and what the legal challenges are. In the EU, and more broadly, there already exists clear legislation in place for the trusted creation of electronic signatures and the associated legal implications.

The EU's eIDAS regulation provides specific rules on electronic seals created by legal entities over software systems. In this, we have a legal framework that works relatively well. We have e-commerce legislation that determines that it has to be permissible to include contracts electronically. There are liability rules, too - specifically for intermediary service providers. The core principles in regulation supporting eIDAS can be applied to DLT services that are already working in practice. Through repurposing existing legislation, we will develop a better understanding of where the gaps lie, and we can define regulation specific to DLT as it evolves.

Where DLT is being used to manage financial assets, this is different to DLT being used to manage historical records for administrative processes, or for business transactions outside of the financial context. For any organization managing financial assets, a high supervisory threshold has historically been applied - for example, banks need to get a banking license. The same should apply to DLT. The panelists at this point reiterated that new legislative intervention is not necessarily required yet - when there is opportunity to apply this same regulatory threshold.

- When considering DLT in practice, we need to be considering:
- Who actually provides signatures and seals?

- What are they committing to by signing?
- Does the use case have specific requirements for:
 - Signatures
 - Retention
 - Communication
- Privacy and data protection
- Technological trustworthiness does not automatically translate into legal validity

The question was asked whether the sector get together and come up with best practices of their own? The example was given of those early developers of crowdfunding technologies building best practices into some of their offerings, and through doing this, eventually guiding regulators in the right direction, and mitigating risks in the short term.

“ ***It was noted that lawyers help regulators understand what they should be accepting. It may therefore be wise at this early stage to have lawyers involved in the design process of new technologies to ensure these technology are built in a way that will be compliant with existing laws, and to help shape them in the direction that evolving regulations will allow.*** ”

Introducing Services Based on DLT

It has been established already during the conversations that it may be easier to experiment and to meaningfully scale experiments in smaller countries where decision-making among policy makers happens more quickly.

An example was offered of potential low-hanging fruit. In Belgium, a shareholder register must be kept for every company that exists. This currently exists as a paper shareholder register. It could be done electronically but there is no technology provider offering this. So each business owner keeps this paper booklet, filled in with each shareholder - one per page, then often forgets where the booklet is. When an owner's children inherit the business, they have to edit it, add copies of wills, etc. There is an opportunity here for a simple, but profound, use of DLT. It would solve an actual problem, and every company needs it. It was suggested there should be a button that can be clicked to let company-owners register their shares on DLT. This significance of this is not simply that it would solve a real-world problem, but that it could be a rapidly scaled solution, setting a precedent for bigger markets.

The need here is to set up the full ecosystem so that administrators' direct startups to use the company share register on DLT - to encourage that shift away from the paper booklets. Building the technology and creating the laws is not enough. It then needs to be promoted - adoption must be actively encouraged.

The Need for Trusted Accreditation

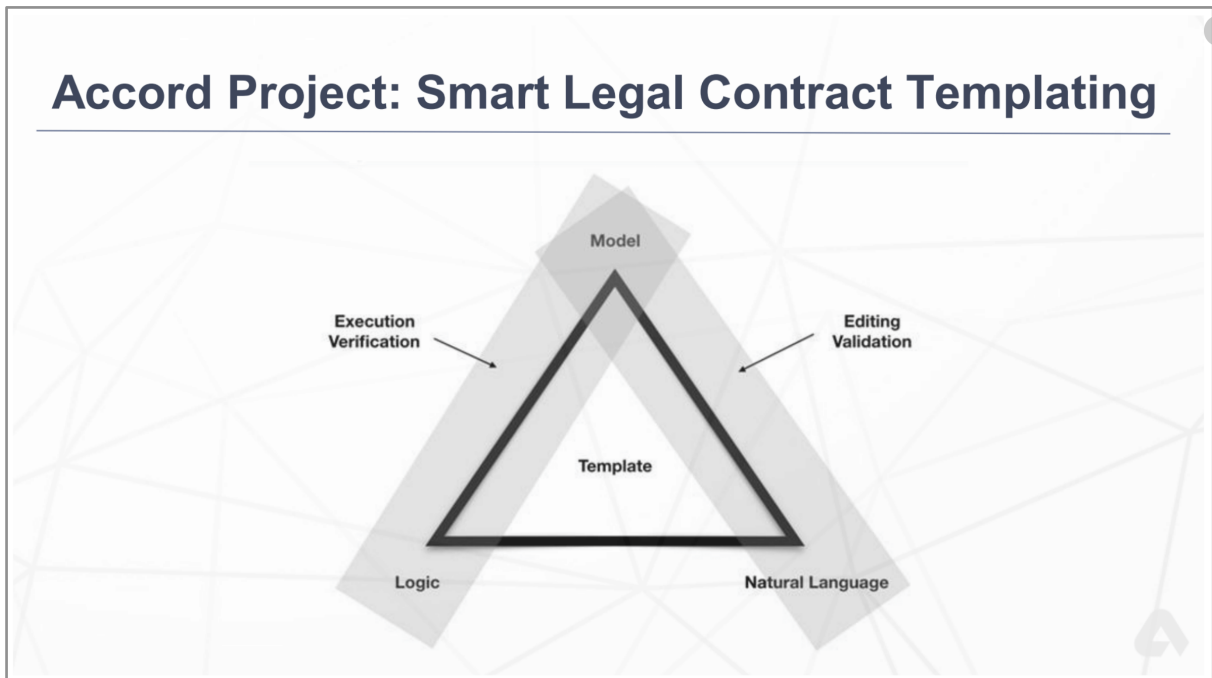
DLT-related businesses requesting to open an account with a high street bank are most often rejected. This is because of the association of DLT and cryptocurrencies with fraud and criminality. DLT companies have learned that they need to lie to raise financing, and operate under the radar. The ability to get accreditation from a trusted authority like the FCA is important. Without this, DLT companies are at risk of being shut down.

Credible businesses need to be able to distinguish themselves from the bad actors out there. Some formalized show of vouching, for example a badge from the Financial Conduct Authority, would go a long

way in allowing potential funders, partnering organizations and clients to differentiate those DLT companies that can be trusted from the bad actors.

Smart Legal Contracts

Smart Legal Contracts (SLCs) bring together the legally enforceable words of traditional legislation with code on a CPU. Combining smart contracts with the blockchain means that if we know a particular transaction occurs because it is logged in the blockchain, we can automatically execute a contract to happen. This is a powerful combination. It enables complex contracting and payment automation on the blockchain in a way that is fast, secure and does not require trusted and expensive intermediaries.



Requirement for Techno-Legal Standards

The question remains: how do we make SLCs legally enforceable? There is currently a deficiency of techno-legal standards.

One suggested lucrative use case is in the collection of fines where a contract stipulates that fines may be collected. Currently, these contracts are stored on paper documents and IT systems. A document may be added to Dropbox, and the terms of the contract are often forgotten. Frequently, fines are not collected that are eligible to be collected, resulting in a significant financial loss. If the financial loss can be reduced by even 1%, this is a considerable sum.

Regarding the requirement for techno-legal standards, it was suggested that SLCs need to be designed in a way that meshes together the natural language of lawyers with the logic of programmers using a data model that can understand and evaluate each of the variables that affect each individual clause. This would result in enforceable and reusable clauses.

Navigating Deliberately Ambiguous Language in Contracts

Discretion in transactions on DLT is difficult. Problems can be foreseen in the nature of legal language deliberately allowing for human consideration and interpretation. Software can be used to automate decisions where the variables are binary. However, the use of ambiguous words is often necessary in contracts to allow for unforeseeable issues that may arise later. With these inherently ambiguous words, their power lies in their ambiguity. For example, the use of the word “reasonable” in contracts allows for consideration and interpretation based on the specific situation.

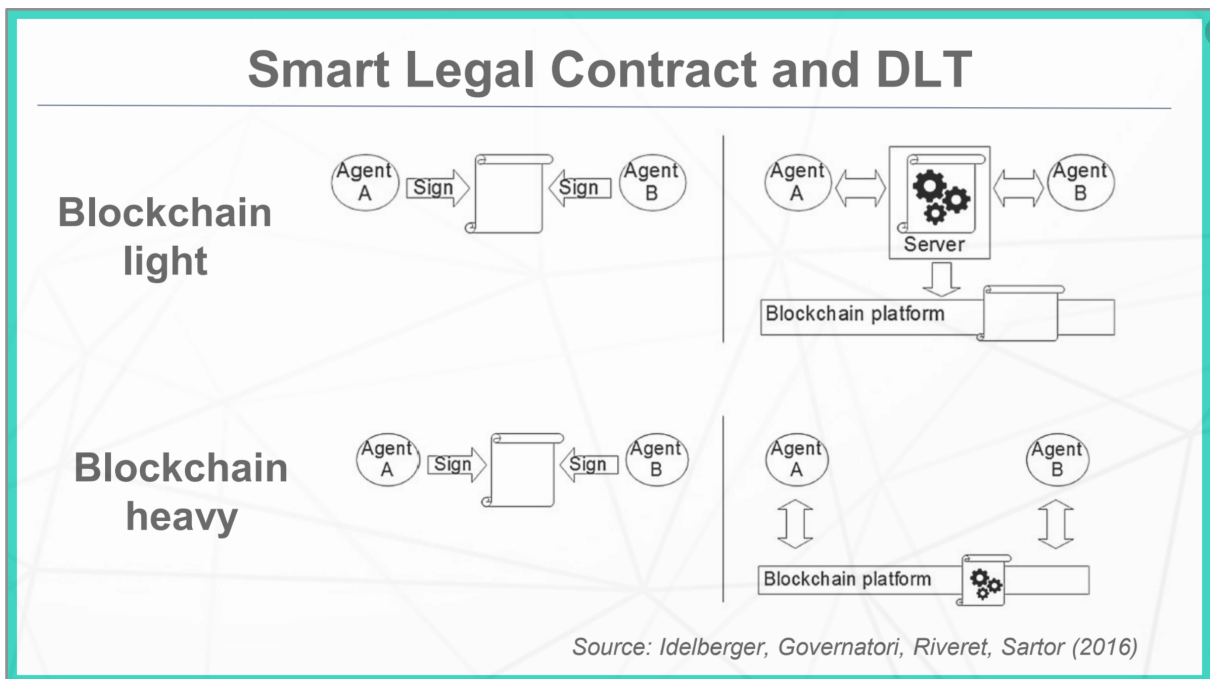
Unwelcome Inference of Business Practices

The mere fact that one creates blocks, even without any associated information, can allow the inference of a business’s seasonality. In some commercial environments, even this is too much information to disclose. In these situations, there is a case for using off-chain executions.

The terms used here to describe on- and off-chain executions were “Blockchain Heavy” and “Blockchain Light”.

A blockchain heavy approach is where parties to a transaction do not trust or involve any third party or intermediary. The process of such a transaction is such that when x occurs, y is executed. In the absence of trust, both parties can run the chain code on their own computers and can verify the transactions individually. This is how bitcoin and ethereum works.

A blockchain light approach involves parties to a transaction trusting some intermediary to listen for x ’s and produce y ’s. Then, when y occurs, this intermediary will add it to a ledger, and both parties are told that y occurred. The benefit of this is the privacy allowed where a party does not want to make public the status of “ x ” condition.



Reticence to Automated SLCs

Currently, contracts stored on computerized systems may notify parties when action needs to be taken. There are also contract management systems that run queries to find where action is needed, such as calling a bank to pay, or requesting payment. The inefficiencies in this current system were highlighted. However, despite the increased efficiency of automating contracts to carry out the actions required, it is believed there is reticence to relinquish this level of control to an automated SLC system.

One of the factors contributing to this reticence is that these SLCs rely on trusted sources of data. While data is tamper-proof once on the ledger, source data is input by humans, and there is margin for error.

Requirement for Risk Mitigation

The discussion moved to the effectiveness of using SLCs with existing legislation. Doing this to begin with would allow progress to be made. Incremental changes could then be made along the way, as more is learned of the issues, risks, and how the technology is being used.

This was followed by lively debate on the importance of all actors in the ecosystem performing their own thorough risk assessment - keeping documentation of risks and mitigations. As well as being good practice, this is important for the informing of and development of sector-wide standards.

Case Study: Perishable Goods Contract

To illustrate the real-world utility and functioning of an SLC, an example was offered of a perishable goods contract.

Participants in this contract

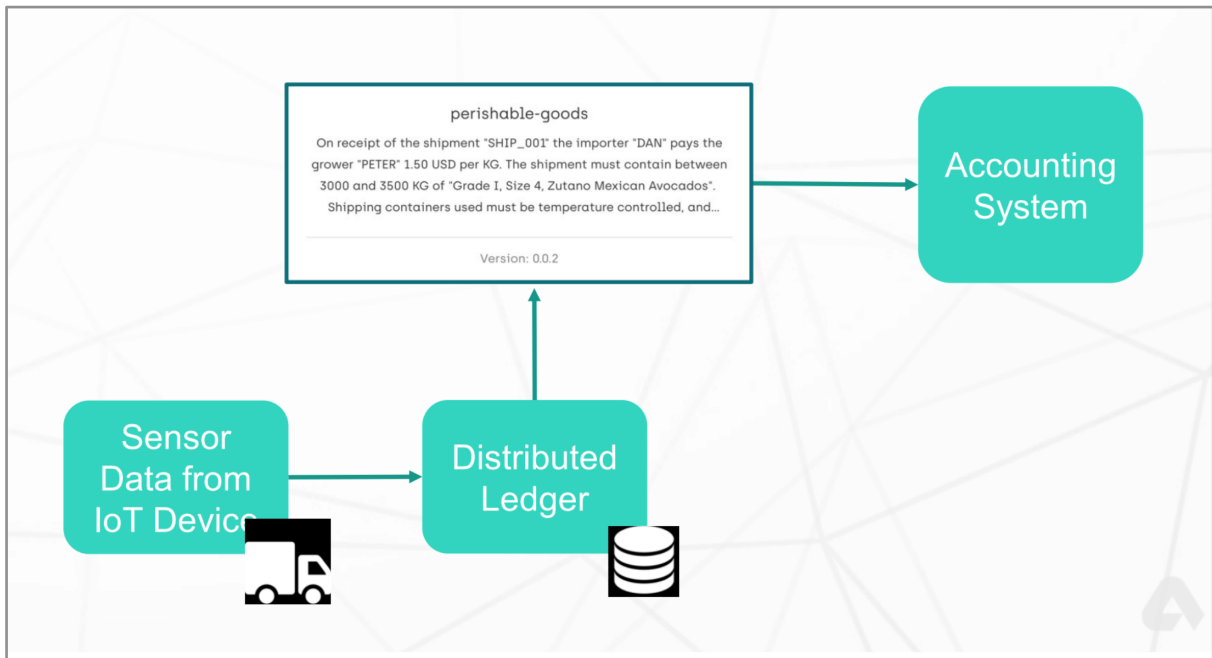
- Grower (farmer)
- Shipper
- Importer
- Port authority
- Finance
- Insurance

Contractual provisions

- Quantity be shipped in containers with sensor readings of a certain frequency
- Be shipped under temperature conditions within a certain range as indicated by sensor readings
- Be shipped under humidity conditions within a certain range as indicated by sensor readings
- Penalty for violation of temperature or humidity conditions

Interaction with the distributed ledger

- Shipment data on DL
- Sensor data on DL
- Participant data on DL



Identity in SLCs

In SLCs, “identity” may refer to who someone is, what something is, and/or their associated characteristics and capabilities. As shown in the case study above, identifiers are required not just of the parties to a contract, but of devices too. In the example, there would be unique identifiers for the parties to the contract; each of the sensors on the shipment; the agreements, sections and clauses of the contracting documents; and the invoices, statements of works and notices. With these unique identifiers, verifiable claims can be made without each individual party being able to learn extraneous details relating to other parties.

Decentralized Identity for SLCs

Decentralized identifiers (DIDs) are globally unique identifiers for decentralized systems. They are persistent - that is to say, they are assigned once to an entity. They are globally resolvable and interoperable. They allow cryptographic verification of the identifier owner.

DIDs are well suited for identity elements of a SLC where there are numerous decentralized entities involved. Depending on the context, these entities may need the ability to validate contract identifiers. There may also be different contracts (or clauses) authorized to perform specific software services relating to an individual status, attribute, or condition/ The performance of contract obligations may need to be verified by various parties.

DIDs and associated data may be read from a distributed ledger. When a SLC claim is to be made, this distributed ledger may be used to verify or revoke the claim.

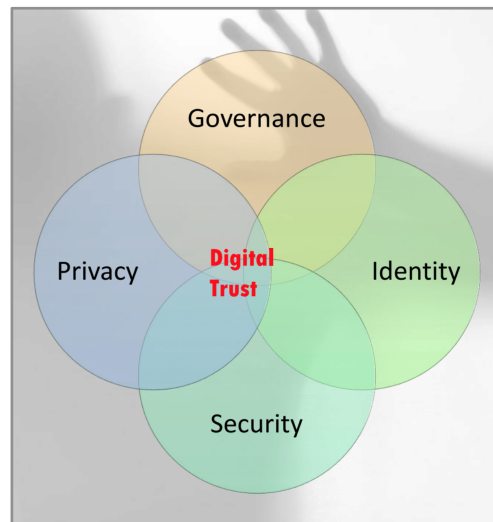
As can perhaps be understood from the above discussion, there are significant benefits to using decentralized identity systems in SLCs. DIDs enable users to exercise greater control over the use of different individual elements of their identity. They do not rely on one approach, technology, or identity

provider that may be suboptimal. They also allow for enhanced security, where different elements of an identity can have their own unique identifiers.

Building an Environment of Trust

Creating and ensuring trust between counterparties has traditionally been the role of the legal system: laws, regulations, contracts, terms of service. These are all designed to lower counterparty risk. It was leveled that DLT will not work unless a viable mechanism is found for establishing trust. Parties to a contract need to know what will happen if something goes wrong. One of the key purposes of forming the Distributed Ledger Foundation is to start working towards a foundational trust framework that consortiums can use when something goes wrong.

“ **How do we create environments where organizations trust DL environments enough to engage with them?** ”



It was asserted that users of DLT do not need to understand how the underlying technology works. They simply need assurance that it works. We need to address and minimise risks so that participants have confidence in the operations and results, and are willing to rely on them.

The issue of potential privacy breaches was raised. Companies and other actors can source data about individuals in ways they could not years ago. The risks of interlinking people’s activities is only now a major problem. It was posited that regulators need to understand it is not okay to have full dossiers on every transaction and every individual.

“ **Where do we draw the baseline for the collection and aggregation of data?** ”

It was also noted that DLT systems may give imbalanced power to those who can afford more computation, capacity, electricity. So these systems may not be as decentralized as promised. We also must not lightly assume that we have an immutable system. It may be tamper resistant, but this is not the same thing.

The questions was raised, who issues credentials in this system? It was suggested that one should be able to show they are, for example, over the age of 18, without having to disclose one's name or actual age. These attributes should not need to be linked to one's identity.

Where regulation is often regarded with contempt by libertarian technologists working at evolving incumbent systems, it was highlighted that regulation is not always the enemy. There are examples of inspired innovation in regulation having supported technological change and having broken down monopolies.

“ ***Ask not how to regulate DLT; ask how DLT can be used to support the interests of society.***”

In the understanding that these topics are not currently a priority for national government, we were reminded that it is up to us - actors in this DLT ecosystem - to get these conversations and lead the way in stewarding the evolution of this ecosystem.

In talking about how to encourage adoption of these technologies, reference was made to countries like Estonia whose new centralized ID system was introduced from the top down, whereby everyone needs to buy into the new model.

“ ***Rather than enforcing a trust model that people may not accept, it was recommended to, instead, promote the interoperability of existing trusted authorities and trusted networks.***”

One concern raised was that with these technologies, change will happen at a much greater scale than ever before, faster, and more efficiently. It is likely that this will create problems in the future that we do not yet understand and cannot yet foresee. Where before, we had time to solve problems as they arose because change was happening gradually, now with this sort of speed, we need to be putting energy into anticipating the potential risks and failures. It was mentioned that speed and efficiency is not always good - that, in some scenarios, it is preferable to build a system that, while less efficient, is more democratic and fair.

Governance of DLT

“ ***How do we align the financial incentives of cross-jurisdictional, widely distributed systems?***”

Tokens align economic incentives in the absence of legal recourse. Smart contracts are executable agreements in the absence of a judicial system. It was posited that the point of these things is to provide a transaction environment that does not require the law - at least in the sense of the political state.

The question was asked:

“ ***Can statist governance and trust frameworks broaden the use cases for an emergent technology? Or will this simply re-introduce the preconditions for regulatory capture and moral hazard?***”

It was highlighted that these distributed ledger platforms we are now building are going to be the new aggregators of data.

“ **Considering this, what precautions do we need to be integrating into the design of these systems?**

With reference to the current state of internet software giants collecting and sharing user data, it was asserted that in designing DLTs, users should have the right to choose whether or not to share their identity - when, how, and what attributes of it. They should have access to their own data without friction, and without having to pay for it.

“ **How do we use DLT for better governance around that?**

An interesting point made was that DLT can, and perhaps, should be used to improve the ecosystem's own governance. The conversation was not only about governing DLT, but about using DLT to govern.

“ **As an industry, how do we govern ourselves first? Can we use our own technology to step out of the incumbent, hierarchical systems of governance and control?**

Conclusion

The Blockchain, Identity, Trust and Governance workshop series is bringing a unique opportunity for IT experts and legal thought leaders to determine the most reliable ways forward for the success of initiatives deployed on distributed ledger technologies. The knowledge attained from these workshops with support from the Open Identity Exchange and the Distributed Ledger Foundation will help to inform public and private enterprises on best practices and globally viable governance frameworks to deliver distributed applications successfully and responsibly.

Appendices

Appendix One: Workshop Agenda

9:15-9:30AM

Welcome: Don Thibeau (Open Identity Exchange & Distributed Ledger Foundation) & Robert Hodgkinson (ICAEW)

9:30-10:30AM

Panel Discussion: *The Current State of Blockchain, Law and Governance*

Moderator: Sue McLean (Baker McKenzie)

Panelist:

- Hans Graux (time.lex)
- Oliver Tonkin (BCB Group)

10:30-10:45AM

BREAK

10:45AM-11:45AM

Presentation & Discussion: *Accord Project: The Smart Legal Contract Identity Standard and Trust Framework*

Moderator: Tony Lai (CodeX & Legal.io)

Presenter: Dan Selman (Clause & Accord Project)

Panelist:

- Peter Howes (Rite-Choice Ltd)

11:45AM – 12:45PM

Presentation & Discussion: *Pillars of Trust – Governance, Identity, Security and Privacy in DLT*

Moderator: Giles Watkins (Pridium)

Panelists:

- Adam Cooper (Next ID)
- Geoff Goodell (UCL)
- Gilbert Verdian (Quant Network)

12:45-1:45PM

LUNCH & NETWORKING

1:45-2:00PM

Presentation: *An Accountant's View of Blockchain: The ICAEW's Position on How Blockchain Will Affect Accounting, Audit, etc.*

Presenter: David Lyford-Smith (ICAEW)

2:00-3:00PM

Panel Discussion: *Blockchains Incentive, Alignment, and Investing*

Moderator: David Fields (PTB Ventures)

Panelists:

- Lubna Dajani (Allnetnet)
- Tony Fish (Allnetnet)
- Paul Scott (DISC Holdings)

3:00-3:15PM

BREAK

3:15-4:15PM

Presentations & Discussions: *Real-World Use-Cases*

Moderator: Helen Disney (Unblocked)

Panelists:

- Laura Bailey (Qadre & British Blockchain Association)
- Jason Blick (EQI Trade)
- Brian Spector (Qredo)

4:15-5:00PM

Panel Discussion: *Wrap-up & Path Forward*

Moderator: Don Thibeau (Open Identity Exchange & Distributed Ledger Foundation)

Panelists:

- Helen Disney (Unblocked)
- Geoff Goodall (UCL)
- David Lyford-Smith (ICAEW)
- Sue McLean (Baker McKenzie)

Appendix Two: Workshop Speakers & Panelists



Don Thibeau -- Open Identity Exchange & Distributed Ledger Foundation

Don is President and Chairman of the Open Identity Exchange (OIX) and OIX UK/Europe, a non-profit, technology agnostic organization of global leaders from the private and public sectors. OIX is a test bed for business, legal and governance best practices and policies and operates the OIXnet registry. Don is also the Executive Director of the OpenID Foundation, a standards development organization that includes leaders from across industry sectors and governments that collaborate on the development, adoption and deployment of open identity standards. And Don is Acting Chairman of the Distributed Ledger Foundation that is dedicated to establishing the highest standards of trust and governance for distributed ledger technology (DLT). The DLF and its members work together to jointly fund and participate in research and education programs and project initiatives.



Laura Bailey -- Qadre & British Blockchain Association

Laura, Chairperson of Qadre and Spokesperson for the British Blockchain Association, is a leading entrepreneur in the field of blockchain technology and a trailblazer for women in fintech. She has co-founded three successful blockchain ventures and is currently developing Qadre into a global technology leader – working with UK parliament, industry, and regulators alike to drive policy and cultural changes to technology. Laura is a regular speaker in domestic and international governments, regulators, and NGOs, promoting technology for good. Laura has an extensive background in finance and began her career at HSBC across a variety of areas, including Leveraged Finance, Marketing, and Corporate Banking.



Jason Blick – EQI Trade

Jason is the CEO of EQI. EQI will be the first offshore bank for fiat and cryptocurrency banking, trading, custody, lending, clearing and settlement. He is a Solicitor specialising in financial services. He went on to manage legal and compliance for over 90 countries for Sun Microsystems, overseeing over \$1.5bn a year in transactions. He later became the CEO of Financial Partners (Bank) with over 12,000 clients and US\$1.2bn AUA. He is the founder of Cayman Enterprise City and Cayman Commodities and Derivative Exchange. He served on the Board of the Cayman Islands Government Special Economic Zone Authority.



Adam Cooper -- Next ID Limited

Adam Cooper is an identity standards expert and enterprise architect with over 25 years experience in IT and digital disciplines. Responsible for the overall technical architecture of the UK eID service, GOV.UK Verify, Adam is also an expert contributor to the eIDAS Regulation regarding cross-border eID in the European Union, and champions international standards with bodies such as OASIS, BSI, ISO, OpenID Foundation, FIDO Alliance, the Biometrics Institute, and the W3C. As an independent expert Adam has also recently worked with the World Bank, advising the Scottish Government regarding citizen identity schemes, and advising or contributing to multiple EU Commission funded projects such as the application of electronic identity to the KYC and AML on-boarding process in the banking sector.



Lubna Dajani -- Allnetnet

Lubna is an internationally known executive, systems designer and industry expert recognized for her unique blend of foresight and experience. As a futurist who inspires new thinking and disruptive business models, she created and writes about the Allnetnet, a visionary manifesto. Her industry positions are extensive and include founding Secretary of the Open Trust Protocol Alliance Co-chair of the prpl Foundation Marketing Council and AIOTI member representative. Lubna facilitates industry, academic, and community collaborations that foster innovation and promote women and young professionals in science, technology, and the arts. Her board and advisory experiences include MusicTechFest, AEC Hackathon, National Adoption Center, NYU Music Experience Design Lab. Lubna serves as mentor and coach to NYC Seed Fund, Springboard Enterprises, judge to several industry recognition awards and is a Visiting Scholar at NYU Steinhardt School of Culture, Education and Human Development. She is also the co-founder of Futuristas, and is driven by the desire to create a transparent, agnostic and symbiotic economy.



Helen Disney -- Unblocked

Helen is the CEO and Founder of Unblocked, a hub for Blockchain events, education, and information. Helen was listed in Innovate Finance's 2016 Women in Fintech Powerlist and referred to by Barclays as a "blockchain guru". She sits on the Advisory Board of the British Blockchain Association and recently gave evidence to the UK's All Party Parliamentary Group on Blockchain. Previously, Helen worked on outreach at the Bitcoin Foundation, driving a programme of strategic events to communicate the innovative potential of Bitcoin and blockchain technology to innovators, entrepreneurs, policymakers, and thought leaders.



David Fields -- PTB Ventures

David is the Founder and Managing Partner of PTB Ventures, a venture capital firm investing in early-stage companies in the digital identity ecosystem. David is a former private equity investment professional and brings over a decade of private investment and advisory experience both to his investors and his portfolio companies at PTB. He began his career as a credit analyst at Citigroup Global Markets and later served on the investment team at Cooper Investment Partners. David graduated from the University of Chicago with a B.A. in Economics and holds the Chartered Financial Analyst (CFA) designation.

**Tony Fish -- Allternet**

Tony is a seasoned executive board director with over 25 years of experience in innovation and high growth. His professional life has cut across a diverse range of sectors including venture capital, health, telecoms, finance, media, sport, manufacturing, government and digital fabrication. Tony is a partner in Allternet Limited and is focused on the implications when all people, things and data becomes connected and intelligent. In addition to speaking at over 200 events and conferences on innovation, entrepreneurship, digital trends and early stage growth, he has authored and published three books. He is a visiting Fellow at Henley Business School for entrepreneurship and innovation, The EIR at Bradford School of Management and Law, and an EC expert for Big Data.

**Geoff Goodell -- University College London**

Geoff Goodell is a research associate at University College London and an affiliate of the UCL Centre for Blockchain Technologies and the Oxford Centre for Technology and Global Affairs. He is an active committee member of the British Standards Institute and Acting Convener of the ISO working group on Foundations of Blockchain and Distributed Ledger Technologies. Previously, he was an entrepreneur and portfolio manager with a decade of experience in the financial industry. After starting his career as an associate at Goldman Sachs in New York, he later moved to Boston and became Partner and Chief Investment Officer of Phase Capital, a boutique asset management firm based in Massachusetts, where he developed and managed a systematic macro strategy for institutional clients. He has a PhD in computer science from Harvard University and an undergraduate degree in mathematics from MIT. His dissertation concerned decentralized systems and Internet governance. His recent work focuses on digital identity and regulation in the context of distributed ledger technologies.

**Hans Graux -- time.lex**

Hans Graux is an ICT lawyer, and frequent expert advisor to the European Commission, other public bodies, and innovators in the private sector. He is a law school graduate who also obtained a complementary degree in IT (both at KU Leuven, Cum Laude). After working as a legal researcher at the Interdisciplinary Centre for Law and Information Technology, he became a lawyer, partner and co-founder of the law firm time.lex, specialised in technology, intellectual property, media and e-business. Recent work has focused on cloud computing, data protection, eSignatures, trust services, electronic identity management, information security and e-business. Furthermore, he is a member of the ICT Committee of the Council of Bars and Law Societies of Europe (CCBE), and Member of the ICT Committee of the Order of Flemish Bars.

**Robert Hodgkinson -- ICAEW**

Robert is responsible for ICAEW's technical strategy department which includes its seven specialist faculties. Robert was educated at the Manchester Grammar School and Corpus Christi College, Oxford where he studied Philosophy, Politics & Economics. In 1980, he joined Arthur Andersen where he qualified as an ICAEW chartered accountant in 1983 and became a partner in 1992. He joined ICAEW in October 2002. Robert is an ICAEW and Natural Capital Coalition board member and has previously served on the boards of the International Federation of Accountants (IFAC), the European Federation of Accountants (FEE, now Accountancy Europe) and The Finance Innovation Lab.

**Peter Howes -- Rite-Choice Ltd**

Peter Howes is a recognized expert in compliant processing, retention and disposition of data and information; specializing in evidential weight and legal admissibility of information stored or communicated electronically and associating identity to that information. Peter is experienced in governance, compliance, archiving, discovery and disclosure with over 40 year's relevant experience across public and private sectors and is an active committee member with the British Standards Institution.

**Tony Lai -- CodeX & Legal.io**

Tony Lai is an Entrepreneurial Fellow at the Stanford Center for Legal Informatics (CodeX), where he co-chairs the Blockchain Group, a neutral, collective resource and forum to advance informed perspectives on how blockchain and distributed ledger technologies intersect with existing legal frameworks. As CEO and cofounder of Legal.io, Tony leads a team designing digital identity, referral and review protocols to scale legal access worldwide; working with law firms, regulators and legal service organizations to develop data standards and build client-facing and backend technology for scalable legal service delivery. Prior to Stanford, Tony practiced as a lawyer advising on technology, communications and media industry matters in Europe, Asia and Africa.

**David Lynford-Smith -- ICAEW**

David Lynford-Smith is an accountant and tech expert with particular interests in the digitalisation of tax systems, blockchain and cryptocurrencies, spreadsheet skills and best practice, and the place of technology in ICAEW's professional qualifications. In his role in the IT Faculty, David liaises with various business and practice stakeholders as well as academic and political interests to create events and publications on a variety of thought leadership activities surrounding accountants in practice. David began his career at BDO, beginning in audit before joining the coordination team of BDO's Global Outsourcing division, based in Reading. David worked on supporting multinational companies with their compliance activities across international boundaries, and also spent time working on iXBRL tagging. David also ran BDO's internal Excel training courses, traveling the country to speak on spreadsheet best practice and skills. In his final year at BDO, David transferred to a Senior Excel Practitioner role, spending 100% of his time on spreadsheet support, training, and standardisation. A former ICAEW Excel Community volunteer, David then joined ICAEW full-time.



Sue McLean -- Baker McKenzie

Sue McLean is a partner in Baker McKenzie’s Technology practice. Sue advises clients on technology, sourcing and digital media business models and deals, as well as the legal issues relating to the implementation of new technologies. Sue advises on a wide range of technology matters including outsourcing, digital transformation, technology procurement, development and licensing, m/e-commerce, cloud computing, AI, FinTech, blockchain, social media, data privacy and cybersecurity. Sue has been included in the Women In FinTech Power List for three successive years and is on the editorial board of the Journal of Digital Banking. Sue founded and leads Baker McKenzie’s blockchain group, is a member of techUK’s DLT working group, supports the UCL Blockchain Technology for Algorithmic Regulation and Compliance (BARAC) research project and is a member of the BSI committee for Smart Contracts. Sue also represents Baker McKenzie in R3’s Corda Blockchain Legal Centre of Excellence and Accord’s legal working group.



Paul Scott -- DISC Holdings

With over 20 years experience developing financial technology systems for global asset managers combined with more recently starting, growing and selling an early stage technology company, Paul brings a combination of technological vision, start-up experience and a delivery record to the team.



Dan Selman – Clause & Accord Project

Dan is the CTO of Clause, a legal-tech startup that is creating a platform for lawyers and developers to define, manage, and operationalize smart legal contracts. This mission combines three of his longstanding passions: AI, blockchain, and domain-specific languages. Dan is a maintainer for the Hyperledger Composer and the chair of the Accord Project Technology Working Group.



Brian Spector -- Qredo

Brian Spector is the CEO of Qredo, a distributed ledger technology company enabling payments as a network service for the telecom industry. A serial entrepreneur, Brian has over twenty years experience in the crypto industry, starting out in cryptographic engineering at Silicon Valley’s first full disk encryption company, PC Guardian, later acquired by Symantec. Brian went on to senior sales and product management roles at McAfee, RSA Data Security and nCipher/Thales. Before Qredo, was co-founder and CEO at MIRACL, the leader in embedded cryptographic engineering with customers such as Intel, ARM and NTT. While at MIRACL, Brian raised \$20M from strategic and financial investors in the USA, UK, and Asia as well as sourcing and closing global distribution partnership agreements with businesses such as NTT, Deutsche Telekom and Dimension Data for its multi-factor authentication service. While at MIRACL, Brian co-authored several patents and academic papers in the field of zero-knowledge proof cryptography, a critical field for distributed ledger technologies. These innovations enabled MIRACL to launch the world’s first zero-knowledge proof multi-factor authentication service. Brian lives in the UK with his wife and daughter and has fingers crossed that London gets an NFL team next year.



Oliver Tonkin – BCB Group

Oliver is a co-founder and legal/regulatory adviser to BCB Group, a leading cryptocurrency broker and service provider to institutions, private wealth managers and high net worth individuals. Oliver is a qualified solicitor and partner at Pemberton Capital LLP, a boutique private equity investment house.



Gilbert Verdian -- Quant Network

Gilbert is building the Internet of Trust by converging Blockchain, AI and Cybersecurity as the founder of Quant Network, tasked with connecting the world’s networks to blockchains. Having over 20 years of industry experience he has worked across Government in Downing St, HM Treasury, Cabinet Office, Ministry of Justice and NSW Health and private sector at HSBC, CSC, EY, PwC, BP and Mastercard-Vocalink. Having a keen interest in disruptive technology, he’s the founder of the Blockchain ISO Standard TC307 and Chair of the UK’s national committee on Blockchain and Distributed Ledger technologies (DLT/1).



Giles Watkins -- Pridium

Giles is an experienced board member with a strong Entrepreneurial and Professional Services background. Giles has deep credentials in Mergers & Acquisitions, Finance and Accounting, Technology Strategy, Risk Management, Privacy, Digital Identity, and Cyber Security across multiple sectors and geographies. He is currently working with early stage businesses to commercialise groundbreaking technologies and leading the International Association of Privacy Professionals in the UK.

Appendix Three: Workshop Partners



Swirlds enables developers to create distributed applications with unlimited scope and scale. Leveraging the hashgraph distributed consensus algorithm, developers can build trusted applications that are always available, without the use of central servers. Applications built on the Swirlds platform are fair, fast, and achieve consensus quickly, giving the user 100% certainty in the consensus order. In short, Swirlds provides a platform for building the trust layer of the internet. www.swirlds.com



The Hedera hashgraph platform provides a new form of distributed consensus; a way for people who don't know or trust each other to securely collaborate and transact online without the need for a trusted intermediary. The platform is lightning fast, secure, and fair, and, unlike some blockchain-based platforms, doesn't require compute-heavy proof-of-work. Hedera enables and empowers developers to build an entirely new class of distributed applications never before possible. www.hederahashgraph.com



The Accord Project is the leading organization for the development of standards for smart legal contracts and distributed ledger applications in the legal industry. The consortium operates in collaboration with Hyperledger, the International Association for Commercial and Contract Management, Clio, and a number of leading trade associations, organizations, and law firms. The Project incubates the standard distributed ledger protocol for the legal industry. The purpose of the Project is to enable lawyers, law firms, trade associations, and corporates to help establish open standards for the future of contracting; and to produce open-source code for smart legal contracts and distributed ledger usage by legal and business users. To learn more about the Accord Project, visit www.accordproject.org.



The Decentralized Identity Foundation is focused on building an open source decentralized identity ecosystem for people, organizations, apps, and devices. To learn more visit identity.foundation



The Distributed Ledger Foundation (DLF) is a technology agnostic, non-profit organization composed of business, academic, and legal thought leaders. The foundation is dedicated to establishing the highest standards of trust and governance for distributed ledger technology (DLT). The DLF and its members work together to jointly fund and participate in research and education programs and project initiatives. To learn more www.distributedledgerfoundation.org or ED@distributedledgerfoundation.org



The OpenID Foundation is a non-profit international standardization organization of individuals and companies committed to enabling, promoting and protecting OpenID technologies. Formed in June 2007, the foundation serves as a public trust organization representing the open community of developers, vendors, and users. OI DF assists the community by providing needed infrastructure and help in promoting and supporting expanded adoption of OpenID. This entails managing intellectual property and brand marks as well as fostering viral growth and global participation in the proliferation of OpenID. www.openid.net



PTB Ventures is a thesis driven venture capital firm investing in early-stage companies in the digital identity ecosystem. We believe that digital identity, an evolution that will see trillions of devices connected to billions of humans, will deliver inclusion and security to billions of people while creating trillions of dollars in economic value. www.ptbvc.com