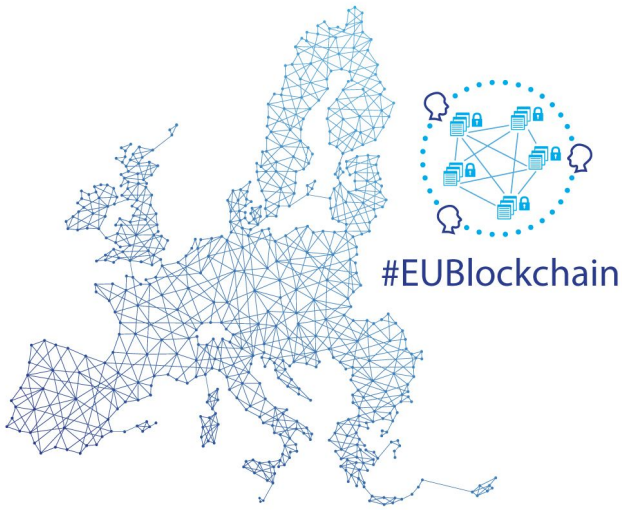
EU Blockchain Observatory and Forum

An initiative of the European Commission

EU BLOCKCHAIN OBSERVATORY & FORUM

Workshop Report - Governance and new organisational challenges – Brussels, 30 April, 2019



By the European Commission, Directorate-General of Communications Networks, Content & Technology.

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Introduction to the day

Pēteris Zilgalvis, Head of Unit, Digital Innovation and Blockchain, Digital Single Market, DG CONNECT; Co-Chair, FinTech Task Force, EC, gave the welcoming remarks.

- There are a number of important EU blockchain initiatives. These include:
    - The EU Blockchain Observatory & Forum, which is designed to raise the level of knowledge about what is happening in blockchain in Europe.
    - The European Blockchain Partnership, now 29 European countries and soon to be 30, which is working to build a European Blockchain Services Infrastructure as part of the Connecting Europe Facility. It is at the moment a Member States initiative, but is intended to eventually be a public/private cooperation. Early use cases are in RegTech, diplomas, document certification and self-sovereign identity.
    - The International Association of Trusted Blockchain Applications (INATBA), which is the newly formed association of private blockchain stakeholders. INATBA will also be helping the EC in setting up a World Blockchain Congress in the fall that will include a regulatory dialogue.
- Zigalvis also pointed out that the information gathered by the Observatory, including at workshops like this one, can help provide information that could help the new European Parliament as they make decisions on the upcoming legislative agenda.

Ludovic Courcelas, project manager of the Observatory, then set the scene and introduced the objectives of the day.

- We have been hearing about the Governance topic since the beginning of the Observatory. Many say it is the most important topic we will discuss and we agree.
- When we think about blockchain projects, they inherently involve multiple actors: corporate projects, consortia, etc., that come together to run a platform or similar project. We see this in the business world but also even more in dApps and blockchain protocols.
- Different actors implies different motivations and incentives, the right governance is therefore important for them to reach their goals and create sustainable outcomes.
- There are two main types of governance challenges
    - Project governance, when you are building something. Questions include:
        - How to distribute liability
        - Who owns the IP
        - How to setup memberships
        - How to decide objectives and values
        - Who makes decisions regarding the product and the tech
    - Protocol governance, which is akin to network governance. Questions include:

- Who runs the nodes
- What consensus protocol should be used
- What are the permissions and how are they granted
- How are new features decided upon and implemented

Panel discussion: Governance of large scale blockchain-based enterprise solutions

Participants:

- *Thibaud de Maintenant (CEO, Liquidshare)*
- *Jesus Ruiz (CTO, Alastria)*
- *Ken Timsit (MD, ConsenSys)*
- *Reto Gadient (Moderator)*

Highlights from the panel:

- Timsit introduced Komgo, a consortium with 15 of the biggest players in the oil trading industry that uses blockchain to eliminate paper processes and streamline trades.
- De Maintenant introduced Liquidshare, a consortium of banks that is using blockchain to create a new post-trade infrastructure for SMEs that will on the one hand remove the paperwork for the non-listed side of the equity universe, and on the other simplify a complex infrastructure for listed SMEs.
- Ruiz introduced Alastria, which is building a public permissioned blockchain network for the whole country of Spain. The governance model is as decentralised as possible, like public blockchain networks, but it is permissioned, so that everybody has to identify themselves.
- The governance of Alastria is structured on two levels: project and platform. Project level is for governance of the Association, right now 420 members and growing. Includes large companies, startups, public administration, etc. The model tries to coordinate the different activities. It is a non-profit and the general assembly is comprised of all the members. There is a Board of Directors but it is in this case “below” not “above” everything. There are also different commissions, like working groups, dealing with themes like legal, identity, etc.. The legal commission has ca. 100 people, all volunteers.
- Liquidshare’s project governance is based on the fact that it is a private company, though before the inception of this company there were two years of negotiation to put together the Association. So there is a question of learning to accept co-opetition. One learning was that the ecosystems that can cooperate are the ones that will be able to push forward with new technology. So mindset is more important even than the best governance. The subject they are attacking, SMEs, could have been attacked much earlier, but the problem is how to get competitors to cooperate. The governance is the

usual for a private company, centered on a Board. Liquidshare will become a regulated entity and then have full governance with Audit, Remuneration and other committees, and in this there will also be a User committee, made up of the members, which will receive the Audit report from the Board.

- There seems to be a general trend in large-scale blockchain projects towards the model of private entities with a clearly empowered executive team responsible to shareholders. The shareholders in this case are also customers. Two implications of this: First the goal is generally to broaden the shareholder base as much as possible. Second, thanks to the characteristic of shareholders as customers there can be cases where there are equity top-ups for shareholders who bring customers to the platform, so that is an incentive to help grow the platform.
- Alastria created a public permissioned network to exist in the space between public blockchains, which are useful for many things, and permissioned blockchains, which are also useful for many things, so there is a continuum and you can deploy along it where it fits. Imagine you are in a country with lots of companies and you want to make business and there are no roads. You can either wait for them to appear or you can say, “hey let us build the roads together.” The incentive is because without the roads (infrastructure) you cannot implement any interesting use cases.
- The incentive is simple with Liquidshare. If you look at the post-trade world, in the 1980s a bank had a big vault full of paper with the share certificates, then everything was digitalised and now all these digitised certificates are stored by large IT companies. With blockchain you can effectively keep your certificate within our own IT and have a protocol to transfer assets. So the incentive is to be in front of this revolution and to help shape it.
- The reason why most of these platforms are created is to make some form of enterprise transaction faster and cheaper. Blockchain can be used for new business models but today most enterprise projects are about efficiency gains. The problem is that blockchain technology is still immature: adoption and development will take a while. Right now there are not many examples of blockchain projects delivering good ROI. That is why these projects are set up as private companies: the individual shareholders or members can at least know they own the IP and can monetise the tech in other ways. That is one way to ensure that shareholders can get different types of ROI besides the efficiency gains.
- In the governance agreement for Liquidshare it says that you need all shareholders to agree to any critical decision. You cannot take it with 2/3 of the Board. Going forward when we talk about governance for the protocol, since the technology is still immature, we prefer the private permissioned variant, especially at the very beginning. So we will need governance around the protocol, but that will come a bit later.
- Alastria is implementing an off-chain protocol governance and an on-chain protocol governance. In this case the more you can do on-chain the better to keep things as decentralised as possible. At the off-chain level it is necessary to deal with questions like how to decide on new members. If you are a member you automatically have the right to operate a node. Technical decisions are taken at different levels, so there is a core team doing actual development work and they can take some technical decisions, and then

there is a technical committee to look at decisions of special relevance. Then you have the Board or Directors that take some decisions and ultimately the General Assembly.
- The gold standard in this initial phase is speed of development. That is extremely challenging and you cannot do it if you are trying to do everything in a perfect way. Better to do 80% right and move fast and accept some mistakes. So this means that decisions are at first made by as small a group as possible with as little diversity as possible. It is important to leave as little choice to members at the beginning and allow more as the platform progresses.

Presentation – Study on governance of blockchain projects

Valeria Portale (Researcher, Politecnico de Milano)

- The Blockchain & Distributed Ledger Observatory of the Politecnico de Milano was founded in 2018 with the mission of generating and sharing knowledge on the issues of Blockchain and Distributed Ledger and contributing to the development of the Italian market, creating opportunities for meeting and exchange between the main players active on the topic.
- The group conducts research on worldwide activity in the blockchain market to give Italian companies the opportunity to get to know the technology. This includes research into the governance of projects.
- The researchers divide the Internet of Value into five pillars:
    - Decentralised network: type of nodes, network access, identity
    - Algorithms (protocol): consensus mechanism, consensus network, incentives, governance
    - Ledger: transparency, structure
    - Transfers: transaction fee, script language, tps, latency, transaction transparency
    - Asset: native asset, transferred asset, token creation, token economy
- They find five types of blockchain projects, in two categories:
    - Projects built on existing blockchain platforms, mostly for:
        - Notarisation
        - On-top solutions (smart contracts, dApps)
        - Cryptocurrencies (using existing cryptocurrencies for transfer of value)
    - Projects working to create new platforms, generally for:
        - Distributed ledger: projects to build a network of nodes and immutable ledger that do not introduce a new unique asset for management of asset transfer
        - Internet of Value: projects to build a network of nodes and immutable ledger that do introduce a new unique asset for management of asset transfer

- To analyse governance, the researchers looked at a matrix of two axes:
    - Governance process, meaning either restricted or unrestricted:
        - Access (who can get access to the solutions, who decides that)
        - Rules (the algorithm)
    - Level of distributed governance, in degrees of decentralisation from:
        - Centralised governance
        - Hybrid governance (centralised access)
        - Hybrid governance (centralised rules)
        - Distributed governance

Presentation – Kleros: A decentralized court to arbitrate smart contracts

Clement Lesaege, CTO Kleros

- Kleros is a blockchain-based dispute resolution platform that connects users who need to solve disputes with arbiters (jurors) who have the skills to fairly settle them, and does so in a decentralised way.
- There are different kinds of disputes possible, for example escrow disputes (as might arise when hiring a freelancer), oracle disputes (centered around the veracity of off-chain information necessary to fulfill a contract clause), or curated lists (finding a decentralised means to ensure the validity of a list of items).
- A typical escrow dispute arises around freelance or other contract work: If Alice wants Bob to build her a website, the two can use an escrow smart contract that locks the funds until Bob finishes the work and Alice indicates she is happy with it. But what happens if Bob says he did the job and Alice isn't satisfied? An Oracle dispute could be around the weather conditions tied to an insurance contract for a farmer - if there is not enough rain, for instance, the insurance pays out. But what happens when different data sources (oracles) provide conflicting information? A curated list dispute occurs when a group of people want to agree on a set of data. What happens when someone submits an entry that does not appear to fit the agreed criteria?
- In such dispute scenarios you need to use some kind of dispute resolution system. There are different possible dispute resolution systems, for example a centralised arbitrator (a court of law), a small group of arbiters, or a larger decentralised autonomous organisation (DAO) such as Kleros.
- An autonomous dispute resolution system needs mechanisms for choosing arbitrators fairly and incentivising honesty, among other things. Kleros seeks to achieve this using blockchain, game theory and cryptoeconomics.
- The model tries to deal with such issues as a) finding suitable arbiters (jurors), b) dealing with Sybil attacks (one person secretly controlling multiple accounts), c) creating

economic incentives for people to participate constructively and honestly, and d) guarding against 51% attacks on the network.

Presentation – A Citizens Participation: Perspective on the use of Blockchain in Public Governance

Stefan Junestrand (CEO, Grupo Tecma Red)

- Citizen participation is important for democracy. Yet rates of participation are low. The issue is how we can improve citizen participation and engagement in public governance.
- There are for example low rates of political participation in elections globally. This reflects among other things lower and lower trust in public administration. 55% of millenials want to participate in municipal government but only 17% think government is listening.
- Three good use cases for blockchain in citizens participation in public governance are a) e-voting, b) smart participation, and c) liquid democracy.
- Blockchain e-voting is similar but also different from conventional e-voting: you can vote digitally on mobile, etc., but you get added features, like verifying if your vote has been registered, what it has been registered for, ranking alternatives in your preference, voting conditionally, and changing your vote up to some prearranged deadline. Risks include cyber security issues and the problem of vote buying.
- The Swiss city of Zug conducted a now-famous blockchain-based e-voting. Afterwards, 79% of participants said they welcomed blockchain-based e-voting, with only 2% opposed. 52% said blockchain should be introduced to make e-voting easier and quicker. The US state of West Virginia also successfully used blockchain-based e-voting in state primaries and the recent midterm election.
- Smart participation is about creating trustworthy platforms for people to take part in civic decision making, for example voting on proposals for local projects, on budgets or even legislation. Some examples of this in action include Better Reykjavik and Decidim Barcelona. Blockchain provides immutability and distribution of information.
- Liquid democracy is a combination of representative democracy (where people vote for representatives at intervals) and direct democracy (where citizens vote on everything). In liquid democracy every citizen has one vote, but voters can at any time delegate their vote to another voter (called a proxy), either for a specific issue or for a category of issues. Importantly, this delegation can be revoked at any time. Blockchain adds cybersecurity, immutability and traceability to these systems.
- Interesting projects in this area include Liquid US and Liquid Democracy for California in the US, and Flux in Australia.

Working sessions – Governance framework and best practices, solving governance hurdles

The final part of the day was dedicated to working sessions, in which all participants present could take part. The subjects were project and technical governance for blockchain endeavors. Below we present some highlights from the discussion.

- Key elements for governance of blockchain projects include:
    - Legal structure
    - Membership status
    - Authority
    - Organisation
- One of the first and most important questions to address in any blockchain project is to "decide how to decide". There are also different decision layers, for example the technical layer for protocol or software development governance, a pre-production project layer where such things as legal, regulatory, marketing and other business model decisions need to be taken, and then the post-production project layer for governance of the project when it is running.
- The answers to many such questions will depend greatly on whether or not the platform is permissioned or permissionless. In permissioned settings you tend to have a legal entity, and governance is settled that way. In a public setting you usually don't have a legal entity and can run the risk that any court can overturn your governance decision.
- Perhaps we need a governance standard that is recognised across countries and that also settles issues like legal liability. This can be a big problem, especially when you have real value being transferred.
- We can identify five main types of blockchain projects:
    - Partnership via memorandum of understanding
    - Association
    - Vendor company
    - Partnership via private entity
    - Foundation
- When looking at projects for government services in Europe, some potential use cases that have been discussed in the context of the European Blockchain Infrastructure include commercial registries (enterprise identity), academic credentials, sharing VAT information, and common KYC/AML procedures/databases.
- Whatever the use case, in a government context a number of questions can be asked regarding how such a project should be organised: should the EU simply launch a bid and ask a provider to offer a platform-as-a-service, should it be structured as member states running servers in their countries and participating directly in the network, should it

be a utility paid for on per-transaction basis, should it have a specific legal form and, if so, what?

- There was a discussion on the core question of whether or not, in an EU setting where member states presumably trust each other, a blockchain-based solution is needed at all. This could be extended to corporate settings too. There was an opinion that, where trust is available, then a blockchain is unnecessary.
- There was also a counter-opinion: While the above is true, if you scratch the surface you often find that trust is not as strong as it might appear. This can be so between member states or even within government agencies in a single member state. Nor is this a problem only in government settings. It is not uncommon to find departments in large corporations that do not necessarily trust each other.
- Arguments for blockchain therefore can include a) to shore up trust even in putatively trusted environments, b) as a relatively easy, robust, "ready made" distributed database that provides a common standard for wide-scale data sharing, c) as a common data repository/transaction history that can be available even after the originating entity no longer exists (for example proof-of-diploma even after an individual university closes), and d) as a broad-based platform that fosters/enables large-scale collaboration.
- Another important question is how to deal with the technical governance of platforms. Here the issue is both to decide on the technology and then to have processes in place to decide on new features and update the platforms. Many large blockchain protocols are open source and often run by foundations. But there are also variants in terms of kinds of foundations and their purposes.

Appendix

Workshop slides

- Full day presentation
- Governance of Blockchain projects (Portale)
- Kleros: A decentralized court to arbitrate smart contracts (Lesaege)
- A Citizens Participation Perspective on the use of Blockchain in Public Governance (Junestrand)

Workshop videos

- Videos from this and all other workshops can be found on the EU Observatory website under reports.
- Videos specific to this workshop
    - Governance workshop, 30 April 2019, Brussels Part 1 Introductions
    - Governance workshop, 30 April 2019, Brussels Part 2 Panel discussion

- Governance workshop, 30 April 2019, Brussels Part 3 Morning presentations
- Governance workshop, 30 April 2019, Brussels Part 4 Afternoon sessions

Official agenda

Time	Activity
9:15	**Registration & Welcome Coffee**
9:50	**Introduction of the day - Agenda and objectives of the day** Peteris Zilgalvis; EU Observatory
10:10	**Panel - Governance of large scale blockchain-based enterprise solutions** Thibaud de Maintenant (CEO, Liquidshare); Jesus Ruiz (CTO, Alastria); Ken Timsit (MD, ConsenSys); Reto Gadient (Moderator)
11:20	**Presentation - Study on governance of blockchain projects** Valeria Portale (Researcher, Politecnico de Milano)
11:55	**Presentation - A decentralized court to arbitrate smart contracts - Game theory and economic incentives applied to the governance of decentralized platforms** Clement Lesaege (CTO, Kleros)
12:30-13:30 Lunch break	
13:30	**Presentation: A Citizens Participation Perspective on the use of Blockchain in Public Governance** Stefan Junestrand (CEO, Grupo Tecma Red)
14:00	**Working session: Governance framework and best practices, solving governance hurdles**
15:15	**Working session: Specificities and role of governments and public institutions in the governance of blockchain solutions**
15:50	**Conclusion**