SCANNING THE EUROPEAN ECOSYSTEM OF DISTRIBUTED LEDGER TECHNOLOGIES FOR SOCIAL AND PUBLIC GOOD

What, Why, Where, How, and Ways to Move Forward

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What, Why, Where, How, and Ways to Move Forward

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Data, including personal data, informs policy, has economic value and determines access. Many of these processes, from credit rating to border controls are becoming increasingly automated through data processing and profiling algorithms. They are also feeding into Machine Learning and Artificial technologies of the future. DLTs / blockchains can enable new forms of data governance so that these processes can be democratised going into the future, and controlled by the people they affect.

5.5 Research informing policy: an analysis of an emerging blockchain-enabled collaborative economy

By Samer Hassan and David Rozas

Samer Hassan is an activist and researcher, Faculty Associate at the Berkman Klein Center for Internet and Society (Harvard University) and Associate Professor at the Universidad Complutense de Madrid (Spain). Focused on decentralized collaboration, he was awarded an ERC grant for the "P2P Models" project, to build blockchain-based, democratic and economically sustainable organisations for the collaborative economy.

David Rozas is a postdoctoral researcher at the Universidad Complutense de Madrid (Spain), currently involved in the P2P Models project. David's previous research as a PhD student at the University of Surrey (UK) focussed on individual involvement and group dynamics of Commons-Based Peer Production communities, studying the Free/Libre Open Source Software community Drupal, in the context of the FP7 EU project P2Pvalue.

Blockchain and DLTs are commonly associated with cryptocurrencies, new markets around emergent currencies, and overall with the disruption of Finance. However, the untampered potential of blockchain and other DLTs lies in its capacity to enable the implementation of novel properties at an infrastructural level in a fully decentralized manner, impacting the governance of technological tools. We are currently witnessing the early stages of these emergent decentralized structures, and thus their future potential beyond the financial world is just starting to be explored. In the last years, there has been an emergent body of both projects and literature around the role of new forms of blockchain-based governance.

Two confronting standpoints dominate the emergent debate on blockchains / DLTs and governance, which we may refer to as techno-solutionist and market-driven approaches, vs approaches supporting existing centralized institutions.

The first group often aims to solve social problems through the creation of new markets driven by their proposed cryptocurrencies. They show perspectives characterised by a high degree of techno-determinism. These perspectives envisage the emergence of new forms of blockchain-based governance on the basis of the potential of these technologies for decentralisation and trustlessness. These discourses typically inherently embed the idea of "market" and tend to ignore the complexity of social organisation. For example, they commonly assume that hierarchies between the participants in decision-making processes vanish thanks to the disintermediation enabled by blockchain technologies (e.g. Swan 2015; Hayes 2016; Heuermann 2015). Overall, they tend to provide reductionist accounts with regards to the distribution of power, failing to acknowledge issues such as the generation of oligarchies or power dynamics (Freeman 1972; Shaw and Hill 2014; De Filippi and Loveluck 2016). There are abundant examples of techno-solutionist projects aiming to tackle social problems through new markets, such as Steemit commodifying social media interactions, the KodakCoin cryptocurrency to license Kodak photographs, or Mercury Protocol rewards to tackle online harassment.

The second, smaller group, opposes the first aiming to use blockchains / DLTs to strengthen centralized traditional institutions. Their critical stand against these techno-determinist perspectives has successfully identified and criticised the limitations of such approaches (e.g. Atzori 2015; Atzori and Ulieru 2017). Nevertheless, this critique is built upon the reinforcement of the role of central authorities, resembling traditional responses against unregulated markets. In other words, these views consider traditional central authorities as inherently necessary to enable democratic governance and, as a result, ignore the potential for communities to successfully self-organise. By drawing on this assumption, the potentialities of blockchains / DLTs are envisioned in non-transformative ways: to support the control required by traditional centralised forms of governance. For example, providing more transparency to their central institutions (Nguyen 2016), more efficient mechanisms to avoid tax fraud (Ainsworth and Shact 2016), or several banking consortiums such as R3.

Still, beyond this reductionist dichotomy, there is a third approach worth exploring: the one followed by Nobel laureate Elinor Ostrom, on the governance of commons. Ostrom's work demonstrated that communities managing common pool resources were more efficient than both Market and State managers, as long as they followed certain governance principles. Thus, this third approach relies on previous studies on the self-governance of common goods, enabling a perspective that does not rely on the logic of private markets, as implicitly assumed by the hegemonic blockchain / DLT perspectives, neither on the logic of centralised institutions, which the emergence of the blockchain originally reacted against. The current debate is evolving to welcome this third approach, as we can see in both recent research (Rozas et al 2018, Calcaterra 2018, Shackelford and Myers 2017, Howell et al 2019), journalistic articles (Wong 2019, Anderson 2019) and emerging blockchain / DLT projects embracing it, of which the most relevant is the Commons Stack project (Emmet 2019), with the support of Giveth (Decoodt 2019).

This line of work explores essential questions such as: which are the transformative potentials of blockchain or other DLTs for more participatory forms of governance? Can we define relevant uses of DLTs beyond techno-deterministic, market-driven scenarios and

traditional centralised control? And overall, how can DLTs facilitate large scale cooperation?

These questions regarding blockchain-enabled governance directly relate to one of the blockchain promises: the emergence of Decentralized Autonomous Organisations, or DAOs. A DAO is an organisation where the interaction of members (humans or machines) is mediated by a blockchain application, controlled only and exclusively by a set of immutable and incorruptible rules embedded in its source code. The notion of organisation here points to an entity comprising multiple people (or distributed applications) with a specific goal, not a legally registered organisation. A DAO can be regarded as a digital organisation mediated by a software agent, whose code is in the blockchain. As a decentralized organisation, a DAO can *provide services* (or resources) to third-parties, or even *hire* people to perform specific tasks. Hence, individuals can transact with a DAO in order to benefit from the service it provides, or to get paid for a contribution they made. As opposed to traditional online platforms, DAOs do not rely on any central server and cannot be arbitrarily shut down by any single party (unless specifically provided for in their code). Thus, DAOs may be considered fully *autonomous,* to the extent that they do not need their original creator. Besides, a DAO may be considered *self-sufficient*, to the extent that they can charge users for their own services (or assets) in order to pay for the services they need. A theoretical example could be a DAO-Couchsurfing (Couchsurfing is a hospitality network where members stay in each other's house couches), which provides a public directory of places, and users can interact and even reward the hosts with reputational tokens.

A lot has been written on how the Web 2.0 has facilitated new forms of social organisation and cooperation. At the same time, it has raised unparalleled control to a few large multinational corporations which act as owners of the enabling infrastructure. This has caused multiple issues around surveillance, privacy, accountability, exploitation, exclusion and monopolistic practices (Benkler 2016, Greenwald 2014, Anderson and Wolff 2010). DAOs provide a new way for building online software platforms, in which the technical infrastructure is shared, enabling higher levels of democratization, transparency and accountability. Thus, the promise of a Web 3.0 enabled by blockchain governance could potentially enable the benefits of boosting cooperation from Web 2.0 without several of its main core caveats.

Such promise has attracted multiple activists, non-profits and 'well-intentioned' actors to the field, and in particular to the creation of DAO-like organisations supported by DLTs. It is true that, if such potentials were untapped, we can envision ecosystems of small organisations connected through automated systems, with DAOs automating some of the burdens of large-scale organisation and facilitating the emergence of new International Organisations, Federations and Confederations. In such scenario, it would be possible, for instance: to have public institutions using freedom-respecting software providing services without compromising user's privacy (e.g. through the mathematical method of zero-knowledge proofs); to have large-scale cooperation across non-profits validated by a network of trust in which each vouches for their known 'friends'; to have new crowdsourced metrics of the multiple forms of value created by communities and social actors; to customize services beyond the current uniformity imposed by monopolistic software platforms, lowering the barriers for competition and opening the door to new forms of innovation by multiple non-profit and for-profit actors; appropriate automatic rewarding of work, including previously invisible reproductive work. And all these forms of cooperation would be facilitated without having an owner of the infrastructure with absolute control over the network and its resources.

However, such beautiful utopic scenarios, brought by both techno-deterministic and commoners in different degrees, confront a reality in which decentralized infrastructure, especially for DAOs, are not yet ready for large-scale deployment. Ethereum, with its DAO concepts, was first proposed in 2013, and had its initial release in 2015. Since then, three large blockchain projects have promised to make DAOs a reality: Aragon, DAO Stack and Colony. They are undoubtedly moving forward, and e.g. Aragon has 1,300 prototype DAOs. Still, these projects development is slower than initially projected, and have suffered from multiple issues. In fact, the technical and social challenges have been greater than anticipated, including: scalability of Ethereum, that these projects rely upon; standardization and interoperability across blockchains and with existing systems; usability for non-geeks; large-scale fair governance issues which have challenged political scientists for centuries and free/open source communities for decades; legal issues such as GDPR-compliance; a profound lack of trained blockchain developer supply; environmental concerns with Proof of Work algorithms, etc. These challenges have slowed down development and expectations, and eventually caused that, 12 years after Bitcoin and 7 years after Ethereum, we still do not have widely successful DAO cases to look into.

Still, we cannot despise the whole field, since there is a wide diversity of worthwhile projects that can be considered DLTs for social and public good, i.e. aiming for social and public impact. The current report throws some light on the current state of this field, and enables us to see points of intervention for Europe to facilitate the work of the emergent field of DLTs for good that it is brewing within its grounds. It would be sensible to reinforce existing trends, as in: promoting free/open source projects and digital open commons in general; funding research to solve the infrastructural problems; supporting both for- and non-profit entrepreneurship (and not just the former); incentivizing diversity in technical teams; and aiding the consolidation of the emerging hubs already appearing in several European countries.

Recommendations

Investing in the research and construction of free/open source decentralized technical infrastructure.

The current Collaborative Economy is overwhelmed with monopolistic corporate US-based platforms causing a large number of issues (e.g. Facebook, Uber, Google, Airbnb). Europe is currently putting efforts in trying to have their own “European Unicorn”. However, barriers for competition are very high in the current playing field, so it may be more sensible to change the rules of the game. That is, support the emergence of decentralized interoperable open source infrastructure where new ecosystems can thrive, providing customized services which are unthinkable nowadays. There are multiple technical and social challenges with respect to developing decentralized tech, and today there is a window of opportunity for Europe to boost the field and strengthen their position. It is already happening, with e.g. “Bloxberg” providing blockchain research infrastructure after an initiative from the Max Planck Library.

Strengthen EU hubs on decentralized tech, including not-just-for-profit, open and diverse projects.

The mapping of the European ecosystem of DLTs for social and public good published with this report has provided insights on the existing trends and projects already ongoing. Public institutions now have the chance to strengthen this ecosystem, aiding in the consolidation of the emerging hubs already appearing in several European countries. This should be done not just focused on for-profit entrepreneurship, but also on non-profit entrepreneurship, as the data shows has a strong presence in the EU. In fact, this has happened in the free/open source software world for decades in the USA (e.g. Mozilla Foundation, Apache Foundation, Free Software Foundation). In the same line, strengthening the existing trends on openness and diversity will give a clear advantage to teams aligned with European values in the international arena.

Promoting Platform Co-ops as emerging governance and business models.

The Collaborative Economy facilitated by the centralized Internet has enabled large US-centric monopolies which act as central data hubs for the world population private data. However, as the Sharing Cities Declaration states, when considering policy, not all platforms are the same. With the emerging decentralized web, new possibilities open up concerning governance and business models. As opposed to the US, in Europe people are more used to participatory businesses and co-ops, and a 17% of Europe's population are members of a cooperative business. Today, there is an opportunity to support an emerging business and governance model, in line with decentralized tech: Platform Co-ops, i.e. platforms in which the users have a voice and a share of the profits, such as the German Fairmondo. There are already public initiatives to support, incubate and accelerate such projects, such as Barcelona City Council's "La Comunificadora".

5.6 Blockchain technology as a mechanism for global bottom-up coordination

by Primavera De Filippi

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The need for trust in governance

The COVID-19 pandemic has shown the limitations of the current global governance system. Existing governance institutions, both on a national and international level, have been unable to address this global health challenge in an efficient and concerted manner. Lack of strong political leadership in the early days of the pandemic was in part due to a tendency to focus more on the short-term rather than on the long-term implications of such a crisis. Political interventions in the latter stages of the pandemic have been elaborated at the national level—often in a non-concerted manner—rather than seeking to collectively come up with large-scale interventions to address the pandemic in unison. Interventions have been geared mostly on individual confinements and national lock-downs, including international travel bans, without appropriately acknowledging the growing interdependence of modern societies, populated by transnational corporations and organisations, whose long-term sustainability depends on a considerable flow of capital, goods, services, and people across borders.

Finally, many governments around the world (e.g. China, Singapore, Israel) introduced measures for authorities to track down the