

# The DAO Between the Nation State and the Network State

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## I. Digitalization and decentralization: A new frontier in social organization toward ‘oceanic circles’

Digitalization promises significant changes in every sector, from the economy to law and society.<sup>1</sup> The unique feature of the technological innovation underlying digitalization is that it makes decentralized forms of social and economic organization concrete again.<sup>2</sup> Centralization is a relatively recent phenomenon in the history of social organization.<sup>3</sup> The reasons for its emergence are linked to the demands of economic progress on society based on a one-directional development model.

The global dimension of the economy has highlighted the limits of centralization in a context of renewed political and social fragmentation, at least in the Western world.<sup>4</sup> Blockchain technology has made it possible to reintroduce governance models based on decentralization. However, decentralization and blockchain technology do not seem interchangeable. In other words, a system governed by blockchain technology is not necessarily decentralized. When it is, it should be helpful to understand the benefits of redesigning our economic system accordingly. Calcaterra and Kaal argue that decentralization could foster innovation through distributed decision-making and empowerment of individuals, resulting in fairer and more inclusive systems of governance and

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<sup>1</sup> For a definition of ‘digitalization’, see João Reis and others, ‘Digitalization: A Literature Review and Research Agenda’ in Zoran Anisic, Bojan Lalic, and Danijela Gracanin (eds), *Proceedings on 25th International Joint Conference on Industrial Engineering and Operations Management – IJCIEOM* (Springer International Publishing 2020) figure 2; Cristina Poncibò, ‘The Digitalization of Contracts in International Trade and Finance: Comparative Law Perspectives on Smart Contracts’ in Milena Ratajczak-Mrozek and Paweł Marszałek (eds), *Digitalization and Firm Performance: Examining the Strategic Impact* (Springer International Publishing 2022) 131 <[https://doi.org/10.1007/978-3-030-83360-2\\_6](https://doi.org/10.1007/978-3-030-83360-2_6)> accessed 22 May 2024; European Central Bank, *Digitalisation and the Economy* (Publications Office 2023) N 3 <<https://data.europa.eu/doi/10.2866/93858>> accessed 22 May 2024.

<sup>2</sup> Jeremy Rifkin, *The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism* (Palgrave Macmillan 2014) 105-106.

<sup>3</sup> David Graeber, *Debt: The First 5,000 Years* (Melville House 2011) 76 ff.

<sup>4</sup> Alain Dieckhoff, *Nationalism and the Multination State* (Oxford University Press 2017) 13, 16, 30, 93, 105.

economics.<sup>5</sup> For their part, advocates of centralization highlight its capacity to enhance efficiency in data collection and processing, particularly in scenarios where it is challenging to foresee issues in advance and where ongoing coordination is essential.<sup>6</sup>

Centralization does not effectively meet the requirements of extensive and interconnected digital ecosystems, echoing what Gandhi called ‘oceanic circles’.<sup>7</sup> These circles unite vast and decentralized communities without distinct boundaries, reflecting oceans' vast and interconnected nature. This form of existence represents an alternative to the concept of independent circles, with inhabitants and communities being interconnected in a unique way. In the oceanic circle, everyone is a fundamental unit. Individuals are independent but not autonomous, and they enjoy independence by relying on others through autonomous organizations.

Moreover, movements arise from the ground up, and the principle of interdependence among units is a crucial feature. The interconnectedness of units and their ability to leverage each other’s strengths form convergent circles horizontally. As they interact, they assimilate information from one another, which is a crucial process in creating oceanic communities. Vertical communities interconnect and feed into each other, while horizontal communities assimilate information from one another, forming convergent circles.

The decision to support one of the two opposing decision-making models (centralization versus decentralization) is a fundamentally ideological matter rooted in the concept of implied sovereignty. In the realm of social sciences, devising a universal model is challenging, considering the multifaceted nature of decentralization when compared to centralization.

It is worth noting that the decentralization facilitated by blockchain technology holds distinct significance and purpose when contrasted with its application in a real-world economy. In this situation, it is necessary to move beyond the ideological divide between the two opposing

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<sup>5</sup> Craig James Calcaterra and Wulf Alexander Kaal, *Decentralization: Technology's Impact on Organizational and Societal Structure* (De Gruyter 2021) 12-13.

<sup>6</sup> Hala Altamimi, Qiaozhen Liu, and Benedict Jimenez, ‘Not Too Much, Not Too Little: Centralization, Decentralization, and Organizational Change’ (2023) 33 *Journal of Public Administration Research and Theory* 170, 172-173.

<sup>7</sup> Arun Kumar Patnaik, ‘Gandhi, Oceanic Circle, and Participatory Democracy’ in Anshuman Behera and Shailesh Nayak (eds), *Gandhi in the Twenty First Century: Ideas and Relevance* (Springer Nature 2022) 21-23 <[https://doi.org/10.1007/978-981-16-8476-0\\_2](https://doi.org/10.1007/978-981-16-8476-0_2)> accessed 7 July 2024.

decision-making systems and instead consider the environmental conditions in which the alternatives operate, evaluating the specific characteristics of each decision-making model.<sup>8</sup> It is crucial to recognize that integrating decentralized models as effective governance solutions for complex systems can create a conundrum: The dispersion of power across different geographical levels (local, regional, national, and supranational) in multilevel constitutionalism may not always align with the concept of decentralization resulting from technological innovation.<sup>9</sup> Digitalization-induced decentralization significantly disrupts the political idea of sovereignty, creating space for types of collaboration adjusted according to the desires and objectives of the individual members within the system. However, this does not imply a reversion to the power dynamics seen in medieval societies, nor does it endorse a polyarchic or anarchic system. Instead, it aims to advance solutions that facilitate the self-formation of law and its capacity to operate as a self-sustaining social system.

## II. Evolution of the nation-state model

In his famous 1995 book, Kenichi Ohmae argued that the traditional nation-state, characterized by its sovereign authority and geographical borders, was becoming less relevant in a world where economic activities transcend these borders.<sup>10</sup> The rise of global markets, technological advancements, and the increasing power of multinational corporations contributed to a landscape where economic regions,<sup>11</sup> rather than nation-states, were becoming the primary actors in the global economy.

Ohmae suggested that these economic regions, which may cross national boundaries, are the new engines of economic growth and innovation. They are better suited to respond to the demands of the global market due to their flexibility, adaptability, and the dynamic linkages

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<sup>8</sup> Kevin Werbach, *The Blockchain and the New Architecture of Trust* (MIT Press 2018).

<sup>9</sup> Kurt Dopfer and Verein für Socialpolitik (eds), *Economics, Evolution and the State: The Governance of Complexity* (Edward Elgar 2005) 297 ff.

<sup>10</sup> Kenichi Ohmae, *The End of the Nation State: The Rise of Regional Economies* (HarperCollins 1995).

<sup>11</sup> For example, the European Union (EU), which is highly integrated, and other economic agreements and blocs such as the United States-Mexico-Canada Agreement (USMCA), the Association of Southeast Asian Nations (ASEAN), the Mercosur region in South America, the Gulf Cooperation Council (GCC), the African Continental Free Trade Area (AfCFTA), and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).

between businesses and consumers within and across these regions. According to Ohmae, these regions often have shared economic interests beyond national borders. It could lead to a situation in which nation-states' traditional functions and roles are weakened or bypassed in favor of more localized or regional economic strategies.

In essence, Ohmae's idea of the 'nation-state' is one of a declining entity struggling to maintain its relevance and control over economic activities within its borders in the face of globalizing forces. He forecasted a future where economic regions, supported by advancements in information and communication technology and driven by the logic of free market capitalism, would increasingly dictate the terms of economic development and integration into the global economy. This shift challenges the conventional notions of sovereignty, governance, and economic management traditionally associated with nation-states. Ohmae's conclusions mirror Rodrik's, who instead highlights globalization's challenges to national policies and the social contract.<sup>12</sup> In recognizing the complexity of globalization and its impact on the nation-state, both saw the need to identify a system for managing global economic forces.

Two new institutions for 'normativity' joined the nation-state: the global capital market and the international human rights regime. However, these two new *fora* also require state structures for their implementation and enforcement. More than a 'retreat of the state', this development has transformed the authority powers from national jurisdictions to supranational or international authority networks. However, not all functions have been transferred since no substitute structures can, at present, perform all the functions traditionally associated with the nation-state. If political decisions are taken in contexts involving many different actors, states remain the setters of the ground rules and retain primary responsibility for maintaining security, order, and justice.

In order to propose a workable alternative to the traditional idea of a state, it is essential to acknowledge a fundamental aspect that has been observed across various political perspectives: the diminishing exclusivity or the end of the legitimate monopoly on force. This means that the state, as we know it, is no longer the only legitimate authority in society that can legitimately wield

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<sup>12</sup> Dani Rodrik, *The Globalization Paradox: Why Global Markets, States, and Democracy Can't Coexist* (Oxford University Press 2011).

force.<sup>13</sup> This phenomenon is particularly evident in what has been coined the Information Age, where the state finds itself increasingly intertwined with transnational and supranational phenomena, raising the question of the state's relevance and effectiveness in a rapidly changing global landscape.<sup>14</sup>

### III. The emergence of the idea of network states

In *'The Network State,'* Srinivasan discusses 'how to establish a new country',<sup>15</sup> but the information provided does not outline the legal process necessary to make it viable according to international law. He proposes that this new state model should leverage innovative technology to redefine the traditional nation-state model, deviating from its classic definition. In fact, one of the essential features of a nation-state – its territory – is not initially part of a network state. The concept of 'people' must also be redefined to encompass an online community of individuals connected without clear boundaries. Sovereignty must be revised accordingly. Srinivasan introduces the 'network state' concept by describing a network state as a highly aligned online community capable of collective action, global crowdfunding, and eventually gaining diplomatic recognition from pre-existing states. Here, we find a new kind of territory, the 'digital territory'. It can manifest as 'domain names, crypto usernames, plots of land in the metaverse, social media handles, and accounts.'<sup>16</sup>

While recognition as a nation-state means possessing specific characteristics, it should be noted that there are unique attributes for a network state, too, some of which can be shared with other Internet phenomena. Each of the following features must be present to build a network state under Srinivasan's model: 'a social network with moral innovation and a sense of national consciousness; a recognized founder; a capacity for collective action; an in-person level of civility; an integrated cryptocurrency; a consensual government bound by a social smart contract; an

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<sup>13</sup> Susan Strange, *The Retreat of the State: The Diffusion of Power in the World Economy* (Cambridge University Press 1996) 7-8, 91 ff.

<sup>14</sup> James Dale Davidson and William Rees-Mogg, *The Sovereign Individual: Mastering the Transition to the Information Age* (Touchstone/Simon & Schuster 1999).

<sup>15</sup> Balaji Srinivasan, *The Network State* (Amazon Kindle 2022).

<sup>16</sup> Srinivasan (n 15) 267.

archipelago of crowdfunded physical territories; a virtual capital; an on-chain census demonstrating sufficient population, income, and real estate footprint for diplomatic recognition'.<sup>17</sup> The latter is particularly significant.

The concept of network state emerges from a pragmatic view of sovereignty. Through a 'reverse diaspora', it seeks to achieve parity with nation-states. This involves beginning as a startup community, organising as a network union, raising funds for physical nodes to establish a network archipelago, and ultimately seeking diplomatic recognition. These definitions together paint a picture of the network state as a new model of statehood. The network state leverages the connectivity and organising power of the Internet to establish a decentralized but unified political entity, striving towards recognition and sovereignty in the global system of nation-states.

The broad concept of the network state aims to overcome the limitations of traditional state-level organizational models in the face of globalization and technological advancements. It addresses the uncertainties and restrictions related to both personal and collective freedoms that nation-states struggle to guarantee through constitutional charters.

In Srinivasan's model, however, there is no mention of the economic liberties and related issues that movements around Web 3.0 ideas frame as central to the search for future governance solutions. The narrative does not address factors of production and models of production and distribution that are inconsistent with the environmental needs of human beings. Such aspects were captured well before blockchain and distributed ledger technology (DLT) emerged in Manuel Castells' concept of 'network society'.<sup>18</sup>

A network society arises from a confluence of global social, technological, economic, and cultural transformations. These transformations are characterized by the pervasive influence of information and communication technologies, the globalization of economic and social processes, and a shift in power dynamics towards those who control information flows. Castells' work emphasises the transformative power of these networks in shaping the economy, society, and culture in what is perceived as a departure from the industrial era towards a new, interconnected

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<sup>17</sup> Srinivasan (n 15) 6.

<sup>18</sup> Manuel Castells, *The Rise of the Network Society* (2nd ed., Wiley-Blackwell 2011).

global structure. This structure for Castells is defined by the instantaneous flow and exchange of information, capital, and cultural communication, largely outside national regulation, creating new forms of social and economic organization. The concept of 'network societies' involves a set of interconnected goals and outcomes that emerged from societies' evolution in the so-called Information Age.

One of the primary objectives of network societies is to enhance global connectivity and communication among individuals, institutions, and countries. This is facilitated through advanced information and communication technologies, which allow instant access to information and knowledge exchange and make interaction across geographical barriers possible.

Network societies also aim to foster economic efficiency and innovation by digitalizing economic processes. The global flow of information and capital would facilitate new production, distribution, and consumption forms, allowing for more agile, adaptable, and innovative economic practices. The widespread use of digital networks can potentially increase social inclusion and participation. Network society enables diverse voices to be heard and allows for forming communities and social movements that can organise and mobilise across traditional boundaries. Another significant aim of network societies is democratizing access to information and knowledge. By breaking down barriers to information, network societies empower individuals with tools for education, self-improvement, and informed decision-making.

Building network societies is inherently linked to globalization processes. It aims to create a more interconnected world where economic, social, and cultural exchanges transcend national borders, fostering global understanding and cooperation. Network societies are designed to be adaptable and resilient in the face of rapid technological changes and global challenges. The flexibility of network structures allows for quick responses to emerging issues and innovations. While not an explicit aim, the rise of network societies has the potential to redistribute power dynamics by challenging traditional hierarchies and monopolies over information and resources. This is achieved through the decentralization and dissemination of information, although it also raises concerns about new forms of digital divides and inequalities. Ultimately, the aim of building network societies is closely tied to leveraging technological advancements to improve economic, social, and cultural outcomes on a global scale, fostering a more connected, innovative, and inclusive world. However, Castells also critically examines the complexities and challenges

inherent in this transformation, including issues of inequality, control over information, and the potential for exclusion.

The concepts of network states and network societies share several similarities. They are both modern forms of social organization heavily influenced by digital technology and the Internet. They are both built on a digital foundation and rely heavily on digital tools to organise, communicate, and function, enabling them to transcend traditional geographical boundaries. Both structures are less hierarchical than conventional societies, allowing for more distributed governance and social interaction with significant autonomy and influence of individual or group nodes. At the core of both concepts is forming a community and identity based on shared interests, values, or objectives rather than solely on geographical proximity. Network states and network societies operate globally, with participants from multiple regions, and are flexible and adaptive due to their reliance on digital platforms. Both networks can challenge traditional forms of power by mobilizing quickly and achieving objectives uniquely. However, while ‘network states’ might specifically refer to novel forms of digital governance and political organization, ‘network societies’ are broader social structures active in traditional forms of government.

The network state is a concept closely related to digitization. For instance, it may refer to decentralized autonomous organizations (DAOs). As is widely recognized, the first DAO was established to raise funds outside the regulatory framework for investors. However, it is remembered more for its notable IT failure rather than the pioneering idea it represented. Since 2016, the concept of DAO has expanded significantly due to the widespread adoption and evolution of blockchain technology, along with the diverse applications that have emerged from it. The following discussion will examine the governance structure of DAOs, the legal frameworks utilized, and the assumptions made so far (which have mainly been idealistic).

#### **IV. Is the DAO an alternative to the state or a complementary body?**

Why is the state perceived today as being less suitable for our societies than before? Even when considering the best examples of state order without delving into political-philosophical references like Leviathan, numerous critical evaluations of the most widely used form of social contract among humans worldwide have been conducted.

As mentioned previously, the recurring tensions surrounding personal and economic freedoms are again evident. In online society, and even prior to the digital era, there has been a clear desire to break free from various forms of control and surveillance while simultaneously seeking economic efficiency through freedom of movement and performance. The promise of blockchain technology and DLT lies in structuring individual sovereignty. However, the initial implementations fell short. While those ‘layers 1’ blockchains allowed for direct individual participation, they neglected the crucial element of community involvement.

Indeed, the concept of community is not unique to the social sciences or exclusive to the legal sphere. However, the different types of communities that have formed over time thanks to technological progress testify to the significance of certain attributes which can explain the persistence of their members and the mutual benefits they enjoy. As has been observed, ‘when all participants share a common set of values and interact with one another in a multiplex set of arrangements within a small community, the probabilities of their developing adequate rules and norms to govern repetitive relationships are much greater (...). If the participants in a situation come from many different cultures, speak different languages, and are distrustful of one another, the costs of devising and sustaining effective rules are substantially increased’.<sup>19</sup>

The Internet has enabled the formation of diverse communities that are not bound by traditional, pre-defined values like those typical of conventional governance. These virtual communities have often been facilitated by platforms that, while enhancing access to information and connectivity, also control and monetize data. This monopolization has posed significant challenges for law enforcement, particularly in safeguarding personal and economic freedoms. Legal systems have struggled to address privacy violations and the concentrated economic power of these platforms. Accordingly, even robust regulatory frameworks have largely failed in rebalancing the power between private entities and the state, regardless of whether attempted in traditional ways or through alternative institutional solutions that benefit from technological innovation.

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<sup>19</sup> Elinor Ostrom, *Understanding Institutional Diversity* (Princeton University Press 2005) 27.

The need to explore alternative aggregative solutions has arisen by leveraging technology to shape governance based on objectives rather than vice versa. One intriguing solution is Srinivasan's concept of the network state. According to this idea, some individuals seek to recreate the sense of community found in physical spaces within the digital realm. To realize this, they plan to harness the distinctive capabilities of blockchain technology and smart contracts to securely and reliably program transactions.

In contrast to this, a DAO can adopt the legal form of an association to the extent that it could, at least theoretically, become a political institution in the formal sense, potentially integrated into the legal system. DAOs can encompass both forms of legal organization with economic functions and constitutionally defined associative models. The emergence of DAOs is a complex phenomenon stemming from the technology upon which they are built. While the blockchain's alegal nature enables the creation of digital associations without legal recognition, their recognition can also lead to the 'reunification of law'.<sup>20</sup> As a result, DAOs, as 'alegal entities',<sup>21</sup> can function both as structures analogous to associations and as *de facto* entities seeking independence and autonomy from the traditional legal system. In the latter case, the aim is not the same as imagined in the concept of the network state, which aims to achieve diplomatic recognition in the final stage but rather to function as a legal system in itself.

#### **A. DAOs and nation-states**

The 'builders' of DAOs aspire essentially to devise a digital expression of the political will to self-organize in a spatial context that transcends the territory inherent to the nation-state concept. The lack of a territory can be characterized as both a weakness and a strength. It offers an alternative orderly model of managing relations and governing choices when considering societies' current challenges and needs. However, to benefit from this new form of social organization, it is

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<sup>20</sup> Primavera De Filippi, Morshed Mannan, and Wessel Reijers, 'The Alegality of Blockchain Technology' (2022) 41 *Policy and Society* 358.

<sup>21</sup> Maury Shenk, Sven Van Kerckhoven, and Jonas Weinberger, 'The Crown, the Market and the DAO' (2023) *Stanford Journal of Blockchain Law & Policy* <<https://stanford-jblp.pubpub.org/pub/crown-market-and-dao/release/1>> accessed 22 May 2024.

necessary to delineate its position regarding existing legal institutions and then assess and potentially address the governance methods that can be adopted.

The question of spatial location for the legal status of DAOs requires an interpretation according to the relationships and objectives they set. While it is natural to consider DAOs as structures analogous to associations in the absence of legal recognition (i.e., *de facto* entities) or as limited liability companies in its presence, it is also true that it is precisely the encompassing nature of this technological combination that often leads us to encounter organizational forms that transcend national borders.<sup>22</sup> Given the absence of specific regulations to delineate those phenomena, it is crucial to consider the role of international law in guiding, for instance, sports bodies (e.g., FIFA, IOC). The comparison to sports law shares similarities with DAOs in terms of distributivity, autonomous objectives, apolitical nature, and constitutionalism when aiming for a higher standard. Integrating DAOs into existing legal frameworks allows legislative intervention to establish a functional classification for their objectives. However, challenges arise in implementing effective supranational strategies and defining governance models that align with decentralization.

It should be noted that the concept of DAO implicitly overlaps with the sovereign dimension of the nation-state. This is evident in considerations such as monetary sovereignty or the issuance of a native currency. A recent example in this regard is rather enlightening. It concerns the first DAO registered under Wyoming law: the American CryptoFed DAO.<sup>23</sup> Few jurisdictions in the world have regulated DAOs. Among these states, albeit within the limits of US federal laws, is Wyoming. The American CryptoFed DAO's legal action against federal authorities is a meaningful example of how a DAO could seek legal recognition while simultaneously desiring extensive autonomy in pursuing its own goals. To this end, it has endowed itself with what it nominally calls its own 'Constitution' in which it specifies what its 'mission' is, indicates the characteristics of the tokens issued, describes its organization and the algorithmic rules that govern

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<sup>22</sup> Florence Guillaume and Sven Riva, 'DAO, code et loi : le régime technologique et juridique de la decentralized autonomous organization' (2021) 4 *Assas International Law Review* 206.

<sup>23</sup> Wyoming Secretary of State, 'Business Entity Detail - American CryptoFed DAO LLC' (7 January 2021) <<https://wyobiz.wyo.gov/Business/FilingDetails.aspx?eFNum=090233110131244018220159027193226030056048132159>> accessed 22 May 2024.

the transfer of tokens, and the traditional choice of law final clause. One realizes that they are faced with an act that is far from being formally framed as a ‘Constitution’ but instead exhibits traits similar to those of a company’s bylaws.

If, however, we consider the merits and focus on the ‘mission’ indicated, the issue becomes delicate. Article 1 states that the objective is ‘to create and maintain a monetary system with zero inflation, zero deflation and zero transaction cost’ by consent.<sup>24</sup> A few considerations and questions arise. Is the creation of a monetary system at the disposal of private entities? Can it be formally bypassed by the legal recognition of a digital organizational form? Does it not conflict with US federal law, even though there is no legal tender monopoly in that country? These are just a few of the many considerations arising from reading the ‘Constitution’ of the American CryptoFed DAO.

These questions have no reason to exist if one examines the Bitcoin blockchain. Yet, here, too, we have a cryptocurrency (as the American CryptoFed DAO proposes) being used as a means of payment. There is no mention in Satoshi Nakamoto’s whitepaper of an organization that allows the use of Bitcoin. Satoshi is unknown: he, she, or they simply explain how the system works in the whitepaper. Bitcoin, where its circulation is not banned, circulates freely across national borders. Satoshi’s whitepaper states that Bitcoin is a network and electronic payment system. One might wonder if a DAO is a network. However, there is no shortage of those who believe that the ‘Bitcoin system is the first real-world implementation of a new type of organization called “decentralized autonomous organization.”’<sup>25</sup>

The application of legal interpretations of phenomena from a functional standpoint is a valuable tool for aligning the regulation of phenomena. However, it may be even more beneficial when the question pertains to the ontogeny of the phenomenon itself. Assimilating the parallelism between a state’s autonomy (Wyoming) and that of a DAO compared with the federal system, even considering the constitutional principles on which the US legal system is founded, may be intriguing but appears fundamentally flawed. This confuses implementing the conformity principle through law with the principle of autonomy and the latter with that of federalism. If DAOs take on

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<sup>24</sup> ‘American CryptoFed DAO’ <<https://www.americancryptofed.org/>> accessed 22 May 2024.

<sup>25</sup> Ying-Ying Hsieh and others, ‘Bitcoin and the Rise of Decentralized Autonomous Organizations’ (2018) 7 *Journal of Organization Design* 14, 2.

roles that traditionally fall under federal jurisdiction, a legitimate process must be followed to transfer authority, much like the procedure for establishing a monetary system. Conversely, when it comes to implementing a payment system utilising a token issued by the DAO and the resulting implications of interpreting the US Securities and Exchange Commission (SEC), this presents a different scenario altogether.<sup>26</sup>

In civil law systems, the role entrusted to the legislature necessarily requires its intervention to clearly define the legal nature and the rights and obligations of the members of these decentralized entities endowed with autonomy. Consequently, *a priori* constitutional planning is ruled out to leave room for codification and the development of ad hoc rules for DAOs. Thus, to state from a purely legal perspective that ‘as institutional infrastructures, [DAOs are] cryptoeconomic networks [that] resemble nation-states much more than they resemble companies’ and that their ‘protocols are comparable to the constitution and the governing laws of a nation-state [...] in a combination of formal (on-chain) and informal (off-chain) rule sets’<sup>27</sup> is just a theoretical awareness that blockchains eschew regulation as it has been shaped by legal science over time. Blockchains are, in themselves, alternative systems of economic and social regulation. Currently, blockchain-built decentralized organizations do not take on the appearance of nation-states.

DAOs can be ‘islands’ within a state system. That is, they can assume some of the functions that state exercise. But they certainly cannot replace the idea and architecture of a nation-state.<sup>28</sup> Instead, as mentioned, they can emulate the functions of the legal system. As the relevance of digital space expands, the notion of a ‘legal system’ may need to transform. The initial stage of this potential evolution could involve establishing a network state.

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<sup>26</sup> See more at Xiaomeng Zhou, ‘DAOs vs. Nation States: A Wyoming DAO’s Experiment with the U.S. Securities and Exchange Commission’ (2 March 2024) 8, 16, 23, 25 ff <<https://papers.ssrn.com/abstract=4746108>> accessed 22 May 2024.

<sup>27</sup> Shermin Voshmgir and Michael Zargham, ‘Foundations of Cryptoeconomic Systems’ (WU Vienna University of Economics and Business, 2020) 4 <<https://research.wu.ac.at/en/publications/foundations-of-cryptoeconomic-systems-6>> accessed 22 May 2024.

<sup>28</sup> Roman Zvarych and Oksana Kaleniuk, ‘The Modern Concept of the Nation State’ (2023) 1 *Scientific and informational bulletin of Ivano-Frankivsk University of Law* 46.

## B. DAOs and network states

Although DAOs and network states might seem similar, they are fundamentally different in their aims, structures, and implications. Examining the taxonomy of DAOs created to date, it emerges that most are active in decentralized finance (DeFi) and thus manage cryptocurrencies and other types of digital assets such as NFTs. On the other hand, DAOs are typically designed to facilitate decentralized decision-making and governance for specific purposes, such as funding or managing projects. It is no coincidence that DAOs may be seen together with DeFi as the constitutive structure of tokenomics.<sup>29</sup>

Upon reviewing several DAOs, it can be said that the emphasis is on fulfilling a social need rather than a constitutional perspective.<sup>30</sup> The rise of digital communities is fuelled by social needs rather than political consensus.<sup>31</sup> It is crucial to understand that recognizing these fundamental social needs is not a social contract on its own but rather a vital aspect of the underlying agreement that guides a society founded on the principle of the rule of law. Even when the latter is designed to embody the idea and intention of the former, substituting the ‘rule of law’ with the ‘rule of code’ implies viewing society as a unified entity rather than a group of separate communities.<sup>32</sup>

The concept of a network is analytically distinct from that of a set of communities. This distinction is not merely a matter of legal formalism; rather, it reflects the law’s fundamental

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<sup>29</sup> Tokenomics is a theory that encompasses the distribution of tokenized goods and services among economic participants. Its purpose is to analyze existing token economies and aid in the design of new ones. Tokenomics involves establishing policies for setting prices, managing risks, conducting stability analysis, and more. That is why DAOs and DeFi, respectively, entity structures in which token holders participate in the management and decision-making of an entity and financial services that remove third parties and centralized institutions from transactions, may be considered the essential components of tokenomics. See Rem Sadykhov and others, ‘Decentralized Token Economy Theory (DeTEcT): Token Pricing, Stability and Governance for Token Economies’ (2023) 6 *Frontiers in Blockchain* <<https://www.frontiersin.org/journals/blockchain/articles/10.3389/fbloc.2023.1298330/full>> accessed 9 July 2024.

<sup>30</sup> Joshua Z. Tan and others, ‘The Constitutions of Web3’ (29 February 2024) arXiv:2403.00081 <<https://arxiv.org/abs/2403.00081>> accessed 22 May 2024; Paul Van Vulpen, Mats Van Dijk, and Slinger Jansen, ‘Designing Governance: A Framework for DAO Constitutions’ (16 May 2024) <<https://www.ssrn.com/abstract=4831039>> accessed 22 May 2024.

<sup>31</sup> Paul Van Vulpen and Slinger Jansen, ‘Decentralized Autonomous Organization Design for the Commons and the Common Good’ (2023) 6 *Frontiers in Blockchain* <<https://www.frontiersin.org/articles/10.3389/fbloc.2023.1287249>> accessed 22 May 2024.

<sup>32</sup> See, to deepen the relationship between ‘rule of law’ and ‘rule of code’: Primavera De Filippi, Morshed Mannan, and Wessel Reijers, ‘Blockchain Technology and the Rule of Code: Regulation via Governance’ (2 December 2022) 2-4 <<https://papers.ssrn.com/abstract=4292265>> accessed 9 July 2024.

understanding of social structures. It is notable that there is a conceptual parallel between the legal principles that underpin a modern pluralist state and the structure of networks. This parallel is not merely a matter of linguistic coincidence; rather, it offers a profound insight into the conceptualization of governance. . The terms ‘rule of law’ and ‘code’ (as in legal codes or computer codes) share a linguistic connection that suggests a deeper conceptual link: namely, that our understanding of governance is shifting from traditional notions of government to systems of ‘network governance’<sup>33</sup> and ‘networked governance’.<sup>34</sup> These new paradigms are based on an incomplete social contract, one that is geared towards establishing flexible, interconnected systems of rule-making and enforcement rather than centralized government control. It remains unclear to what extent this shift has been consciously recognized in our conceptualization of societal organization and governance.

Blockchain technology provides the possibility – at least theoretically – of ensuring that the fundamental principles of a democratic process and the rule of law in governance are upheld so that code can effectively and efficiently replace legal rules. As a result, the notion of democracy as a ‘procedure’ takes precedence over that of law as the basis of the state, which is perceived as a legal, institutional, and moral framework that cannot be reduced to economic and social interests.<sup>35</sup> Blockchain technology appears to offer a potential avenue for re-examining the classical semantics and pre-democratic ideas of good order through the lens of good governance. Specifically, it presents a vision of governance where the following characteristics are observed:

1. ‘Good order’ is defined a priori and enforced automatically;
2. Law plays a central – rather than peripheral – role in the governance structure, in contrast to extra-legal apparatuses; and
3. Economic incentives (through ‘reward systems’) and moral practices are elevated from an ancillary role to integral components of the governance structure.

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<sup>33</sup> Andrej Zwitter and Jilles Hazenberg, ‘Decentralized Network Governance: Blockchain Technology and the Future of Regulation’ (2020) 3 *Frontiers in Blockchain* <<https://www.frontiersin.org/articles/10.3389/fbloc.2020.00012>> accessed 22 May 2024.

<sup>34</sup> Robyn Caplan, ‘Networked Governance’ (2022) 24 *Yale Journal of Law & Technology* 541.

<sup>35</sup> Blandine Kriegel, *The State and the Rule of Law* (Princeton University Press 1995) ix.

This need for new, more flexible forms of governance stems, in the first instance, from the diminishing importance of state sovereignty in the face of increasingly integrated and interconnected economies. However, there is also a growing sense of discontent and mistrust among electorates in many countries towards their representatives and governing bodies. Moreover, there is an urgency for swift and adaptable responses from political authorities and communities in times of emergency or for transnational concerns.

In exploring new institutional forms like DAOs and network states, the pivotal role of IT developers extends beyond mere technical implementation to the actual shaping of regulatory frameworks. For instance, the founders of what Srinivasan calls a ‘startup society’ as the ‘embryonic form of a network state’ may vary.<sup>36</sup> In general, however, they are technologists, moral entrepreneurs,<sup>37</sup> or thought leaders who are committed to an in-depth understanding of digital technologies and community building. Yet, this shift in responsibility is not as widely recognized as it should be. IT architects are crafting the infrastructure and defining the regulatory nuances of these digital entities. This scenario presents a complex intersection of technology and policy, where developers influence areas traditionally reserved for legal experts and professionals. While technical expertise is invaluable, it is akin to expecting a jurist to debug software—both fields require distinct skills.<sup>38</sup> Addressing this mismatch is crucial.

However, this is more than just a management issue fixable through interdisciplinary teams that blend legal, ethical, and technical knowledge to ensure balanced and informed decision-making. To call up the publicist doctrine on the subject at large would be an ambitious act, at the very least, but certainly not exhaustive. The same goes for the general theory of law, even for the

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<sup>36</sup> Srinivasan (n 15) 17. See also at 144: ‘(...) a new community-built internet-first, premised on a societal critique of its parent community, and founded for the purpose of addressing that specific societal problem in an opt-in way – namely, by recruiting people online to voluntarily form an alternative society that shows a better way. The implication is that a startup society is still pretty small and near the beginning of its ambition, just like a startup company’.

<sup>37</sup> Srinivasan (n 15) 144. According to Srinivasan: ‘You are a moral entrepreneur telling potential future citizens about a better way of life, about a single thing that the broader world has gotten wrong that your community is setting right.’ This statement suggests a naive approach to the argument. This is not to be underestimated. In the event of its concrete realization, the risks of an authoritarian drift in the context of a gradual erosion of democracy are greater than the system’s aims.

<sup>38</sup> See, for a comparable explanation: Michael Kearns and others, *The Ethical Algorithm: The Science of Socially Aware Algorithm Design* (Oxford University Press 2020).

aspects of international law that would be involved. In this regard, we could then rely on the analysis of political scientists to question possible explanations for the origin of the state system and to analyse the forces that shaped it.

It would emerge that the system that brought us to the current conditions was not inevitable and that the really decisive element was the ability to guarantee two fundamental aspects: on the one hand, an internal hierarchy, and on the other, autonomy from the outside. In any case, the initiative of forming the sovereign nation-state was the effect of the slow transformation of traditionally separate jurisdictions of feudal lords, emperors, sovereigns, and popes, but which would lead to a rearrangement of their territories and, with them, their sovereignty. That transformation came about through increased economic interaction and the introduction of new military technology. But what really enabled the transformation was a radical change of mentality, which, precisely because it was non-linear, led to an institutional innovation that, in addition to states, provided for urban leagues, independent municipalities, and city-states.

Arriving in the present, we could quickly extricate ourselves from uncomfortable future predictions about the role of the new organizational forms that blockchain technology enables simply by considering their distinct complementarity with the concept of the sovereign state. And, therefore, their non-exclusivity. However, according to the two-factor criterion, we would avoid the genuinely distinctive aspect of both DAOs and network states. Explanations of these two phenomena differ from those concerning the question of autonomy; much more complex is how to replace the criteria that, one might say, 'preordain' governance. In our discussion, we are not solely addressing governance but decentralized governance. This concept entails the absence of central authority, reflecting a deliberate departure from traditional hierarchical structures. The decentralized paradigm, which has been the foundation for various theories and possible interpretations, still raises questions today from both IT and legal perspectives. While some believe it offers solutions to many of today's societal problems, others consider it unachievable.

The conflict occurring in the financial system, particularly in the payments system, is clearly the most tangible and prominent representation of the duality in which decentralized and

centralized systems oppose and collide.<sup>39</sup> For some, decentralization coupled with the transparency and efficiency that blockchain enables is a more viable alternative to replace a system of government that is formally based on democracy but is essentially no longer able to be maintained due to the emergence of financial powers that constrain the sphere of autonomy and with it the system of government.<sup>40</sup>

## V. Implications for the future of governance and legal frameworks

The analysis leads us back to the initial point raised at the beginning. The issue of decentralization and its implications cannot be disregarded based solely on the current organizational systems. Doing so would overlook the phenomenon's true nature and result in a dual system governed by existing laws and another operating outside regulation, interpreted using legal categories that do not entirely align with the specific circumstances.

The legal doctrine of DAOs perfectly illustrates this dualism. The first examples of DAOs vested at the state level in the US and a few other countries highlight the difficulty for both 'founders' and regulators, courts, and legal practitioners to grasp the meaning of the phenomenon.<sup>41</sup> That is why Srinivasan defines DAOs as 'the benign version of the Network/State fusion.'<sup>42</sup> The benign version closely aligns with the essence and objectives of DAOs. Compared to traditional network structures, it leverages greater organizational flexibility, a legally coherent framework rooted in the private dimension of social organizations, and a logical approach in digital

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<sup>39</sup> See, e.g., US Securities and Exchange Commission (SEC), 'Statement on the Financial Innovation and Technology for the 21st Century Act' (22 May 2024) <<https://www.sec.gov/news/statement/gensler-21st-century-act-05222024>> accessed 22 May 2024.

<sup>40</sup> See Nathan Schneider, *Governable Spaces: Democratic Design for Online Life* (University of California Press 2024) 41: 'The mythology then permits a transition from economics to cryptoeconomics, from politics to coordination, from representation to decentralisation.'

<sup>41</sup> Benedikt Schuppli and Golnaz A. Jafari, 'Piercing the Digital Veil: A Case Study for a DAO Legal Framework under Swiss Law' (28 October 2021) <<https://www.ssrn.com/abstract=3951804>> accessed 22 May 2024; Michael Anderson Schillig, 'Decentralized Autonomous Organizations (DAOs) under English Law' (2022) 16 *Law and Financial Markets Review* 68; Zhou (n 26).

<sup>42</sup> Srinivasan (n 15) 62: 'Examples of pre-existing states integrating with the network include (a) El Salvador's integration with the Bitcoin network, (b) Wyoming's decentralised autonomous organisation (DAO) law and Norway's cap table bill, which are integrations with the Ethereum network, and (c) places like Estonia and Singapore, where every government workflow is already online. In each of these cases, cities and states are fusing with networks to ship new services that are useful to citizens.'

transformation. This facilitates the realization of digitization-based economic systems, as exemplified by tokenomics.

The flexibility of DAOs allows for the organization of social life during exceptional circumstances caused by either human-made or natural events, even in cases in which decentralization is forced. When considering the reasons for the emergence of the Internet, DAOs represent an organized solution for communities to act through the network.<sup>43</sup>

The initial considerations lead to significant implications for social scientists and legal experts. The current period is characterized by substantial institutional change, a phenomenon that has been consistently observed throughout history. The result of this change is impacted by different elements, such as external factors like geopolitics and those that can be controlled and governed.

To achieve this, one must demonstrate both courage and humility.<sup>44</sup> It is crucial to look forward, learn from experiences, and recognise the constraints of current times.

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<sup>43</sup> André Guskow Cardoso, 'Decentralized Autonomous Organizations – DAOs: The Convergence of Technology, Law, Governance, and Behavioral Economics' (2023) MIT Computational Law Report <<https://law.mit.edu/pub/decentralizedautonomousorganizations/release/1>> accessed 22 May 2024.

<sup>44</sup> Oscar Borgogno, 'Making Decentralized Autonomous Organizations (DAOs) Fit for Legal Life: Mind the Gap' (2022) 718 *Questioni di Economia e Finanza – Banca d'Italia* (Occasional Papers) 21 <[https://www.bancaditalia.it/pubblicazioni/qef/2022-0718/QEF\\_718.pdf](https://www.bancaditalia.it/pubblicazioni/qef/2022-0718/QEF_718.pdf)> accessed 22 May 2024.

**Abstract:**

The rapid advancement of digitization and decentralization is heralding a new era in social and economic organization. As nation-states grapple with the impact of (post-)globalization and technological innovation, increasing attention is being paid to blockchain technology's potential to enable the emergence of new governance structures, such as decentralized autonomous organizations (DAOs) and network states. This chapter analyzes whether DAOs could provide a viable framework for addressing the needs of future societies while maintaining fundamental principles such as democratic processes and the rule of law.

**Keywords:** Decentralized Autonomous Organization (DAO); network state; nation-state; decentralization; internet; governance.

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