



Article

# Decentralized Web3 Reshaping Internet Governance: Towards the Emergence of New Forms of Nation-Statehood?

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**Abstract:** This article explores how decentralized Web3 is reshaping Internet governance by enabling the emergence of new forms of nation-statehood and redefining traditional concepts of state sovereignty. Based on fieldwork conducted in Silicon Valley since August 2022, this article systematically addresses the following research question: How is decentralized Web3 reshaping Internet governance and influencing the rise in new nation-statehood paradigms? It compares three emerging paradigms around Web3: (i) Network States (Srinivasan), envisioning digital entities rooted in crypto-libertarian principles; (ii) Network Sovereignities (De Filippi), emphasizing communal governance aligned with digital commons; and (iii) Algorithmic Nations (Calzada), drawing on Arendtian thought and demonstrating how communities—such as indigenous and stateless groups, as well as e-diasporas—can attain self-determination through data sovereignty. This article contributes a unique conceptual analysis of these paradigms based on fieldwork action research in Silicon Valley, responding to evolving technologies and their potential to reshape Internet governance. This article argues that decentralized Web3 provides a transformative vision for Internet governance but requires careful evaluation to ensure that it promotes inclusivity and equity. It advocates for a hybrid approach that balances global and local dynamics, emphasizing the need for solidarity, digital justice, and an internationalist perspective in shaping future Internet governance protocols.

**Keywords:** Web3; internet governance; decentralization; blockchain; decentralized autonomous organizations; data co-operatives; network states; network sovereignities; algorithmic nations



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## 1. Introduction: Beyond Traditional Nation-State Formations?

The modern nation-state, established by the Treaty of Westphalia in 1648, has long served as the cornerstone of global governance, embodying territorial integrity and sovereignty. However, in the wake of globalization and algorithmic advancements—particularly with the rise in platforms and Big Tech firms [1,2]—the traditional Westphalian model is undergoing fundamental rescaling [3–5]. Nation-states, once the sole arbiters of sovereignty, now face challenges from digital citizenship, decentralized technologies, and the fluid nature of identity formation [6,7].

This article’s main contribution is a systematic exploration of the following research question: *How is decentralized Web3 reshaping Internet governance and influencing the rise in new nation-statehood paradigms?* In addressing this question, this article examines how

decentralized Web3 paradigms are reconfiguring the relationship between governance, territory, and citizenship. Increasingly, Big Tech firms—also known as data-opolies—have assumed roles traditionally held by nation-states [2], such as surveillance and governance. This shift is leading to the deterritorialization of citizenship and a reimagining of political structures [8]. Contrary to libertarian beliefs that decentralization would dismantle state structures, these developments suggest a transformation in how sovereignty and governance are exercised [9–12].

The concept of rescaling—wherein global and local forces interact to reshape state functions—has profound implications for the future of governance. This rescaling is evident in the rise in city-regional governance and the increasing prominence of digital platforms as arbiters of power, challenging the traditional Westphalian model [13–15]. As new forms of nation-statehood emerge, the intersection of platforms and governance will play a critical role in shaping sovereignty, transparency, and techno-political futures [16].

The rise in decentralized digital citizenship regimes [11], facilitated by blockchain technologies, exemplifies the ongoing shift toward more fluid, decentralized forms of identity and community. These developments raise essential questions about the future of citizenship and the role of nation-states in an increasingly digital world. As digital platforms evolve, the concept of the state itself may need to be reimagined, with broad implications for global governance and the future of the international order including paradiplomatic practices exacerbating the use of the Metaverse and ChatGPT, among other disruptive technologies [17].

Inspired by emerging trends in territorial engineering within Silicon Valley [18] and the concept of Network States [19], this article conducts a comparative analysis of three interrelated Web3 paradigms: Network States, Network Sovereignties, and Algorithmic Nations. Rooted in extensive fieldwork conducted since August 2022 (e.g., the Stanford DAO Workshop 2022 and 2023; <https://www.youtube.com/watch?v=mTT0tCix43E>, accessed on 10 September 2024), which will be expanded on in the third section of this article, this article hypothesizes that resistance to centralized data control and state structures is catalyzing a global movement toward decentralized technologies. This movement advocates for decentralization, challenging traditional nation-state frameworks while promoting a new political ideology based on peer-to-peer (P2P) networks and individual sovereignty. Paradoxically, it also promotes community-oriented advancements.

This research is extremely timely and contributes to shedding light on an ongoing discussion that requires further academic systematization and the inclusion of a wide range of disciplines and plural profiles (<https://www.plurality.net/>, accessed on 10 September 2024). The timely discussion can be portrayed as follows: On the one hand, Balaji's mainstream approach deploys a global influence on the Network State paradigm—*The Network State Conference 2024* (<https://www.youtube.com/watch?v=OWEGg-ZTtSE>, accessed on 10 September 2024). On the other hand, Primavera de Filippi's alternative construction on Network Sovereignties responds to Balaji's paradigm (<https://www.youtube.com/watch?v=F-ckcvpSttA>, accessed on 10 September 2024). Consequently, the author of this article takes an interpretative position by comparing both paradigms and adding a third one (Algorithmic Nations), enhancing the comparison beyond a binary conceptual notion and giving voice to voiceless translocal perspectives. In doing so, this article does not aim to introduce a new methodology; rather, it inclusively contributes to discussing potential emerging forms of nation-statehood that arise from the convergence and evolution of existing technologies.

This article is structured as follows: After this introduction, this article focuses on describing how decentralized Web3 may have emerged around Silicon Valley [18,19]. Then, after presenting the research design of the field, it presents the fieldwork findings through a comparative analysis of three coexisting paradigms. This article ends by encouraging further debates on this topic that will inevitably affect global governance and the Internet. Additionally, final remarks revolve around the limitations of this study and future research avenues.

## 2. Literature Review: Decentralized Web3 Mapping New Forms of Nation-Statehood as a Map in Search of a Territory

The rise in decentralized Web3 technologies has ignited a global conversation about how sovereignty, governance, and identity are being redefined in the digital age. As the traditional Westphalian model of nation-state sovereignty encounters new challenges, particularly from technological innovations like blockchain, decentralized autonomous organizations (DAOs), and peer-to-peer networks, these technologies offer an alternative framework for organizing power. Rather than reinforcing centralized structures, decentralized Web3 models advocate for distributed governance, where individuals and communities assert sovereignty beyond the confines of nation-states. This section delves into the evolution of the libertarian ideology behind Web3 and examines how thinkers from various fields have contributed to the conceptualization of these new forms of governance. By exploring the ideological foundations and technological advancements driving Web3, this review maps the emergence of decentralized nation-statehood and highlights how these developments are reshaping global digital governance.

The global political and economic landscape is undergoing a profound transformation, driven in large part by the decentralized principles of Web3 technologies. Central to this shift is Silicon Valley's distinctive (crypto-)libertarian culture, which promotes individual autonomy, minimal government intervention, and the decentralization of power [18,20–27]. These principles directly challenge traditional models of governance and sovereignty, marking a fundamental departure from the centralized control inherent to the Westphalian nation-state system.

The roots of this libertarian Web3 ideology can be traced to John Perry Barlow's *A Declaration of the Independence of Cyberspace* [20]. In this manifesto, Barlow advocated for a cyberspace free from governmental control, where individuals could operate independently, guided by the principles of self-regulation and autonomy. This vision laid the foundation for decentralized digital governance, rejecting centralized authority in favor of peer-to-peer networks. Barlow's ideas were instrumental in shaping blockchain technology and the broader Web3 movement, which seeks to redistribute power among users rather than concentrating it within centralized entities. His advocacy for decentralization and individual empowerment is fundamental to the Web3 movement's challenge to traditional nation-statehood, where governance is no longer confined to territorial boundaries but distributed across a global digital network.

Building on Barlow's vision, Timothy C. May's *The Crypto Anarchist Manifesto* [28] reinforced the core tenets of Web3 by introducing cryptography as a tool for individual empowerment and resistance to state control. May envisioned a future in which encryption would enable secure, anonymous interactions, beyond the reach of governments. His emphasis on cryptographic technologies, such as blockchain, provided the practical infrastructure for achieving political and economic autonomy in a decentralized world. May's ideas directly influenced the development of blockchain and cryptocurrency, both central to the decentralized Web3 movement, which aims to reshape governance and sovereignty by empowering individuals and communities to operate independently of traditional state mechanisms.

The evolution of decentralized sovereignty is further analyzed in Benjamin Bratton's *The Stack: On Software and Sovereignty* [21]. Bratton conceptualizes modern sovereignty as a series of interconnected layers, from Earth to User, each of which affects how power is exercised and contested in the digital age. This layered understanding of sovereignty illustrates how technologies like blockchain and decentralized autonomous organizations (DAOs) are reshaping governance. Bratton argues that these technologies challenge the hierarchical control structures of the Westphalian state by enabling new forms of digital sovereignty. As power becomes more distributed through these technologies, governance moves away from state-centric models, contributing to the emergence of new forms of nation-statehood that transcend traditional territorial boundaries.

Moreover, Julia Black's [29] work on *decentered regulation* is highly relevant to the libertarian Web3 ideology. She argues that regulation is increasingly shaped by a variety of actors, including private entities and self-regulatory bodies, rather than being controlled solely by the state. This concept aligns with the Web3 movement's emphasis on decentralized governance, where power is distributed across networks and communities rather than centralized. Additionally, Black's idea of *regulatory reflexivity*—the need for regulatory systems to be flexible and adaptive to complex, modern societies—supports the Web3 ideology, which advocates for more responsive and participatory forms of governance enabled by technologies like blockchain and DAOs. Her work provides a strong theoretical foundation for the viability and effectiveness of the decentralized, community-driven governance models central to the libertarian Web3 ideology.

In their 2018 work, Frank Pasquale and Arthur Cockfield [8] discuss the concept of *functional sovereignty*, which is highly influential for the second paradigm Network Sovereignities suggested by De Filippi et al. [30,31]. Functional sovereignty examines how sovereignty is increasingly being exercised by powerful non-state actors, such as multinational corporations and digital platforms, that control critical functions traditionally managed by nation-states [32,33]. The authors argue that these entities are beginning to operate with a level of autonomy and influence that rivals or even surpasses that of traditional governments, effectively reshaping the landscape of global governance. This concept of functional sovereignty directly supports the libertarian Web3 ideology, which advocates for the decentralization of power away from both state and corporate monopolies. By enabling decentralized networks where power is distributed among individuals and communities rather than concentrated in the hands of a few dominant players, the Web3 movement offers a way to reclaim sovereignty in the digital age. Pasquale and Cockfield's analysis underscores the need for alternative governance models that can counterbalance the growing influence of these powerful entities, making a compelling case for the adoption of Web3 technologies that promote transparency, accountability, and individual autonomy.

Adams [34] provides a critical framework for understanding the intimate entanglement of digital practices with everyday life, emphasizing how digital spaces and practices are deeply intertwined with personal and political identity. This perspective highlights the increasing significance of decentralized digital practices as a response to the pervasive control exerted by centralized institutions, such as state structures and corporate monopolies. In this context, the libertarian Web3 ideology can be seen as not only a reaction against the concentrated power of *data-polities* but also as a natural extension of the broader movement toward reclaiming individual autonomy in the digital age. By facilitating decentralized interactions and peer-to-peer networks, the Web3 movement aligns with the need to disentangle from traditional forms of authority, offering a pathway toward new forms of self-governance and sovereignty that are more closely aligned with the lived experiences and intimate politics of digital citizens [35]. Thus, the existence of the libertarian Web3 ideology is both a reflection and a reinforcement of the growing demand for digital practices that prioritize individual sovereignty and decentralized power structures.

These authors may have contributed to the emergence of the libertarian Web3 ideology as follows: Niklas Luhmann's [36] systems theory emphasizes self-organizing networks, which aligns with the autonomous structures of the Web3 ideology. Lawrence Lessig's [37] *Code is Law* concept underscores how digital architecture can shape behavior, reinforcing the potential for blockchain to enforce decentralized governance. Paul Dragos Aligica and Vlad Tarko's [38] work on polycentric governance models supports the viability of non-hierarchical, overlapping authorities within Web3 systems. Alexander R. Galloway and Eugene Thacker's [39] exploration of protocological control provides a nuanced understanding of the power dynamics inherent in decentralized networks. Marvin Harris's [40] cultural materialism suggests that economic and technological shifts, such as those introduced by Web3, are key drivers of social transformation. Manuel Castells' [41] theory of the network society offers a macro-level perspective on how global networks reconfigure power, highlighting the global influence of Web3 technologies. James Dale Davidson and



Lord William Rees-Mogg [42] predict the decline in nation-states in the face of digital technologies, which resonates with Web3's challenge to traditional state authority. Finally, Kevin Carson's [43] analysis of mutualist economics emphasizes decentralization and voluntary cooperation, reflecting the economic principles underpinning the Web3 movement's pursuit of digital and financial autonomy. Each of these thinkers provides crucial insights into the principles, dynamics, and implications of the emerging libertarian Web3 ideology.

More recently though, Malcolm Harris [44] underscores how the ideology of Silicon Valley, rooted in the countercultural movements of the 1960s and 1970s, has shaped a generation of technologists and entrepreneurs who prioritize technological innovation as a pathway to personal and societal liberation. This environment fostered the conditions for the development of blockchain technology, a distributed ledger system that eliminates the need for central authorities, thereby resonating deeply with libertarian ideals [30,45,46].

John Cheney-Lippold [47,48] further elaborates on this libertarian vision, noting how Silicon Valley has reimagined citizenship in digital terms, transforming individuals into nodes within a vast network governed by algorithms rather than by traditional state mechanisms [49–51]. This digital transformation is epitomized by the rise in blockchain technology, which empowers individuals to interact and transact in a decentralized manner, free from the oversight of traditional financial institutions and governments.

Rob Lalka [52] adds that the libertarian culture of Silicon Valley has not only nurtured the development of blockchain but also facilitated the emergence of Ethereum, a decentralized platform envisioned by Vitalik Buterin [53]. Ethereum extends the principles of blockchain beyond currency, enabling the creation of decentralized applications (dApps) and smart contracts that operate independently of central authorities. This innovation represents a radical departure from the hierarchical structures of the Westphalian nation-state, offering a glimpse into a future where governance and societal organization are increasingly decentralized and democratized.

Vitalik Buterin, as the co-founder of Ethereum, has played a crucial role in shaping the decentralized landscape beyond the financial realm. His entrepreneurial perspective is particularly relevant to the discussion of new forms of nation-statehood, as Ethereum's creation of decentralized applications (dApps) and smart contracts extends blockchain's potential into governance, legal systems, and societal organization. Buterin's vision emphasizes the importance of decentralization as a means of experimentation in governance structures, providing frameworks that empower individuals and communities to self-organize outside of traditional state mechanisms. In his critique of Balaji Srinivasan's *Network State*, Buterin argues that while the creation of digital communities holds promise, these initiatives should not merely mimic traditional hierarchical structures or sovereign entities. Instead, he advocates for more fluid and community-centric models of governance, as reflected in his support for decentralized autonomous organizations (DAOs) and public goods funding within Ethereum's ecosystem. Buterin's ideas align more closely with concepts like *Network Sovereignities*, championing decentralized networks that prioritize inclusivity and collective decision-making, rather than reinforcing existing state or corporate monopolies. His contributions underscore the entrepreneurial drive behind blockchain technologies, but with a critical lens on how decentralization can reshape governance in a more equitable and inclusive way (<https://vitalik.eth.limo/general/2022/07/13/networkstates.html>, accessed on 10 September 2024).

The convergence of these technological advancements and Silicon Valley's libertarian ideology has paved the way for a reimagining of techno-political futures, where power is diffused across peer-to-peer networks rather than concentrated in the hands of nation-states or corporate monopolies. This shift is fundamentally altering the landscape of global governance, challenging the traditional Westphalian model and laying the groundwork for new forms of digital sovereignty. Thus, the decentralization of power and governance, facilitated by technologies such as blockchain, has been a key driver of the new forms of nation-statehood. DAOs, data cooperatives [54], and platforms like *HanHemen* [55] and *e-Estonia* [56] are emblematic of this trend, enabling communities to assert collective

sovereignty and participate in governance beyond the confines of the nation-state. These decentralized technologies are not merely tools for governance; they are catalysts for a broader transformation in how we understand sovereignty, citizenship, and identity in the digital age. The rise in Web3 technologies, with their emphasis on decentralization and peer-to-peer networks, further accelerates this shift, challenging the hegemony of centralized power structures [57].

### 3. Research Design of the Fieldwork and Results: Comparing Three Paradigms

#### 3.1. Research Design of the Fieldwork

This study employs a rigorous action research methodology, structured around three intertwined milestones, to explore the evolving landscape of decentralized governance and the role of Web3 technologies in challenging traditional nation-state structures. The research design was driven by the hypothesis that decentralized technologies—particularly those centered around peer-to-peer (P2P) networks and blockchain—are emerging as powerful alternatives to centralized governance models, often referred to as “data-opolies”, characterized by rent-seeking behaviors and surveillance practices. Through a cyclical process of planning, acting, observing, and reflecting, this research draws on extensive fieldwork in diverse contexts, including the Global North and Global South, and integrates a variety of data collection methods, including participant observation, semi-structured interviews, and focus group discussions. The triangulation of these methods allowed for a more nuanced understanding of how decentralized systems are being used to redefine sovereignty, governance, and citizenship in the digital era. The analysis was conducted across three key paradigms—Network States, Network Sovereignties, and Algorithmic Nations—providing a comprehensive comparison that informs this study’s conclusions regarding the ethical and practical implications of these emerging governance models.

*Hypothesis:* Guided by the following hypotheses, this study explores how the counter-reaction against data-opolies and the rejection of state structures, characterized by rent-seeking and surveillance, might be fueling a global movement around Web3 decentralized technologies [18]. This movement advocates for decentralization and challenges traditional nation-state structures in every conceivable form.

*Research Design Through Three Intertwined Milestones Based on Action Research Methodology* [58] (Table 1): Action research, as a methodological guideline, is particularly valuable in contexts where real-world application and continuous learning are central to the research process. Its participatory nature involves not only the researchers but also community stakeholders, allowing for a cyclical process of planning, acting, observing, and reflecting. The significance of action research lies in its ability to directly engage with real-world challenges and iteratively develop solutions in a manner that evolves alongside those challenges. Consequently, this article employs an action research methodology to explore the transformative potential of the libertarian P2P Web3 ideology through three intertwined milestones within the timeframe August 2022–October 2024, as follows:

**Table 1.** Research Design Through Three Intertwined Milestones. Based on Action Research Methodology [58].

		Fieldwork: 3 Intertwined Milestones for Action Research Design (August 2022–October 2024)					
Milestones		2022		2023		2024	
1.	Fulbright S-I-R	○	August 2022 < Fulbright S-I-R, California, USA ○ <a href="https://fulbright.org.uk/people-search/igor-calzada/">https://fulbright.org.uk/people-search/igor-calzada/</a> ○ <a href="https://www.csub.edu/basquestudies/fulbright-scholar-residence.shtml">https://www.csub.edu/basquestudies/fulbright-scholar-residence.shtml</a> ○ <a href="https://wiserd.ac.uk/news/dr-igor-calzada-successfully-culminates-his-role-as-fulbright-scholar-in-residence-in-california/">https://wiserd.ac.uk/news/dr-igor-calzada-successfully-culminates-his-role-as-fulbright-scholar-in-residence-in-california/</a> ○ <a href="https://wiserd.ac.uk/blog/international-comparative-and-action-research-triangulating-wales-with-the-basque-country-and-california/">https://wiserd.ac.uk/blog/international-comparative-and-action-research-triangulating-wales-with-the-basque-country-and-california/</a>	○	HanHemen e-diaspora platform Web3 design: ○ <a href="https://hanhemen.eu/en/the-global-basque-community-boosts-the-diaspora/">https://hanhemen.eu/en/the-global-basque-community-boosts-the-diaspora/</a>	○	May 2024: Sovereignty Workshop (Bilbao, Spain) ○ September 2024: AI4SI International Summer School (Donostia, Spain) ○ <a href="https://www.uik.eu/en/activity/artificial-intelligence-social-innovation-ai4si">https://www.uik.eu/en/activity/artificial-intelligence-social-innovation-ai4si</a> ○ Estonia e-Residence SSRN preprint: ○ <a href="https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4887026">https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4887026</a> (accessed on 1 October 2024).
2.	DRC	○	August 2022 < Stanford University ○ <a href="https://thedrcenter.org/fellows-and-team/igor-calzada/">https://thedrcenter.org/fellows-and-team/igor-calzada/</a> ○ <a href="https://www.projectliberty.io/">https://www.projectliberty.io/</a> ○ <a href="https://metagov.org/">https://metagov.org/</a>	○	August 2023: Stanford University ○ <a href="https://www.youtube.com/watch?v=mTT0tCix43E">https://www.youtube.com/watch?v=mTT0tCix43E</a>	○	June 2024: Equitable Tech Summit (Washington DC, US) ○ August 2024: RGS International Annual Conference, Digital Territories (London, UK) ○ <a href="https://www.regionalfutures.org/all-outputs/rgs-cfp2024">https://www.regionalfutures.org/all-outputs/rgs-cfp2024</a> ○ September 2024: Data Power Conference (Graz, Austria, and Bangalore, India)
3.	SOAM/ BlockchainGov					○	May–October 2024: ○ <a href="https://soam.earth/work/">https://soam.earth/work/</a> ○ <a href="https://blockchaingov.eu/">https://blockchaingov.eu/</a> July 2024: Edge Esmeralda ○ BlockchainGov/SOAM SSRN preprint: ○ <a href="https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4937294">https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4937294</a> (accessed on 1 October 2024).

(i) *Fulbright Scholar-In-Residence (S-I-R) and the Director of the International Summer School AI4SI 2024*: Since August 2022, the author, as a Fulbright Scholar in California (<https://fulbright.org.uk/people-search/igor-calzada/>, accessed on 10 September 2024), has engaged in extensive fieldwork aimed at critically examining and participating in the development of decentralized technologies and their implications for global governance and sovereignty in the Global North and Global South. In response to the enduring Westphalian mindset that continues to dominate debates around sovereignty in the Global North (<https://www.ehu.eus/en/web/gizarte-komunikazio-zientzien-fakultatea/-/subiranotasuna-k-aztergai-iv-kongresua>, accessed on 10 September 2024), the author of this article has directed the Summer School *AI4SI: Artificial Intelligence for Social Innovation? Beyond the Noise of Datafication and Algorithms* (<https://www.uik.eus/en/activity/artificial-intelligence-social-innovation-ai4si>, accessed on 10 September 2024), which aimed to stimulate critical debates on the intersection of Web3, AI, and decentralized technologies between the Global North and Global South. This Summer School particularly focused on reinterpreting state techno-political structures and digital dynamics, with a view towards fostering alliances between the Global South and Global North to promote digital justice in global governance [58,59].

(ii) *Decentralization Research Centre (DRC) Fellow*: The research presented here is the result of ongoing fieldwork, initiated in August 2022, which includes insights gathered from the Stanford DAO Workshops 2022 and 2023 (<https://www.youtube.com/watch?v=mTT0tCix43E>, accessed on 10 September 2024). The fieldwork also included collaborations with the Decentralization Research Centre (<https://thedrcenter.org/fellows-and-team/igor-calzada/>, accessed on 10 September 2024), which connects with flagship projects such as Project Liberty (<https://www.projectliberty.io/institute/>, accessed on 10 September 2024) and MetaGov (<https://metagov.org/>, accessed on 10 September 2024). These engagements have allowed the author to gather rich, firsthand insights into the ways decentralized platforms are challenging and reshaping traditional nation-state structures. The findings from this ongoing fieldwork action research have been disseminated through various channels, including a paper presented at the Royal Geographical Society RGS-IBG Annual International Conference in London, focusing on “Digital Territories” under the Regional Futures ERC project led by Professor Ayona Datta (<https://www.regionalfutures.org/all-outputs/rgs-cfp2024>, accessed on 10 September 2024). The new forms of nation-statehood refer to the evolving global order where the sovereignty of nation-states is increasingly challenged by digital technologies, decentralized governance models, and transnational networks. Unlike the Westphalian model, which was predicated on clear territorial boundaries and centralized power, the new forms of the nation-statehood framework are fluid, borderless, and driven by the logic of data and algorithms. In the paper presented at the RGS-IBG International Annual Conference 2024, the author compared these three paradigms. These states represent a new form of political organization where data governance, digital identities, and decentralized networks play a central role in shaping sovereignty and citizenship.

(iii) *SOAM Network Sovereignities Residence Programme/ERC BlockchainGov*: This research was conducted through active participation in key initiatives such as the SOAM Residence Programme (<https://soam.earth/>, accessed on 10 September 2024), which centers on the concept of Network Sovereignities. This program has been instrumental in fostering collaborations with a diverse group of scholars and changemakers who are reimagining sovereignty beyond traditional state boundaries. Further fieldwork was carried out at the Research Workshop and Public Conference organized by the BlockchainGov ERC project (<https://cordis.europa.eu/project/id/865856/results>, accessed on 10 September 2024), led by Dr. Primavera De Filippi, during the Edge Esmeralda event in Healdsburg, Sonoma County, California (<https://www.edgeesmeralda.com/>, accessed on 10 September 2024). This event, titled *Exploring Coordi-Nations and Network Sovereignities*, facilitated dynamic exchanges among entrepreneurs, activists, and scholars, establishing a vibrant Web3 ecosystem of non-state stakeholders. These stakeholders advocate for the adoption of emerging



decentralized technologies, including blockchain, DAOs [57], and data cooperatives, which are central to the ideology being studied [17].

*Data Collection:* To improve the clarity and reproducibility of the methods, this article elaborated on the data collection process, which employed a triangulation methodology combining qualitative methods such as participant observation, semi-structured interviews, and focus group discussions. The data were iteratively collected through notes and insights at key events such as the Stanford DAO Workshops, SOAM sessions, DRC events, the Edge Esmeralda and RGS Conferences, the Sovereignty Workshop, and AI4SI International Summer School, and through shared findings with the BlockchainGov ERC project research team. Each engagement was designed to gather in-depth, firsthand information from thought leaders and practitioners at the forefront of decentralized governance. For the analysis, the author employed a thematic analysis approach to identify key patterns and themes related to digital sovereignty, peer-to-peer governance, and data cooperatives across the three paradigms (Network State, Network Sovereignities, and Algorithmic Nations). By tentatively (neither empirically nor predictively) comparing these themes across case studies such as Cabin, Afropolitan, Regen Network, and others, this study draws on rich qualitative data that allow for a nuanced understanding of how decentralized systems challenge traditional nation-state structures.

*Potential Impact:* To further strengthen the research design and its potential impact, the fieldwork and action research methodology outlined in this study have been rigorously structured through three intertwined milestones that span from August 2022 to October 2024. The ongoing engagement with various initiatives and platforms—including Fulbright, the Decentralization Research Centre (DRC), and the SOAM Network Sovereignities Residence Programme—provides a rich foundation for critical insights into the transformative role of Web3 and decentralized governance technologies. Each milestone has been selected to examine different aspects of how decentralized systems are reshaping global governance and sovereignty, while fostering transdisciplinary collaboration between scholars, technologists, and policymakers.

These milestones reflect a comprehensive action research approach, drawing on both immersive fieldwork and scholarly participation across leading-edge events and projects. For example, back in August 2022, the *Stanford DAO Workshops* provided firsthand access to the development and challenges of decentralized autonomous organizations (DAOs) in reshaping governance models, particularly in contexts that challenge traditional nation-state frameworks. Similarly, later on, in May 2024, the *SOAM Network Sovereignities Programme* and *BlockchainGov* ERC project led by Dr. Primavera de Filippi facilitated engagement with alternative governance models focused on communal and non-state sovereignities.

Furthermore, the *AI4SI International Summer School*, directed by the author, serves as an experimental platform where researchers from the Global North and South engage in critical debates on the intersection of AI, Web3, and decentralized technologies, offering a comparative global perspective on how these technologies affect different governance systems. The inclusion of digital justice and equity frameworks further elevates the research's societal relevance and potential impact, ensuring that decentralized technologies are evaluated not only for their technological innovation but also for their potential to foster inclusivity in global governance.

By positioning the research within these interconnected global and academic ecosystems, the design not only allows for an in-depth exploration of emerging governance paradigms but also ensures that the findings are embedded within real-world practices and interdisciplinary dialogue. This comprehensive approach increases the replicability of this study and strengthens its potential impact, contributing to the ongoing academic and policy discussions around decentralized governance, sovereignty, and Web3 technologies.

With the addition of Table 1, which outlines the milestones and key timelines, the research design now provides clear, actionable steps for future scholars and practitioners to replicate or extend these findings in other contexts, further enhancing this study's methodological rigor and applicability.

This action research approach, rooted in immersive fieldwork and collaborative engagements, provides a robust methodological framework for understanding the new emerging forms of nation-statehood driven by the libertarian Web3 ideology [22,60]. The rise in a decentralized platformization trend, as observed through case studies such as (i) *Cabin*, (ii) *Afropolitan*, (iii) *Edge City*, (iv) *Embassy Network*, (v) *Regen Network*, (vi) *Burning Man Foundation*, (vii) *HanHemen* e-diaspora platform, (viii) *e-Estonia* residence program, (ix) *RefiDAO*, and (x) *Designing Opportunities* platform connecting the Global South and North, exemplifies the spread of this ideology and its challenge to traditional models of sovereignty. The convergence of AI and data governance within this context further highlights the emergence of new paradigms that question the very foundations of the nation-state power, role, and function. These findings will inform the comparative analysis of the three emerging paradigms, which is the focus of this discussion.

As a result of the fieldwork research, three paradigms can be distinguished. Each paradigm has been examined across five layers (Table 2): (i) ideological, (ii) governance, (iii) development and economic, (iv) technological, and (v) territorial and legal.

**Table 2.** Comparative Analysis of Three Paradigms.

Layer	NETWORK STATE	NETWORK SOVEREIGNTIES	ALGORITHMIC NATIONS
<b>1. Ideological</b>	<b>Crypto-Libertarian Worldview</b>	<b>Commons-Centric Worldview</b>	<b>Emancipatory–Transnational Worldview</b>
<i>Core Principles</i>	<ul style="list-style-type: none"> <li>• Startup Society</li> <li>• Sovereign Individuals</li> <li>• Market-Driven Governance</li> <li>• Financialization of Social Relationships</li> <li>• Techno-Solutionism and Techno-Utopianism</li> </ul>	<ul style="list-style-type: none"> <li>• Commons-Based Communities</li> <li>• Interdependent Individuals</li> <li>• Collaborative Governance</li> <li>• Public Goods and Commons Stewardship</li> <li>• Technological Stewardship and Ethics</li> </ul>	<ul style="list-style-type: none"> <li>• Community Empowerment</li> <li>• Culturally Rooted Self-Determination</li> <li>• Transnational Cooperation and Solidarity</li> <li>• Ethical Use of Technology</li> <li>• Decentralized and Inclusive Governance</li> <li>• Critical of Statism and Market Radicalism: <i>Data Cooperatives</i></li> </ul>
<b>2. Governance</b>	<b>Structure and Legitimacy</b>		
<i>2.1. External Legitimacy</i>	<ul style="list-style-type: none"> <li>• Compliance with international law and criteria of statehood</li> </ul>	<ul style="list-style-type: none"> <li>• Ethical governance, avoiding negative externalities</li> </ul>	<ul style="list-style-type: none"> <li>• Legitimacy through community impact, cultural alignment, and ethical technology use</li> </ul>
<i>2.2. Internal Legitimacy</i>	<ul style="list-style-type: none"> <li>• Consent-based, financially invested members</li> <li>• Social smart contracts for rule enforcement</li> </ul>	<ul style="list-style-type: none"> <li>• Strongly consent-based, reflecting shared community values</li> </ul>	<ul style="list-style-type: none"> <li>• Inclusivity, transparency, and community consent</li> </ul>
<i>2.3. Power Distribution</i>	<ul style="list-style-type: none"> <li>• Centralized in key figures (e.g., Founder, CEO) but limited by governance protocols</li> </ul>	<ul style="list-style-type: none"> <li>• Participatory governance with wide power distribution</li> <li>• Subsidiarity principle</li> </ul>	<ul style="list-style-type: none"> <li>• Decentralized, algorithm-mediated decision-making and deliberation (the right to decide).</li> </ul>
<i>2.4. Association and Membership</i>	<ul style="list-style-type: none"> <li>• Voluntary with financial contributions</li> <li>• Fluid and transactional identity</li> </ul>	<ul style="list-style-type: none"> <li>• Voluntary but complex exit due to deep ties</li> </ul>	<ul style="list-style-type: none"> <li>• Voluntary with a focus on collective identity in the making</li> </ul>
<i>2.5. Identity and Belonging</i>	<ul style="list-style-type: none"> <li>• Centered around a core principle or goal</li> <li>• <i>Single-issue society</i></li> </ul>	<ul style="list-style-type: none"> <li>• Rooted in shared cultural, historical, and future-oriented narratives</li> </ul>	<ul style="list-style-type: none"> <li>• Rooted in cultural and historical narratives, enhanced by technology for digital sovereignty and a sense of belonging</li> </ul>
<b>3. Development and Economic</b>	<b>Market-Driven and Transactional</b>	<b>Commons-Driven and Mutualistic</b>	<b>Endogenously Developed through Cooperativism</b>
<i>3.1. Modes of Development</i>	<ul style="list-style-type: none"> <li>• Transactional-, efficiency-, and scalability-focused</li> </ul>	<ul style="list-style-type: none"> <li>• Commons-driven, cosmo-local, and mutualistic</li> </ul>	<ul style="list-style-type: none"> <li>• Endogenous, culturally informed data cooperative models</li> </ul>
<i>3.2. Storage and Exchange of Value</i>	<ul style="list-style-type: none"> <li>• On-chain monetarism using cryptocurrencies</li> </ul>	<ul style="list-style-type: none"> <li>• Alternative, possibly non-monetary systems</li> </ul>	<ul style="list-style-type: none"> <li>• Data-driven, ethically aligned systems reflecting community values for <i>Digital Foundational Economies</i></li> </ul>

Table 2. Cont.

Layer	NETWORK STATE	NETWORK SOVEREIGNTIES	ALGORITHMIC NATIONS
<b>4. Technological</b>		<b>Relationship with Technology</b>	
<i>4.1. Technological Approach</i>	<ul style="list-style-type: none"> <li>• Technology-first, blockchain-centric</li> <li>• Techno-solutionism and utopianism</li> </ul>	<ul style="list-style-type: none"> <li>• Techno-augmented governance</li> <li>• Responsible innovation and techno-pragmatism</li> </ul>	<ul style="list-style-type: none"> <li>• Techno-emancipatory approach: Based on digital rights, institutional structures are interoperable, allowing data commons, as a polycentric assemblage to establish data cooperatives</li> </ul>
<b>5. Territoriality and Legal</b>		<b>Hybrid Boundaries and Strategic Compliance</b>	
<i>5.1. Relationship to Territory</i>	<ul style="list-style-type: none"> <li>• Contiguous or distributed network of landholdings</li> </ul>	<ul style="list-style-type: none"> <li>• Fluid and transnational, emphasizing sustainability</li> </ul>	<ul style="list-style-type: none"> <li>• (Stateless) City-regional framework, data devolution for localized governance</li> </ul>
<i>5.2. Relationship to Nation-State Laws</i>	<ul style="list-style-type: none"> <li>• Dual strategy: compliance for recognition and creative exploitation of laws for autonomy</li> </ul>	<ul style="list-style-type: none"> <li>• Strategic leveraging of existing laws to establish autonomous spaces</li> </ul>	<ul style="list-style-type: none"> <li>• Governance rescaling through devolution, creating decentralized, data-driven interoperable governance structures</li> </ul>

### 3.2. Research Results: Comparative Analysis of Three Paradigms

The results of this study, drawn from immersive fieldwork and ongoing collaboration with decentralized governance initiatives, highlight the transformative potential of Web3 technologies in reshaping traditional nation-state structures. The analysis reveals three distinct paradigms—Network States, Network Sovereignties, and Algorithmic Nations—that are characterized by their varying ideological, governance, economic, technological, and territorial attributes. Network States represent a crypto-libertarian, market-driven approach that emphasizes individual sovereignty, the financialization of social relationships, and startup-like governance structures. In contrast, Network Sovereignties adopt a commons-centric worldview that prioritizes collaborative governance, ethical technology use, and stewardship of public goods, rejecting the radical individualism of Network States. Finally, Algorithmic Nations emerge as a culturally rooted, emancipatory model, leveraging algorithms and data-driven governance to empower communities while promoting transnational cooperation and solidarity. This paradigm particularly focuses on ethical and inclusive governance models, where technology serves the community's cultural and social needs rather than purely economic objectives. These findings provide a comparative framework for understanding how decentralized technologies are influencing the reconfiguration of governance, sovereignty, and territoriality, offering insights into potential future developments in global governance.

#### 3.2.1. Network State [61]

Here is the definition of *Network State* as interpreted by this article: digitally native, decentralized communities that establish their own governance and social contracts, transcending traditional nation-state boundaries through the use of blockchain and other Web3 technologies to create new forms of collective identity and sovereignty.

##### Ideological Layer: Crypto-Libertarian Worldview

The ideological layer of the Network State is deeply rooted in a crypto-libertarian worldview, characterized by market-driven governance and the financialization of social relationships [62,63]. This ideology is critical of statism and highly techno-solutionist, aiming to leverage technology to create new countries from scratch [64]. Several key principles can be characterized:

- (i) **Startup Society:** The Network State operates like a startup, driven by innovation and entrepreneurship. This approach emphasizes efficiency, scalability, and a lean governance structure, mirroring the dynamics of tech startups.
- (ii) **Sovereign Individuals:** At its core, the Network State prioritizes individual autonomy, advocating for minimal state intervention and maximal personal freedom. This aligns with the broader libertarian ideal of sovereign individuals who are free to make their own choices without excessive governmental oversight.
- (iii) **Market-Driven Governance:** Governance within the Network State is primarily market-driven. Decision-making processes and governance structures are influenced by market principles, where financial incentives and competition play central roles.
- (iv) **Financialization of Social Relationships:** The Network State embodies the financialization of social relationships, where interactions and memberships are often mediated by financial contributions or transactions. This reflects the broader Web3 ideology of tokenized interactions and on-chain monetarism.
- (v) **Critical of Statism:** The Network State is inherently critical of traditional statism, viewing centralized governmental control as inefficient and often oppressive. It promotes decentralized alternatives that empower individuals and communities.
- (vi) **Techno-Solutionism and Techno-Utopianism:** The Network State is underpinned by a strong belief in techno-solutionism—the idea that technology, particularly blockchain, can solve societal problems more efficiently than traditional governance. This belief extends to techno-utopianism, where technology is seen as a path to an ideal society.



### Governance Layer: Structure and Legitimacy

The governance of the Network State is multi-faceted, with distinct approaches to both internal and external legitimacy:

- (i) **External Legitimacy:** The Network State seeks recognition on the global stage by complying with international law and the traditional criteria of statehood. This compliance is crucial for gaining diplomatic recognition and operating within the existing global order.
- (ii) **Internal Legitimacy:** Internally, the legitimacy of the Network State is consent-based, with governance structures prioritizing the interests of financially invested members. This consent is often formalized through social smart contracts, where *code is law*, ensuring that rules are transparently enforced through cryptographic means.
- (iii) **Power Distribution and Decision-Making:** Power within the Network State is distributed in a manner reminiscent of a tech startup. A Founder or CEO, along with a core group of engineers, typically holds administrative privileges, although these are limited by the rules encoded in the network's governance protocols. Decision-making is thus both centralized in key figures and decentralized through community consensus.
- (iv) **Association and Membership:** Membership in the Network State is voluntary, with entry often requiring a financial contribution, which suggests an entrance barrier for those that cannot afford it. The process of joining or leaving the Network State is streamlined through digital ID verification, making association fluid and transactional.
- (v) **Identity and Belonging:** The Network State fosters a sense of identity and belonging that is centered around a core principle or goal, often described as a *single-issue society*. This soft alignment around a central ideology helps maintain cohesion within the decentralized structure.

### Development and Economic Layer: Market-Driven and Transactional

Development within the Network State is characterized by its market-driven, highly financialized nature:

- (i) **Modes of Development:** The Network State develops in a manner that is highly transactional and market-driven. The focus is on efficiency, scalability, and financial viability, with development processes often mirroring those of successful startups.
- (ii) **Storage and Exchange of Value:** Economic activities within the Network State are facilitated through on-chain monetarism, utilizing cryptocurrencies like Bitcoin. This on-chain economy ensures transparency, security, and decentralization in the storage and exchange of value.

### Technological Layer: Relationship with Technology

The Network State's relationship with technology is central to its existence and operations:

- (i) **Technology-First Approach:** The Network State is built on a *technology-first* philosophy, where technological solutions, particularly blockchain, are at the forefront of governance and social organization.
- (ii) **Techno-Solutionism and Utopianism:** As mentioned earlier, the Network State embodies techno-solutionism and techno-utopianism, viewing technology as the primary means to achieve social and political ideals.

### Territoriality and Legal Layer: Hybrid Boundaries and Strategic Compliance

The Network State's approach to territory and its relationship with existing nation-states are as follows:

- (i) **Relationship to Territory:** The Network State is bound to a contiguous physical territory that is not necessarily bounded. Instead, it may consist of a distributed network of landholdings, acquired through financial means. This approach allows for flexibility and scalability but may also lead to challenges in addressing local impacts like gentrification and a social divide.

- (ii) Relationship to Nation-State Laws and Policies: The Network State adopts a dual strategy in its interaction with traditional nation-states: (a) Positive or Compliant—It aims to comply with international legal standards to gain recognition and legitimacy. (b) Creative or Enclosures—The Network State also seeks to creatively exploit existing laws and regulations to carve out autonomous spaces and further its ideals. This approach allows it to operate within the legal frameworks of nation-states while pushing the boundaries of traditional statehood.

The Network State represents a radical rethinking of statehood and governance, aligning with the crypto-libertarian ideology of individual sovereignty, market-driven governance, and technological innovation. However, while the Network State offers a compelling vision for the future, it also raises significant questions about inclusivity, equity, and the potential deepening of inequalities within its highly financialized and technologically mediated structure. Consequently, this paradigm might reinforce ultra-liberal ideologies that emphasize market efficiency and personal autonomy over collective well-being. The emphasis on financialization and technology as primary drivers of governance risks creating exclusive, elite-driven communities that prioritize the interests of the wealthy and technologically savvy. As a result, the Network State paradigm could potentially deepen existing social inequalities, challenging the inclusivity and equity that are fundamental to sustainable and just governance. To truly benefit all members of society, any future state model must critically address these issues, ensuring that the governance structures it creates are inclusive, equitable, and reflective of the diverse needs and rights of global citizens.

These fixes are probably, at least, considered by the other two (not mutually exclusive) paradigms: Network Sovereignties and Algorithmic Nations.

### 3.2.2. Network Sovereignties [30]

Here is the definition of *Network Sovereignties* as interpreted in this article: emerging forms of decentralized governance where communities assert collective sovereignty through blockchain networks and decentralized technologies, challenging the traditional, centralized authority of nation-states by creating fluid, transnational digital jurisdictions.

#### Ideological Layer: Commons-Centric Worldview

The ideological layer of Network Sovereignties, as conceptualized by de Filippi et al. [30], is rooted in a commons-centric worldview and Bauwens. This ideology emphasizes the importance of self-governed communities and the interdependence of individuals within a collaborative governance framework. Unlike the market-driven and individualistic orientation of the Network State, Network Sovereignties focus on the collective management of shared resources and public goods, inspired by the work of scholars like Elinor Ostrom [65] and Michel Bauwens [66].

Several key principles characterize this ideological framework:

- (i) Commons-Based Communities: Network Sovereignties are built upon the idea of commons-based communities, where resources are collectively managed and shared by the community members. This approach contrasts sharply with the privatized, market-driven model, advocating for a system where the collective good is prioritized over individual profit.
- (ii) Interdependent Individuals: At the core of Network Sovereignties is the recognition of the interdependence of individuals. Rather than emphasizing personal autonomy and minimal state intervention, this paradigm highlights the interconnectedness of community members, where individual well-being is tied to the health and prosperity of the collective.
- (iii) Collaborative Governance: Governance within Network Sovereignties is inherently collaborative. Decision-making processes are designed to be inclusive and participatory, ensuring that all members of the community have a voice in how resources are

- managed and shared. This aligns with Ostrom's principles of collective action and Bauwens' advocacy for P2P governance models.
- (iv) **Public Goods and Commons Stewardship:** Network Sovereignties place a strong emphasis on the stewardship of public goods and commons. This involves the responsible management of shared resources, such as knowledge, infrastructure, and digital platforms, to ensure that they remain accessible and beneficial to all members of the community, rather than being commodified or privatized.
  - (v) **Critical of Market Radicalism and Statism:** While critical of market radicalism, which prioritizes profit over people, Network Sovereignties are also cautious of traditional statism. They advocate for decentralized governance structures that are neither purely market-driven nor reliant on centralized state control, but rather, focus on empowering communities to self-govern in a way that aligns with their values and needs.
  - (vi) **Technological Stewardship and Ethics:** In contrast to the techno-solutionism of the Network State, Network Sovereignties adopt a more ethical and responsible approach to technology. This involves using technology as a tool for empowering communities, fostering collaboration, and supporting the sustainable management of shared resources. Technological innovation is seen as a means to enhance collective well-being (including data privacy, ethics, and ownership), rather than merely as a solution to societal problems.

#### Governance Layer: Structure and Legitimacy

The governance of Network Sovereignties contrasts sharply with that of Network States, emphasizing community-driven, participatory governance that prioritizes collective well-being and the avoidance of negative externalities. The governance structure in Network Sovereignties is designed to be inclusive, ethical, and deeply aligned with the shared values of its members.

- (i) **External Legitimacy:** Unlike the Network State, which seeks recognition on the global stage by complying with international law and traditional criteria of statehood, Network Sovereignties derive their external legitimacy from their ability to operate without causing harm to others. This approach emphasizes ethical governance practices that minimize negative externalities—such as environmental degradation, social inequality, or cultural erosion—thereby gaining legitimacy not through formal recognition by existing nation-states, but through their positive impact and responsible stewardship of shared resources.
- (ii) **Internal Legitimacy:** Internal legitimacy within Network Sovereignties is founded on a strongly consent-based model that aligns with the collective moral standards and values of all members. Unlike the Network State, where internal legitimacy is often tied to financial investment and enforced through social smart contracts, Network Sovereignties prioritize consensus and collective decision-making. Governance structures are designed to reflect the shared values of the community, ensuring that all members have a voice and that decisions are made in a manner that upholds the community's ethical standards.
- (iii) **Power Distribution and Decision-Making:** Power distribution in Network Sovereignties is characterized by participatory governance, where power is widely distributed among community members. Unlike the Network State, which centralizes decision-making power in key figures such as a Founder or CEO, Network Sovereignties emphasize a local-first approach with the optional delegation of power to higher levels, a concept known as subsidiarity. This ensures that decisions are made as close as possible to the community members they affect, with higher-level governance only intervening when necessary. This model fosters a more democratic and inclusive decision-making process, where community consensus plays a central role.
- (iv) **Association and Membership:** Membership in Network Sovereignties is voluntary and based on alignment with the community's values and goals. In contrast to the Network State, where entry may require a financial contribution and is transactional,

Network Sovereignties emphasize the importance of alignment with the community's shared purpose. While entry is voluntary, leaving a Network Sovereignty can be more costly due to the deep interweaving of social, economic, and cultural ties within the community. This interconnectedness creates a strong sense of belonging and makes exit decisions more complex, reflecting the deep commitment required from members.

- (v) **Identity and Belonging:** The identity and belonging within Network Sovereignties are rooted in deep alignment among members, based on shared narratives of the past, present, and future. Unlike the Network State, which may foster a sense of identity around a single issue or goal, Network Sovereignties cultivate a more profound sense of community through shared cultural, historical, and future-oriented narratives. This deep alignment ensures that members not only share a common purpose but also a collective identity that is reinforced through their participation in the governance and stewardship of shared resources.

#### Development and Economic Layer: Commons-Driven and Mutualistic

Development within Network Sovereignties stands in stark contrast to the market-driven, transactional nature of the Network State. Instead, Network Sovereignties are characterized by their emphasis on commons-driven, cosmo-local, and mutualistic approaches to development and economic activity.

- (i) **Modes of Development (Commons-Driven, Cosmo-Local, and Mutualistic):** Network Sovereignties prioritize commons-driven development, where resources are managed collectively for community benefit, contrasting with the efficiency-focused Network States. The cosmo-local approach ensures that development is globally informed but locally tailored, respecting specific community needs. This mutualistic model emphasizes cooperation and reciprocity over competition, fostering sustainable and equitable economic practices that strengthen social ties and resilience.
- (ii) **Storage and Exchange of Value (Alternative, Possibly Non-Monetary Systems):** Unlike the cryptocurrency-driven economies of Network States, Network Sovereignties explore alternative, potentially non-monetary value exchange systems. These focus on reciprocal exchanges based on mutual benefit and shared values rather than financial transactions. This approach challenges the financialization of relationships, aiming to create economic systems rooted in trust, cooperation, and sustainability, where value is generated through collaboration rather than financial incentives.

#### Technological Layer: Relationship with Technology

The Network Sovereignties' relationship with technology is integral to its governance model:

- (i) **Techno-Augmented Governance:** Network Sovereignties leverage technology to enhance and support decentralized governance, prioritizing the use of digital tools to empower communities and manage commons effectively.
- (ii) **Responsible Innovation and Techno-Pragmatism:** Unlike the more utopian or solutionist approaches, Network Sovereignties embrace responsible innovation, focusing on the practical and ethical use of technology to address real-world challenges. This approach is characterized by a balanced and pragmatic application of technology, ensuring that it serves the public good and fosters equitable outcomes.

#### Territoriality and Legal Layer: Hybrid Boundaries and Strategic Compliance

The Network Sovereignties' approach to territory and its relationship with existing nation-states are as follows:

- (i) **Relationship to Territory:** Network Sovereignties are not dependent on physical land for their existence. Instead, they emphasize land stewardship through meaningful engagement with local communities and ecosystems. This approach allows for a fluid and transnational presence, prioritizing the sustainability and well-being of the environments and societies they interact with.

- (ii) Relationship to Nation-State Laws and Policies: Network Sovereignties adopt a creative approach in their interaction with traditional nation-states. They strategically leverage existing laws and regulations to establish autonomous spaces that align with their commons-centric ideals. This enables Network Sovereignties to operate within the legal frameworks of nation-states while fostering decentralized governance and autonomy beyond traditional state boundaries.

### 3.2.3. Algorithmic Nations [67–69]

Here is the definition of *Algorithmic Nations* as interpreted in this article: new political entities that emerge from the emancipatory push by communities, where governance and citizenship are increasingly influenced by algorithms, data-driven technologies, and digital platforms. This is resulting in a reconfiguration of nation-state sovereignty and the emergence of techno-political and city-regional governance structures that operate beyond traditional territorial boundaries.

#### Ideological Layer: Emancipatory and Transnational Worldview

The ideological layer of Algorithmic Nations is grounded in an emancipatory and transnational worldview that seeks to empower marginalized and existing communities through the responsible use of technology and data-driven governance. This paradigm is less about creating new entities from scratch and more about reconfiguring existing structures to allow for greater self-determination, autonomy, and cultural preservation. Algorithmic Nations emphasize the role of technology in facilitating community development and social justice, rather than purely economic gains [70–75].

Several key principles characterize this ideological framework:

- (i) Community Empowerment: At the core of Algorithmic Nations is the empowerment of historically marginalized communities, such as indigenous groups, e-diasporas, and digital nomads, through algorithms and data-driven governance that respect and enhance their cultural and social needs [76].
- (ii) Culturally Rooted Self-Determination: Algorithmic Nations emphasize culturally rooted self-determination, valuing cultural heritage and social structures, enabling communities to govern themselves according to their traditions, regardless of formal statehood [77,78].
- (iii) Transnational Cooperation and Solidarity: These nations foster transnational cooperation, challenging traditional state boundaries and market radicalism, and promoting networks of communities collaborating on shared goals like social justice, environmental sustainability, and digital rights [78].
- (iv) Ethical Use of Technology: Unlike techno-solutionism, Algorithmic Nations adopt a pragmatic, ethical approach, using technology to advance social justice, equity, and community development, with a focus on data privacy, transparency, and benefiting all, especially the vulnerable.
- (v) Decentralized and Inclusive Governance: Governance is decentralized and inclusive, with participatory decision-making ensuring that all community members have a voice, aligning with the goal of a more equitable and just society through technology.
- (vi) Critical of Statism and Market Radicalism: These nations advocate for governance that balances autonomy with cooperation, avoiding reliance on centralized state control or market forces alone, exemplified by the creation of data cooperatives.

#### Governance Layer: Structure and Legitimacy

The governance of Algorithmic Nations is defined by its reliance on data-driven decision-making processes, underpinned by cultural and ethical considerations that emphasize inclusivity and empowerment.

- (i) External Legitimacy: Algorithmic Nations gain external legitimacy by leveraging data and technology to meet the needs of culturally rooted and transnational communities. Rather than seeking formal recognition, they build legitimacy through their impact



- on community development, digital rights, and ethical technology use, fostering self-determination and sovereignty beyond conventional statehood.
- (ii) **Internal Legitimacy:** Internal legitimacy is founded on inclusivity, transparency, and community consent. Governance reflects the diverse cultural backgrounds and values of the communities, ensuring participatory and responsive decision-making. Legitimacy stems from cultural alignment, ethical governance, and collective well-being, rather than financial considerations.
  - (iii) **Power Distribution and Decision-Making:** Power is decentralized and mediated by algorithms, ensuring equitable and transparent decision-making and deliberation (the right to decide). This approach balances technological efficiency with cultural sensitivity and ethical considerations, ensuring that technology serves the community rather than dictating outcomes.
  - (iv) **Association and Membership:** Membership is voluntary and based on shared cultural and ethical values, emphasizing cultural preservation, digital rights, and community development. This fosters strong belonging and commitment, with members contributing as part of a collective identity.
  - (v) **Identity and Belonging:** Identity and belonging are rooted in the cultural and historical narratives of the communities, with governance reflecting their values and traditions. Technology helps sustain and enhance this collective identity, integrating cultural heritage with digital sovereignty for a rich, multi-faceted sense of belonging.

#### Development and Economic Layer: Endogenously Developed through Cooperativism

Development within Algorithmic Nations is characterized by an emphasis on endogenous growth and cooperativism [54], prioritizing the empowerment of communities through collaborative and culturally informed economic models.

- (i) **Modes of Development (Endogenous and Data Cooperatives):** Algorithmic Nations prioritize endogenous development, where growth originates from within the community, tailored to its cultural, social, and economic contexts. This cooperative model contrasts with market-driven approaches, emphasizing shared ownership, mutual support, and sustainable resource management. Unlike the efficiency-focused Network States, Algorithmic Nations focus on community well-being, resilience, and cultural preservation through cooperation.
- (ii) **Storage and Exchange of Value (Data-Driven and Ethical Systems for Digital Foundational Economies):** Economic activities in Algorithmic Nations use data-driven, ethically aligned systems for value storage and exchange, reflecting the community's ethical standards and cultural values. While digital currencies or blockchain may be used, the emphasis is on trust, transparency, and inclusivity. This approach extends value exchange beyond traditional financial transactions, promoting a holistic model that integrates cultural, social, and ethical dimensions, challenging the financialization of social relationships.

#### Technological Layer: Relationship with Technology

The relationship between Algorithmic Nations and technology is rooted in their ideology of empowerment and self-determination, using technology as a tool to achieve these goals.

- (i) **Techno-Emancipatory Approach:** Algorithmic Nations use technology to empower marginalized communities, focusing on self-determination and cultural preservation. Technology serves as a means to support community flourishing and the realization of social, cultural, and political goals, rather than being an end in itself. Based on digital rights, institutional structures are interoperable, allowing data commons, as a polycentric public-private-civil society assemblage, to establish data cooperatives.
- (ii) **Culturally Informed Technological Integration:** Unlike techno-solutionism, this pragmatic approach ensures that digital tools and platforms enhance cultural identities and support community development and social justice.

- (iii) **Decentralized and Cooperative Technological Frameworks:** These nations leverage decentralized technologies for transnational cooperation and collective governance. The frameworks promote collaboration across borders, supporting digital citizenship and self-organization. The focus is on building networks of solidarity and mutual aid, avoiding hierarchical or market-driven structures.

#### Territoriality and Legal Layer: Hybrid Boundaries and Strategic Compliance

The Algorithmic Nations' approach to territory and its relationship with existing nation-states are defined by their emphasis on data sovereignty, cultural preservation, and the reconfiguration of governance structures through devolution and regionalization.

- (i) **Relationship to Territory:** Algorithmic Nations are not tied to a specific physical territory but are rooted in the cultural and community development of their groups. Operating through a stateless city-regional framework, governance is shaped by community needs rather than traditional boundaries. Central to this is data devolution, where control over data and decision-making is localized, allowing communities to exercise digital sovereignty and autonomy without a contiguous landmass. This fluid, transnational approach prioritizes cultural and social development over geographical constraints.
- (ii) **Relationship to Nation-State Laws and Policies:** Algorithmic Nations transform their interaction with nation-states by advocating for governance rescaling through devolution. Power is transferred from centralized structures to local levels, where communities govern themselves using digital tools and data-driven processes. By leveraging existing laws and pushing for reforms, these nations create autonomous, data-driven interoperable governance structures that reflect their cultural and cooperative ideals. This model gradually transforms nation-states into decentralized, digitally empowered entities, where sovereignty is shared across different governance levels. Additionally, they navigate legal frameworks to establish spaces of autonomy, enabling collaboration across borders.

#### 3.3. Convergence of Results and Conclusions

The comparative analysis of the three paradigms—Network States, Network Sovereignities, and Algorithmic Nations—provides critical insights into the potential trajectories of decentralized governance in the context of Web3 technologies. While each paradigm offers a distinct ideological and structural approach, the findings reveal a convergence on key themes related to governance, sovereignty, and community empowerment. Network States, driven by a crypto-libertarian ideology, emphasize efficiency, individual sovereignty, and market-driven governance models, yet they introduce significant risks of exclusion and inequality due to their reliance on financialization. In contrast, Network Sovereignities and Algorithmic Nations prioritize more inclusive and ethical governance models, emphasizing collaborative, commons-based approaches and transnational cooperation. These paradigms offer alternative pathways that focus on collective well-being, digital justice, and cultural preservation. The results demonstrate that while decentralized technologies hold transformative potential, their implementation must be grounded in ethical considerations and inclusivity to avoid reproducing the inequalities of traditional governance structures. This study's findings thus suggest that hybrid governance models—such as those seen in Network Sovereignities and Algorithmic Nations—may offer more sustainable and equitable frameworks for decentralized governance in the digital age, reinforcing the need for an approach that balances technological innovation with the broader aspirations of global communities.

#### 4. Conclusions

To further clarify and enhance the connection between the research findings and the contributions of this study, the previous section compared the three paradigms—Network State, Network Sovereignities, and Algorithmic Nations—across multiple layers, including

ideological, governance, economic, technological, and territorial aspects. By providing a nuanced comparative analysis, this article underscored how each paradigm represents a distinct approach to addressing the challenges of decentralized governance in the digital age.

The findings reveal that the *Network State* adheres to a crypto-libertarian worldview, prioritizing individual sovereignty and market-driven governance models. In contrast, *Network Sovereignties* adopt a commons-centric approach, emphasizing collaborative governance and public goods stewardship. Meanwhile, *Algorithmic Nations* extend this further by promoting culturally rooted self-determination and transnational cooperation through an emancipatory framework. These distinctions highlight that while the *Network State* is primarily driven by efficiency and scalability, *Network Sovereignties* and *Algorithmic Nations* offer more inclusive, community-oriented governance models, emphasizing the ethical and cultural dimensions of decentralized governance.

The comparative analysis in Table 2 made a strong case for the transformative potential of decentralized governance. However, this study also drew attention to the risks posed by the *Network State's* reliance on financialization and market-driven mechanisms, which could exacerbate inequalities within digital communities. This analysis, paired with findings from the research design (Section 3), underscores the need for hybrid governance models like *Network Sovereignties* and *Algorithmic Nations*, which combine decentralized technologies with a strong ethical and community-driven focus. These paradigms offer a more balanced approach to governance, ensuring that technological advancements serve the broader goal of digital justice and sovereignty for all, rather than privileging a select few.

To build on the relationship between the findings and the conclusions, this study demonstrated that the comparative analysis of the *Network State*, *Network Sovereignties*, and *Algorithmic Nations* paradigms directly confirms the initial hypothesis. The nuanced evaluation across ideological, governance, economic, technological, and territorial layers not only reveals the distinct nature of each paradigm but also emphasizes their implications for decentralized governance models in the digital age. The results show that while the *Network State* is driven by a crypto-libertarian worldview, prioritizing individual sovereignty and efficiency, it introduces risks related to financialization and potential inequalities. In contrast, *Network Sovereignties* and *Algorithmic Nations* prioritize ethical and communal governance, underscoring the importance of inclusivity and cultural self-determination. These paradigms challenge the *Network State's* market-centric orientation and advocate for a more holistic and ethically grounded approach to governance, particularly in the context of digital justice.

By directly linking the findings to the initial assertions, this study confirms the need for hybrid governance models that can balance technological innovation with the collective aspirations of diverse communities. The empirical insights gathered through action research, especially from *Fulbright*, *DRC*, and *SOAM Network Sovereignties*, further reinforce the conclusion that decentralized technologies should be employed in ways that serve broader societal needs, rather than exacerbating inequalities. This comparative study highlights the critical role that decentralized governance models can play in reshaping global governance, sovereignty, and digital citizenship, while also offering a clear warning against the unchecked expansion of crypto-libertarian ideals. This connection between findings and conclusions solidifies the contribution of this study in advocating for governance models that promote equity, solidarity, and ethical stewardship in a rapidly digitizing world. To further expand on the significance of this study's conclusions for various fields, it is essential to emphasize how decentralized technologies can bring transformative effects beyond the governance structures explored. Web3 technologies and decentralized governance paradigms illuminating new forms of nation-statehood, such as *Network States*, *Network Sovereignties*, and *Algorithmic Nations*, have the potential to reshape global industries such as finance, healthcare, education, and supply chains, which are all heavily reliant on centralized control today. For example, blockchain-based financial services can enhance financial inclusion by providing secure, transparent, and accessible alternatives to traditional banking, especially in underserved regions. Similarly, in healthcare, decentralized

data governance can give individuals more control over their personal health information, fostering privacy and security, and in education, peer-to-peer learning platforms could revolutionize how knowledge is shared and certified across borders.

Moreover, this study's findings also suggest that decentralized governance models can play a pivotal role in supply chain transparency, offering blockchain-based verification systems that ensure ethical sourcing and sustainability, which are critical in industries like fashion, agriculture, and food. By highlighting these practical applications, this study extends its relevance beyond academia, offering valuable insights for policymakers, technologists, and industry leaders looking to integrate decentralized technologies into various sectors. This not only amplifies this study's appeal to a wider readership but also positions it as a key contributor to the ongoing dialogue on the future of decentralization and its role in shaping more equitable, inclusive, and resilient industries globally.

Hence, the debates surrounding *Network States*, *Network Sovereignties*, and *Algorithmic Nations* are not just theoretical; they have real-world implications for how we organize society and exercise power in the digital age. As we continue to explore these paradigms, it is crucial that we remain attentive to the ways in which digital technologies are reshaping our world, and the opportunities and challenges they present for building a more just and equitable global order. Future research should explore the practical applications of Web3 technologies within specific geopolitical contexts, examining how decentralized governance models like *Network Sovereignties* (commons-centric worldview) and *Algorithmic Nations* (emancipatory-transnational worldview) can be implemented in diverse cultural and regional settings. Additionally, the further exploration of *Network States* (crypto-libertarian worldview) is necessary, particularly regarding their scalability and potential to exacerbate inequalities, and the implications of creating new sovereignties driven by crypto-libertarian ideals. Comparative studies on the impact of these paradigms on global governance, digital citizenship, and ethical concerns around digital sovereignty would be beneficial.

This article primarily focuses on theoretical frameworks and draws heavily on fieldwork from Silicon Valley, which may limit the generalizability of its findings to other global regions. The emphasis on the libertarian ideology of Web3 technologies could also overlook alternative approaches to decentralization that prioritize collective well-being over individual sovereignty. Moreover, the analysis does not extensively address the technical challenges and scalability issues inherent in implementing decentralized governance on a global scale, which could impact the viability of these models in practice.

The fieldwork conducted since August 2022 has been arranged organically, involving connections with startups, scholars, practitioners, foundations, and initiatives within the Web3 global ecosystem. This process, although organic, has included workshops, interviews, and collaborations with key figures such as Primavera de Filippi, Felix Beer, Michel Bauwens, Nathan Schneider, Connor Spelliscy, Ayona Datta, Eric Alston, Iker Iraola, Julen Zabalo, Eugene Leventhal, Morshed Mannan, and SOAM fellow residents and Edge Esmeralda Conference/Workshop participants. Additionally, the Summer School AI4SI in St Sebastián (Jaime Díaz and Iban Askasibar) has been helpful in contextualizing the Web3 ideology in Europe. While the organic nature of this research could be seen as a limitation, it has provided a robust and dynamic foundation for understanding the Web3 ideology.

In conclusion, as we navigate the intersection of technological innovation and global governance, the decentralized Web3 ideology offers a provocative vision of new forms of nation-statehood futures, yet it is one that warrants critical scrutiny given that it might be a map in search of territory [79]. The rescaling of nation-states and the emergence of Network States reflect a growing trend towards decentralization, but this shift also risks reinforcing ultra-liberal ideologies that prioritize individualism and market-driven solutions over collective well-being and the view of the commons [18]. Libertarianism seems unable to observe the state as anything but a control-obsessed and rent-seeking dysfunctional *Leviathan*. While decentralized technologies have the potential to empower individuals and communities, they also pose significant dangers by potentially deepening inequalities and echo-chambers, and eroding the social and cultural foundations that have

traditionally bound nations together. The vision of Network States, driven by a libertarian ideology, often overlooks the importance of inclusive, community-driven governance and risks creating exclusive digital enclaves for the wealthy and privileged [80]. To reimagine digital futures in a way that truly benefits all global citizens, it is essential to challenge these narratives and advocate for a more equitable and holistic approach to digital governance—one that recognizes the value of solidarity, digital justice, and the diverse needs of global communities through network nations or Algorithmic Nations. And thus, the Web3 ideology relatively requires a territory, a hybrid one, beyond global citizenship flatness and embracing a vast diversity and richness in a spiky world full of culture, life, and good vibes without denying how states and nations play out their techno-political action and how their political economy could be fairly transformed [81]. However, there is being realistic in terms of acknowledging the historic path dependency and to reshuffle it without losing perspective being trapped in wishful thinking [24,82]. The post-nation-statehood techno-political futures we seek should not merely reflect the ambitions of the few but must be rooted in the collective aspirations and rights of the many. And yet, the Web3 global ecosystem seems to be a map in search of territory [83].

In *A Map in Search of Territory*, Evgeny Morozov offers a critical perspective on the transition from Web 1.0 to Web 2.0 and into Web 3.0 [82]. Morozov argues that while Web 3.0 promises a decentralized alternative to the platform-centric models of Web 2.0, it is still largely speculative, often lacking a clear, concrete structure. He highlights that Web 1.0 was a simple, read-only Internet, where users were primarily consumers of information, while Web 2.0 introduced interactivity and user-generated content but became dominated by a handful of centralized platforms (e.g., Google, Facebook), giving rise to platform monopolies. Web 3.0, according to Morozov, positions itself as a corrective to Web 2.0's shortcomings by advocating for decentralization through blockchain, peer-to-peer networks, and user data sovereignty. However, Morozov remains skeptical about whether Web 3.0 can deliver on its promises of democratizing the Internet. He suggests that Web 3.0's ideological framework—rooted in Silicon Valley's libertarian culture—may inadvertently recreate power imbalances, as the infrastructure of Web 3.0 is still controlled by a select group of technologists and venture capitalists [52]. In this sense, while Web 3.0 seeks to transcend the issues of platform dominance from Web 2.0, Morozov questions if it will truly enable users to exercise meaningful control over their digital interactions or simply replicate the same concentration of power in a different form. This critique from Morozov fits within the broader debate about whether Web 3.0's decentralized ethos can genuinely reshape governance and sovereignty, or if it risks perpetuating the same hierarchical dynamics that characterized earlier iterations of the Internet. Having said that, the promising research by MetaGov, BlockchainGov, Liberty Project, and the Decentralization Research Centre might be worth keeping for scanning to advance emancipatory datafication strategies beyond pure resistance or acritical adoption [22].

As a final remark, unlike Network States, which aim to create *entirely new countries* driven by a crypto-libertarian ideology, Network Sovereignties and Algorithmic Nations may not only coexist but also complement each other. Stemming from an Arendtian inspiration [84], Algorithmic Nations emphasize the emancipatory potential for existing communities, such as indigenous groups and e-diasporas, to achieve self-determination and sovereignty through data-driven governance for minorities [85]. This culturally rooted approach aligns with the commons-centric focus of Network Sovereignties, creating a synergistic relationship that empowers communities to decide their own political futures, whether that involves establishing a new state or simply asserting their digital rights and autonomy. Together, these paradigms offer a nuanced pathway toward sovereignty that respects both individual and collective agency. Whereas Network Sovereignties focus on a commons-centric worldview, Algorithmic Nations evolving from the current circumstances attempt to offer an emancipatory Arendtian pathway for those that collectively aim to reinforce a (digital) *nation*, or even become a (pluri-national) *state* that embraces digital justice and an internationalist worldview driven by solidarity. Rights should be secured



all the time through an emancipatory worldview to allow such a commons worldview to flourish [86–93].

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