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A workers' inquiry in Decentralised Autonomous Organisations: Insights and policies to align blockchain-based work with the solidarity economy

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DOI: <https://doi.org/10.14763/2026.1.2053>

Published: 6 February 2026

Received: 21 April 2025 **Accepted:** 3 July 2025

Funding: This work was commissioned by the Other Internet Research Institute and received funding from the Other Internet Research Institute, the Station.xyz and the European Research Council (ERC) under the European Union's Horizon 2020 Research and Innovation Programme (Grant Agreements No. 865856).

Competing Interests: The author has declared that no competing interests exist that have influenced the text.

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Citation: Merk, T., Lotti, L., Houde, N., & Mannan, M. (2026). A workers' inquiry in Decentralised Autonomous Organisations: Insights and policies to align blockchain-based work with the solidarity economy. *Internet Policy Review*, 15(1). <https://doi.org/10.14763/2026.1.2053>

Keywords: Solidarity economy, Decentralised Autonomous Organisations (DAOs), Labour, Blockchain technology, Workers' inquiry

Abstract: Decentralised Autonomous Organisations (DAOs) are blockchain-based entities that enable decentralised coordination through self-executing code. Although often associated with financial speculation and crypto-libertarianism, DAOs have also been imagined as democratic, community-owned infrastructures aligned with the solidarity economy. This article explores whether DAOs can be considered solidarity economy organisations in practice by evaluating the type of working conditions they produce. Based on ethnographic research with 38 DAO contributors, rooted in workers' inquiry, we examine the extent to which DAOs produce working conditions consistent with solidarity economy values, such as decent and stable employment. Our findings show that while many DAO contributors aspire for DAOs to be solidarity economy vehicles akin to cooperatives and mutualist organisations, in practice, DAO labour falls short of this vision. We identify key areas – psychosocial security, financial predictability, and regulatory clarity – that must be addressed for DAOs to realise their solidarity economy potential. Several proposals, generated through research activities with participants, are outlined to improve key issues. This article contributes to ongoing debates on the potential of DAOs and provides the first comprehensive empirical study into working conditions in DAOs.

This paper is part of **Digital Solidarity Economies**, a special issue of *Internet Policy Review* guest-edited by Belén Albornoz, Ricard Espelt, Rafael Grohmann, and Denise Kasparian.

Introduction

Decentralised Autonomous Organisations (DAOs) are digital entities that enable people to coordinate utilising self-executing rules deployed on a public blockchain (Hassan & De Filippi, 2021). Practically, DAOs usually manifest as online communities where members hold a digital token¹(or set thereof), which grants them decision-making rights in the organisation issuing the tokens. Theoretically, rules on how members make decisions and how these decisions are enforced can be freely designed and often differ between DAOs. Practically, most DAOs today use token-weighted governance mechanisms (where each token equals one vote), rather than democratic member governance, where each member has one vote, regardless of their token holding (Barbereau et al., 2023; Peña-Calvin et al., 2024). DAOs are used for a wide variety of applications: from governing financial protocols and investment clubs, to acting as a mechanism to organise service businesses or online social communities. DAOs predominantly operate in the wider blockchain industry, which is usually associated with financialisation, automation, libertarianism, and crypto-anarchy, instead of mutualism and solidarity (Dylag & Smith, 2021; Golumbia, 2016; Nabben, 2021). Yet, the vision and ideal of DAOs as promoted by early industry advocates (Buterin, 2014; Jentzsch, 2016; Larimer, 2013) and various researchers (Hubbard et al., 2023; Mannan et al., 2024; Peña Calvin, 2024) contend

1. A blockchain-based token is a form of currency, asset, or store of digital value that is uniquely addressable and trackable within a blockchain ledger. In the case of DAOs these are typically assets that confer governance rights over the organisation by the holder.

that DAOs encompass many of the characteristics typically associated with the ‘solidarity economy’. Drawing on a definition advanced by the United Nations (UN), we define the solidarity economy as: “the production of goods and services by a broad range of organisations and enterprises that have explicit social and often environmental objectives, and are guided by principles and practices of cooperation, solidarity, ethics, and democratic self-management” (TFSSE, 2014, p.iv). Organisations in the solidarity economy distinguish themselves as bottom-up organisations in local communities, which include the participation of volunteers and strive to act in the interest and goals of their members, instead of simply generating profits (Borzaga et al., 2019). These organisations typically distribute financial and governance rights to a broad variety of stakeholders involved in or affected by the organisation, as opposed to being run by financially motivated shareholders. They are associated with producing various beneficial social outcomes, such as creating decent, stable jobs (ibid.).

Many of the ideal characteristics of solidarity economy organisations ostensibly overlap with those of DAOs, as summarised in Table 1. There has also been a growing group of DAOs explicitly focused on pro-social or environmental goals (Hartley & Rennie, 2022). While DAOs appear to share many characteristics and goals of the solidarity economy, the question of whether they are vehicles of the solidarity economy and produce desirable outcomes, such as decent working conditions, remains unclear and underexplored.

TABLE 1: Comparison between DAOs and the ideal characteristics of the solidarity economy

IDEAL CHARACTERISTICS OF ORGANISATIONS IN THE SOLIDARITY ECONOMY	CHARACTERISTICS OF DAOS
Have goals beyond profit	Not necessarily, but often the case
Explicit social and/ or environmental goals	Not necessarily, but often the case
Bottom-up organising	Yes
Embedded in local communities	Yes, in local online communities
Voluntary participation	Yes
Democratic self-management	Self-managed but usually not democratic
Multi-stakeholder governance	Yes
Create positive social outcomes for labour	Unknown

In this article, we investigate the relationship between DAOs and the solidarity economy in more detail. Specifically, we draw on ethnographic research conducted with 38 DAO workers to develop an empirically grounded understanding of how DAOs operate today and the type of working conditions they produce. Our goal is threefold: (1) to discuss if and to what extent DAOs can be positioned as organisations in the solidarity economy, (2) to create a better understanding of the working conditions in DAOs today and how they relate to those anticipated in the solidarity economy, and (3) to advance proposals that can encourage DAOs to move closer to the solidarity economy both in form and in terms of the working conditions they generate. Overall, we find that while DAO contributors² aspire for DAOs to be vehicles for the solidarity economy, in practice, they often fall short of delivering solidarity economy outcomes such as decent, stable jobs. Nonetheless, DAOs have the potential to become vehicles of the solidarity economy if they address psychosocial security, financial stability and regulatory clarity for contributors. We propose several policies to this end.

We proceed by discussing the relevant literature and outlining our research methods in sections two and three, before presenting our findings and discussion in sections four and five. Section six concludes the article.

Related literature

Previous academic research into DAOs as a new work environment has tried to make sense of the phenomenon conceptually (Schnauder, 2023) and by drawing on secondary industry insights (Ilyushina & Macdonald, 2022). Ilyushina and Macdonald find that: “While displaying some characteristics of traditional employment (e.g., volunteering, gig economy, contracting), the distinguishing characteristics of DAOs require fundamentally new approaches to economic analysis and employment practices” (2022, p. 51). Although Ilyushina (2023) outlines the empirical research needed to ground new conceptual models, no such work exists. Instead, previous empirical research on and with DAO contributors focuses on specific aspects of DAO labour, rather than trying to surface insights about the working conditions in DAOs as a whole. For example, Mannan (2018) conducts a case study to evaluate how DAOs can overcome difficulties faced by labour-managed firms. The article focuses predominantly on the advantages that tokens and smart contracts can bring in terms of workers’ self-governance, rather than the working conditions

2. The term contributor here is used instead of employee or owner because of the ambiguous nature of DAO work. Contributor is a necessarily capacious term that comprises any type of participation in the operation of a DAO whether that person is an owner, employee, freelancer, or a mixture of each.

themselves. Relatedly, Schirrmacher et al. (2021) conduct ethnographic research in two DAOs to understand the role of tokens in reconfiguring traditional work practices. While this work is more aligned with the goals of our project, their insights are contextually bound and do not assess aspects of DAO work that do not concern tokens. Finally, other ethnographic research into DAOs and labour (Rennie, 2023; Rennie et al., 2022) has focused on contribution systems, i.e., mechanisms through which DAO contributors collectively determine what counts as valuable work and how this work is compensated, thus also not addressing working conditions in DAOs as a whole.

More generally, industry research has investigated what attracts open-source developers in the blockchain industry (Electric Capital, 2024; SES Core Unit MakerDAO, n.d.). Findings suggest that although developers are initially attracted to DAOs for financial reasons, developer retention was predominantly driven by cultural reasons. Similarly, reasons for leaving seem related to burnout, chaotic work settings, or losing excitement. The insights that culture, not money, is a core structuring force in shaping the DAO work environment are confirmed by ‘DAOs: the new coordination frontier’, the most comprehensive empirical industry study on DAOs and labour to date (BitcoinDAO, 2021). It found that DAO contributors and interviewees from the blockchain space generally *felt* very optimistic about working in DAOs, but could not depend on them financially and had many open questions regarding core aspects of their work (e.g., compliance with tax regulations, benefits, talent recruitment and retention, or income volatility). Another industry survey and associated interviews confirm these findings (Bovino & McGlone, 2022). It is essential to note that both surveys were conducted during the height of a bull market, when the blockchain industry was flush with capital and optimism. The market turned sharply over the course of 2022, culminating in the collapse of FTX, an influential cryptocurrency exchange that misused over USD 8bn of customer funds (Kokorin, 2023). No empirical research on DAOs and labour, or DAOs as a work environment, has been conducted following the collapse of FTX.

Methods

Our approach was informed by workers’ inquiry (Woodcock, 2021) in that we aimed to understand the contributors’ point of view and use our data to inform forms of organising that may improve working conditions in DAOs. Our research process encompassed four phases, as summarised in Figure 1.

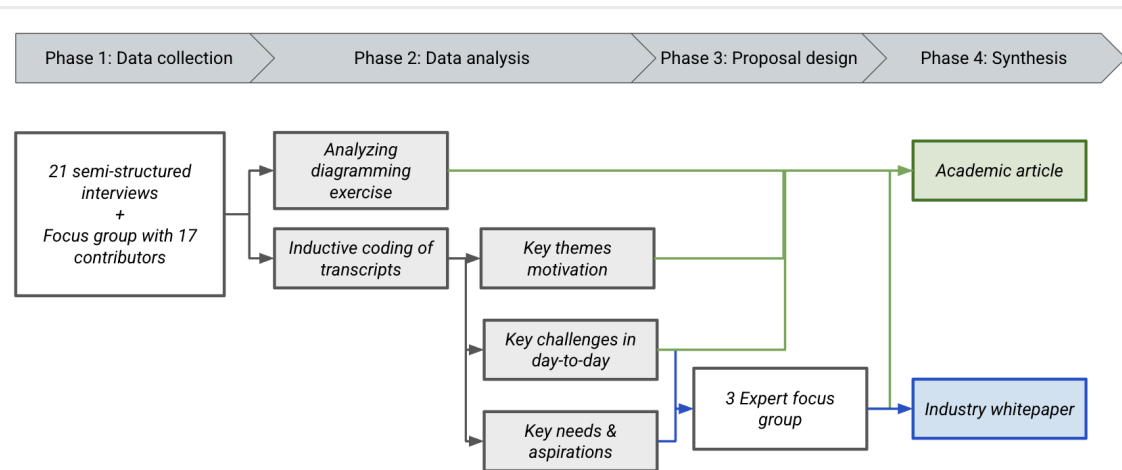


FIGURE 1: Research overview

Phase 1 was dedicated to data collection. This comprised 21 semi-structured on-line interviews with DAO contributors and a 3-hour in-person focus group with 17 contributors, representing over 50 DAOs in total within the Ethereum ecosystem. Both took place with informed, written consent from participants. Respondents were sourced through our own networks and an open call on Other Internet's X account. In selecting interviewees, we privileged contributors who had been working in the industry for over two years and tried to include representatives from different parts of the world, with different working relationships to their DAO (employees, contractors, volunteers, and those without a formal relationship) and working within different functional areas (technical development, marketing, operations, etc).

Our sample covered service (42.9%), infrastructure (38.1%), and social (19%) DAOs. Service DAOs provide specialised functions such as software development or governance support to other projects. Infrastructure DAOs are oriented around building and maintaining technical foundations that enable broader ecosystem activity. Social DAOs are primarily organised around community, cultural production, or collective identity, with or without a formalised business model. Participants were globally distributed, though skewed toward European and North American time zones. Most were deeply involved: 81% reported contributing more than 40 hours per week, and one-third had over five years' experience in the ecosystem. The majority contributed to at least two DAOs, typically under contractor or informal arrangements (66.7%), while only 4.8% held formal employment contracts.

Throughout our engagement, we asked about contributors' motivations, aspirations, needs and day-to-day working routines. At the end of each interview and focus group, we asked contributors to participate in a diagramming exercise, where

they self-assessed, on a scale of 1–5, how well a specific institutional logic described the DAOs they worked in and how much they identified with traditional roles as a DAO contributor. This diagramming exercise was based on a situational mapping (Clarke, 2003) of the DAO work environment, drawing on academic and industry literature, as well as our personal experiences in the field, to build an understanding of the various institutional logics invoked throughout discourses on DAOs and labour.

In phase 2, data from the interviews and focus groups were analysed inductively. We began by mapping the outcomes of the 38 individual diagramming exercises against each other to identify common patterns as to how contributors conceptualise themselves and DAOs. The findings of this analysis are presented in section 4.1 below. Next, we divided interview transcripts among the authors and assigned topical codes to 463 statements inductively. All authors coded several of the same transcripts at the beginning to establish intercoder reliability. We organised our coded statements into broad categories corresponding to our main questions: (1) motivations, (2) day-to-day, and (3) needs and aspirations. Within each category, we collectively distilled high-level themes from the coded statements. An example of our coding process is shown in Figure 2. We report the main themes that emerged within categories (1) motivation and (2) day-to-day in sections 4.2 and 4.3, respectively.

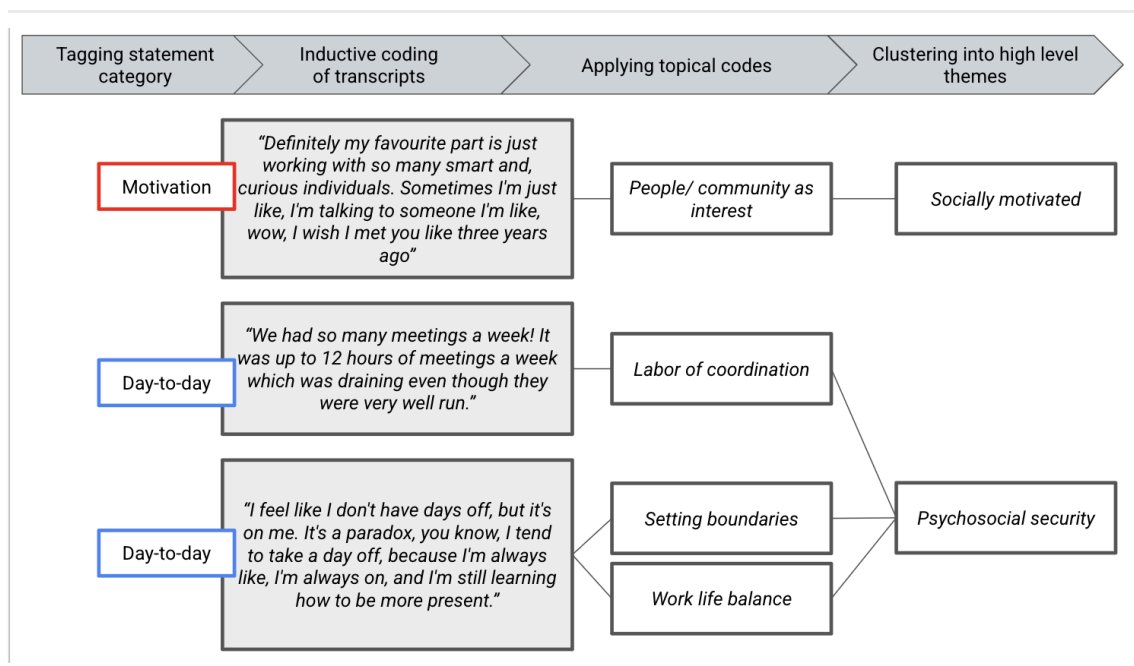


FIGURE 2: Example of coding process

Our analysis of contributors' day-to-day reality yielded three main challenges –

psychosocial security³, financial stability, and regulatory clarity – that contributors generally struggled with, and which became the guiding themes around which we organised the next phase of our research. Here, we convened three online expert focus groups, which we named ‘web3 work forums’, aiming at the second goal of workers’ inquiry: to organise to improve working conditions (Woodcock, 2021). Each focus group aimed to workshop actionable proposals that could address challenges regarding psychosocial security, financial stability, and regulatory clarity, respectively. The insights from our data analysis of contributors’ day-to-day, but also of their needs and aspirations, were presented at the beginning of each session and constituted the basis from which the discussion proceeded. Each focus group included 5–10 domain experts (e.g., lawyers in the forum on regulatory clarity or technologists and token engineers in that on financial stability), DAO tooling providers (i.e., individuals working for organisations already designing tools for DAOs or contributors), and DAO contributors. Outcomes from the web3 work forums were distilled into actionable proposals to improve DAO labour, detailed in section 4.4 below. We also summarised these proposals in a white paper (Lotti et al., 2023), which we promoted across the DAO industry to increase awareness and drive action to address contributor challenges.

Findings

Conceptualising DAOs and DAO contributors

Through the diagramming exercises, we found that both ‘DAO’ and ‘DAO contributor’ are terms that cannot be described according to any single historical analogue or existing model – in fact, all diagrams were pointedly unique (see figures 3 and 4). Instead, both terms appear to encompass and combine multiple institutional logics. Generally, contributors most strongly associated DAOs with ‘mutualist organisations and co-ops’ and ‘service providers’, which indicates that DAOs are conceptualised as organisations with an economically productive capacity, albeit striving for more than profit. The notion that DAOs are entrepreneurial organisations that differ from dominant platforms also emerged through contributors ranking ‘startup’ and ‘company’ relatively highly, but ‘gig economy platform’ very low.

3. Psychosocial security refers to an individual’s feeling of safety and stability in their psychological and social environments, encompassing their mental well-being, social interactions, and living conditions. For a more detailed outline of how this can be analysed in the context of labour see: Robak, E., & Kwiatek A. (2019).



FIGURE 3: Sample of participants' diagramming exercises mapping the 'DAO' against traditional organisational forms, highlighting the diverse institutional logics DAOs take on depending on context

DAO contributors frequently conceptualised themselves as 'learners' and 'open-source contributors', but also as 'freelancers', once again emphasising the dual nature of understanding themselves in a role that combines traditional employment with more intrinsically motivated activities. Interestingly, the concepts emphasising the political nature of DAOs and their governance, like 'states', 'civic organisation', and 'politicians', ranked relatively low across diagrams.

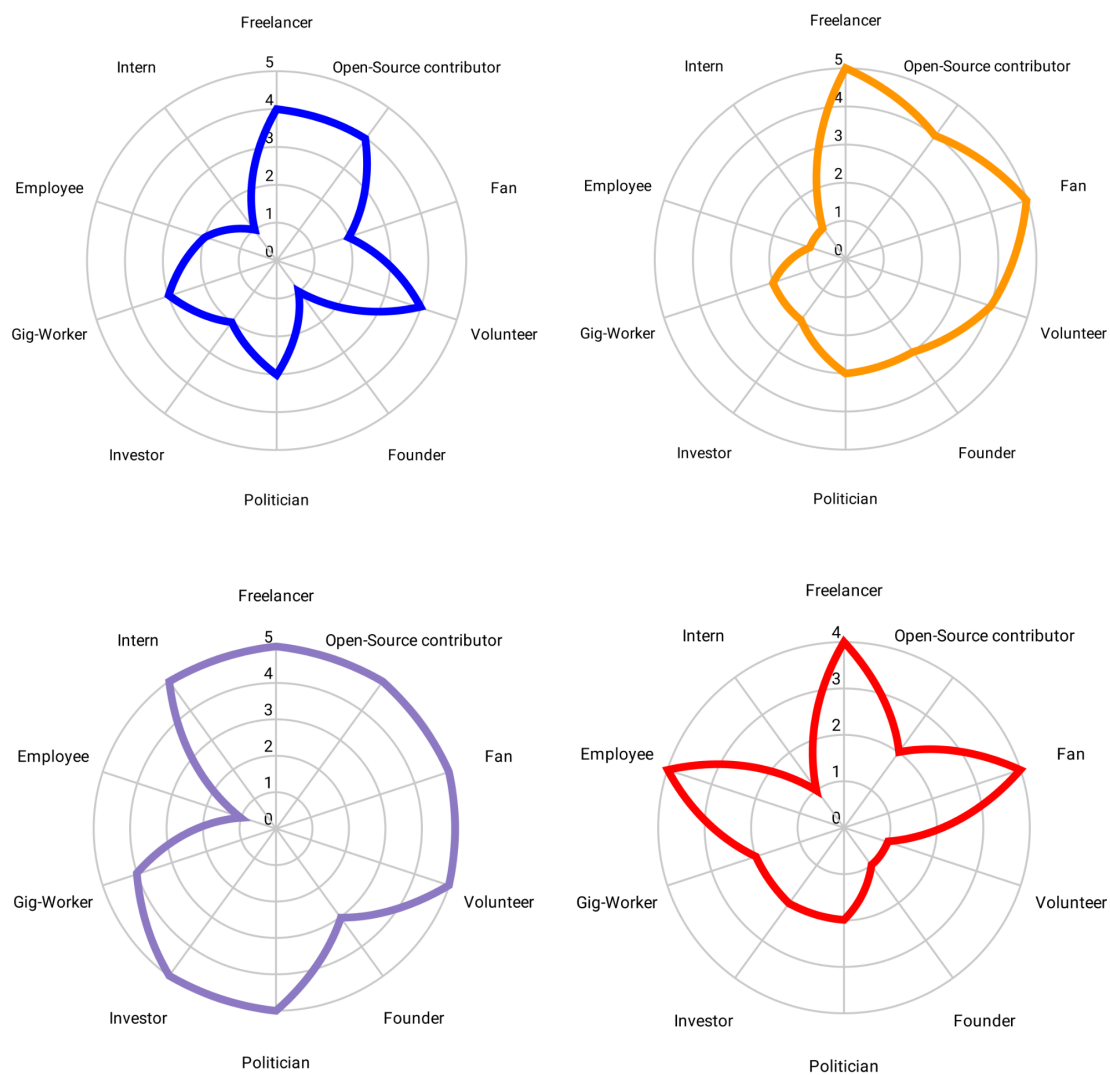


FIGURE 4: Sample of participants' diagramming exercises mapping the 'DAO contributor' role against traditional organisational archetypes, illustrating its multiple and context-dependent meanings

Contributor motivation

We consistently found that contributors were motivated to join DAOs for social reasons, such as a feeling of community, conviviality, or to work with colleagues whom interviewees found to be exceptionally talented people. Specifically, contributors use DAOs as an excuse for collaboration and to work alongside “giga-brains” (interviewee 5), whom they would not have been able to connect with easily in traditional work environments. As one contributor explained: “I meet really brilliant people and my mind is constantly expanded by them. So that's probably my main motivation” (interviewee 2). Furthermore, most contributors explicitly stated that money (especially earning more than “affording life” (interviewee 8))

was not their main motivation for joining a DAO. This indicates that people are predominantly motivated to join DAOs for values-oriented reasons over strictly financial incentives. Many contributors also stated that they were dissatisfied with traditional companies and disillusioned with the shareholder-driven economy. For some, DAOs simply catered to the style of working they aspired to: “remote work, asynchronous work that works for me. And I work best that way” (interviewee 8). Others hoped that contributing to DAOs would drive systemic change and impact in areas like the environment, open-source development, creative industries, and, not least, the workplace. As one interviewee put it, “is aligning with my values of being inclusive, being stakeholder minded, not only a small group of shareholders, but considering all your stakeholders in the community” (interviewee 21). However, while many excitedly shared the potential they saw for DAOs to bring about meaningful change, contributors also emphasised that the reality of working in DAOs did not always match this aspiration: “a lot of the verbiage around DAOs borrows from socialism, and a lot of the financing structures borrow from ugly, ugly capitalism. And so I think it’s really hard to balance this rhetoric with the actual reality of what’s happening” (interviewee 10).

Contributor day-to-day and challenges

All contributors emphasised that they valued the flexibility afforded by DAOs, which allowed many to work from anywhere, structure their workday differently from a traditional 9–5 and, if desired, remain pseudonymous. However, overall, the contemporary reality of DAO contributors is characterised by disillusionment and a lack of security in terms of psychosocial security, financial stability, and regulatory clarity.

Psychosocial security

Contributors criticised that in practice, many DAOs are governed by majority token holders instead of the broader community, reproducing shareholder governance dynamics. This is often justified with the promise of future decentralisation: “I guess the people who hold the money make the final call. And it doesn’t really matter if those people change their mind. There’s always going to be progressive decentralisation to just explain it away” (interviewee 12). Furthermore opaque governance practices and a lack of clear structures resulted in a lot of invisible labour for many. Some contributors explained that they were spending around 12 hours a week on calls to coordinate the work to be done rather than actually doing the work, thereby slowing down productivity and prolonging working hours. Contributors were ambivalent about this dynamic. On the one hand, many expressed

appreciation for being able to participate in determining work processes, schedules, and outputs. On the other hand, many of the same contributors highlighted that the added labour of coordination often led to self-exploitation over time. Even without obvious hierarchies, bosses or externally determined key performance indicators (KPIs), DAOs are perceived as particularly high-pressure work environments: “Web3 is a field of workaholics. Pressure is somewhere, but it's indirect. No one is telling you what to do, but so many are doing so much that there is a pressure and a sense of urgency”⁴(interviewee 13). In fact, the burden of setting boundaries in their work, taking time off or managing workloads usually falls on the individual. Many explained that while they knew it was important to set boundaries, they often struggled with this, as they often also identified with the communities they worked for, building friendships and thus blurring the line between professional and private life. Furthermore, because DAO contributors work from all over the world, the natural boundaries of time zones collapse. This leads to an ‘always on’ mentality as one contributor described: “I think everyone’s in a state of being ambiently online at all times and available. [...] I don’t think that’s specific to DAOs, but maybe it’s heightened because I feel like I’m working with people all over the world” (interviewee 8). Finally, another factor impacting the psychosocial security of contributors is dealing with the extreme volatility of market cycles affecting the blockchain industry: “Bull market: everyone is travelling, living their best life. Bear market is the complete opposite. These cycles are stressful” (interviewee 17). Navigating the boom and bust cycles of the market not only induced psychological stress to contributors but also led to another major challenge: financial stability.

Financial stability

Contrary to how DAO work has been portrayed in the media (Ilyushina, 2022) and apart from contributors who previously worked in the arts and creative industries, participants generally shared that they were earning less than they would in traditional work environments. In fact, many compared being a DAO contributor to having a “next level internship” (interviewee 9), where one contributor remarked that: “I’ve seen contributors become almost like a hiring tactic to prove their loyalty and value through unpaid or low-paid work” (interviewee 3). Another interviewee shared that they thought DAOs were simply a name to mask the extraction of free labour: “A bunch of DAOs are just Silicon Valley types, trying to source free labour

4. “Web 3” is a term used to denote a new wave of online technologies based around blockchains and peer-to-peer infrastructure. It is a play on the common usage of “web 2” to define the era of social media.

in the name of community” (interviewee 9). Despite this, most of our interviewees had been active in the space for 2+ years and found ways to financially sustain themselves through their work. All contributors we spoke to preferred being paid in stablecoins, a cryptocurrency whose value is pegged to traditional fiat currency⁵. Some contributors refused to be paid in a DAO’s native token, and others commented that if they did accept DAO tokens, then they took their engagement as volunteering. To deal with market volatility, many contributors tried to build personal savings. However, to some, this also felt contradictory to the ethos of sharing resources and building mutualist structures: “often when projects come to you, you have to take them on because you’re like this could all collapse tomorrow. [...] But then you’re confronted with this idea that in DAOs, the whole point is to share resources. And then you feel like: I’m squirrelling away money for myself that I should be sharing with other people” (interviewee 10). However, without easy access to social welfare (depending on a contributor’s passport and location), the burden of ensuring their own long-term financial security falls on individual contributors. Many also emphasised that they saw themselves in a good position to contribute to DAOs as they did not have other life commitments, like a mortgage or children. However, this is contradicted by the fact that some of our interviewees were single parents who also relied on the flexibility of DAOs to meet financial needs and care work obligations. Overall, all interviewees expressed that what they needed was a more predictable and stable income.

Regulatory clarity

Most interviewees contributed to DAOs as independent contractors or through a sole proprietorship. Many had informal written agreements (like an email or chat message specifying their role or scope of work), and only one person was engaged as a full-time employee. All contributors reported a lack of regulatory clarity regarding their work and employment status. In many cases, contributors explained that regulatory uncertainty engulfed ‘everything’ and that many risks were somewhat unknown due to the novelty of DAOs themselves: “The space being so nascent, you’re constantly running into like, “Oh, my God, is this some kind of huge risk to everyone in some way?” And it just is kind of terrifying” (interviewee 8). To mitigate this, some contributors called for easier ways to plug into existing social welfare mechanisms like unemployment funds, health care, as well as tax and liability regimes. Yet some acknowledged that although possible, DAOs currently do not prioritise giving their contributors access to such systems: “unless the DAO

5. Fiat currencies are state-backed currencies that are not explicitly anchored in value to any non-currency value such as the price of gold.

goes out of its way or is in the US, working with Opolis [a freelancer cooperative], there's not even an option to have people not be contractors, and like, I know if I was like trying to start a family, for example, it would be a priority for me to want to have the most protections" (interviewee 3). Others also heavily criticised the existing regulatory landscape, which provided inadequate safety nets even to people in traditional employment. In response, contributors advocated for both regulatory changes and for building more DAO-native social welfare schemes from the ground up to improve security and working conditions in DAOs in general.

Proposals for more equitable working conditions in DAOs

Next, we present the main suggestions that emerged from the 'web3 work forums,' which are actionable mechanisms aimed at improving contributor security in terms of psychosocial security, financial stability, and regulatory clarity. Broadly, these proposals can be classified into social norm-based policies, technical mechanisms, interfaces with the existing regulatory environment, and changes in the regulatory environment.

Social norms

Two key ways emerged in which changing social norms could help to improve DAO contributor wellbeing. Firstly, the ecosystem needs to recognise and value the invisible labour of coordination that maintains the flexible and self-determined structures in DAOs. This work could be made more visible by explicitly pricing it into contractual project work or adding it as a category in contributor compensation tools. The latter seems particularly feasible as many popular DAO compensation tools, such as Coordinape⁶ or SourceCred⁷, already use dynamic and participatory mechanisms for DAO contributors to evaluate each other's work and how it should be compensated. These tools could introduce a pop-up or separate category to prompt people to consider invisible forms of labour performed by their peers.

Secondly, participants of the web3 work forums suggested that contributors need to find a way to collectively set boundaries around working times. Such boundaries could take the form of a proposal submitted to the DAO, which stipulates shared expectations on working hours. As DAO contributors can vote on such proposals, shared expectations could become explicit and referenceable by being adopted as a contributor code of conduct. Although seemingly feasible, the authors are not aware of such proposals currently existing in DAOs. Furthermore, contributor codes

6. See: <https://coordinape.com/>

7. See: <https://sourcecred.io/>

of conduct could also be translated into more ecosystem-wide initiatives to establish voluntary working standards for DAO contributors. Such standards could be devised and propagated through a dedicated working group in existing DAO standards bodies, such as DAOStar⁸. By opting in to such voluntary standards, DAOs could increase their attractiveness towards talented contributors and thereby potentially gain a competitive advantage.

Technical mechanisms

Without being explicitly asked, interview and workshop participants intuitively suggested blockchain-based unemployment funds, parental leave funds, mental health support or universal basic income, as mechanisms that could improve working conditions. We brought these suggestions to the web3 work forum, where participants generalised the idea of establishing social security funds using blockchain-based technical mechanisms. These funds share certain requirements: (1) a mechanism to raise money, (2) conditions determining access and eligibility, and (3) a mechanism that transparently distributes the money to members if these conditions are met. The Protocol Guild⁹ was frequently cited as a strong example. The Protocol Guild distributes regular income to Ethereum core contributors, in addition to their earnings elsewhere. Currently, it supports 181 individuals who have consistently contributed to Ethereum core infrastructure projects (mainly in a technical capacity), and whose application was accepted by the existing Protocol Guild members using rough consensus. It raises money by promoting social norms, e.g. that projects building on Ethereum should contribute to its open-source development. Funding has come from a portion of projects' venture capital (VC) investment raises or protocol fees. The Guild also created a specific smart contract, called a split contract, which automatically distributes funds to eligible members based on criteria. Generally, contributors suggested creating more Protocol Guild-type funds for non-technical contributions and specific purposes such as sick leave or unemployment. Throughout our discussions, two main concerns surfaced: how to curate membership and establish eligibility, and how to ensure sustainable financing. Nonetheless, participants across the research were enthusiastic about creating 'web3 native' social security schemes.

Interfaces

Strengthening DAO contributors' access to existing social security schemes by cre-

8. See: <https://daostar.org/>

9. See: <https://protocol-guild.readthedocs.io/en/latest/>

ating and adopting interfaces with the regulatory environment surfaced as another proposal. 'Interfaces' are third-party organisations such as freelancer cooperatives, which can help to reduce administrative burden on individual contributors and facilitate access to public services. Such interfaces already exist: for example, Toku¹⁰ is a private company which has created Professional Employment Organisations and Employer of Record Organisations, through which DAO contributors can be formally employed, as well as creating solutions to streamline their tax compliance when earning income in tokens. Another example is Opolis¹¹, a cooperative in the US which acts as an Employer of Record and helps independent workers (not just DAO contributors) manage their payroll. Opolis also uses the group's purchasing power to give members access to benefits such as affordable health insurance or 401 (k) investment plans¹². They allow contributors to continue self-determined, flexible DAO work, while also providing various statutory benefits. While these two organisations are effective at improving contributor security, they are not widely accessible as Toku is relatively expensive and Opolis only caters to US-based contributors. Consequently, participants recommended making such interfaces more ubiquitous, either by setting up new organisations or by plugging into other existing structures, such as Smart,¹³ a network of freelancer cooperatives operating throughout Europe. Furthermore, participants emphasised their preference for interfaces to be run as cooperatives, as they operate on values and principles that align with those of DAO contributors.

Regulatory change

Advocating for regulatory change is important to improve security for DAO contributors. Firstly, DAOs need to obtain some type of legal personhood, either by associating the DAO with a traditional legal entity (Ghavi et al., 2022), through bespoke DAO legal entity forms (Wright & Law, 2021) or a third approach advocated by the COALA DAO Model Law (Choi et al., 2021), where DAOs are recognised as having legal personality and limited liability, without needing to formally incorporate legally, if they fulfil certain (technical) requirements. This third approach has been described as regulatory equivalence (De Filippi & Mannan, 2025). Inspired by regulatory equivalence, participants discussed whether DAO contributors could be more easily recognised as a distinct freelance workforce if they implemented a

10. See: <https://www.toku.com/>

11. See: <https://opolis.co/>

12. A 401(k) is a retirement savings plan structure in the US that lets individuals invest a portion of each paycheck before taxes are deducted depending on the type of contributions made.

13. See: <https://smart.coop/>

type of standardised contributor agreement. Similar to a normal contract, this agreement would specify the parties to a contract, their rights and obligations, and detail the scope of work. The agreement could also incorporate certain on-chain provisions, like an automated payments distribution schedule that guarantees that work is carried out or remunerated in a certain way.

A second area of reform involved clarifying how securities law applies to tokens, which affects contributors' tax obligations and legal liabilities. Web3 work forum participants proposed decoupling financial and governance rights in tokens to reduce uncertainty, though this depends on how jurisdictions regulate tokens overall.

Finally, the last area of legal reforms concerned laws around digital nomadism. Participants argued that, as a globally dispersed yet highly skilled and often privileged workforce, DAO contributors are ideally positioned to lobby for more supportive regulations for nomadic freelancers (regardless of their passport). Ideally, such conversations can lead to a more fundamental dialogue concerning the freedom of movement of labour.

Discussion and concluding remarks

In this section we return to the threefold goals of this paper: (1) to discuss if and to what extent DAOs can be positioned as organisations in the solidarity economy, (2) to create a better understanding of the working conditions in DAOs today and how they relate to those anticipated in the solidarity economy, and (3) to advance proposals that can encourage DAOs to move closer to the solidarity economy. We discuss our insights for each goal, acknowledge limitations and outline future work that may help to bridge challenges and move DAOs closer to the solidarity economy.

5.1 Positioning DAOs in the solidarity economy

The relationship between DAOs and the solidarity economy is complex and evolving. While DAOs often invoke solidarity economy values in their design and discourse, whether they function as solidarity economy organisations in practice is far less clear. Mutualist organisations and cooperatives feature prominently in the imagination of DAO contributors. Participants in our study mostly associate their DAOs with co-ops, drawn by the promise of a bottom-up member-owned organisational structure. Many contributors explicitly joined DAOs for intrinsic reasons beyond profit (i.e. working with value-aligned people and contributing to systemic

change).

We conclude that DAOs have aspirational potential to fit within the solidarity economy. However, the reality is complicated by DAOs' hybrid organisational logic. Many DAOs blend cooperative ideals and mechanisms (e.g., collective ownership and democratic self-management) with elements from the startup and crypto ecosystems, including speculative token models, venture capital funding, and flexible – though often precarious – labour arrangements. Hence, whether DAOs qualify as solidarity economy organisations is not straightforward. Rather, it depends on the governance model, the distribution of power and value, and the everyday work practices within a given DAO. While some may be moving toward a solidarity economy paradigm, others remain entangled in extractive or market-driven logics that limit their transformative potential.

5.2 Relating current working conditions in DAOs to the solidarity economy

One of the defining features of solidarity economy organisations is their commitment to delivering decent work, as articulated by the International Labour Organisation (ILO, 2022), balancing economic, social, and environmental dimensions of work and fostering inclusive and sustainable economic growth. Our findings show that, while DAOs hold promise in certain areas of the solidarity economy, they cannot be said to promote the outcomes we expect from solidarity economy organisations for their workers. Although DAOs aspire to be stakeholder-oriented, rather than shareholder-oriented,¹⁴ we found no strong evidence that they provide better labour conditions. Many contributors described DAO work as unstable, undercompensated, and unpredictable, often leading to self-exploitation. Token-based compensation, often tied to speculative markets, introduces volatility. Formal labour protections are difficult to apply to blockchain-based organisations given their 'alegal' nature (De Filippi et al., 2022), thereby weakening access to job security, benefits, and safeguards against exploitation. Nonetheless, DAOs are more aligned with the ILO's mandate that work should be an act of self-realisation. Many DAO contributors are drawn to their organisations by intrinsic motivations, such as the opportunity to work on causes they believe in, collaborate with value-aligned individuals, experiment with novel forms of organising, and have greater control over their work. The participatory nature of DAOs, at least in principle, allows contributors to become governance stakeholders and exercise greater autonomy in decision-making, potentially leading to better on-the-job relations that reflect solidari-

14. Stakeholders being defined as any contributor, be that a freelancer, token holder, investor, and employees whereas shareholders are limited to token holders or investors.

ty economy principles and distancing DAO work from archetypal gig work. However, the actual degree of participation often depends on one's proximity to core teams or early token holders, and disparities in access to governance power remain a challenge.

Regarding the broader social outcomes expected of solidarity economy organisations – such as improving labour conditions in the informal economy, reducing gender disparities, and offering employment to disadvantaged groups – the evidence from DAOs is currently thin. While DAOs theoretically offer borderless, accessible forms of participation, our research found little evidence of systematic efforts to support an inclusive work environment. As regulatory clarity and compliance remain issues for DAO workers, DAOs lack interfaces with traditional institutional support structures, such as social security systems and health insurance coverage. Finally, while solidarity economy organisations often operate within robust support networks and legal frameworks, DAOs typically exist in regulatory grey zones. The absence or weakness of external enforcement mechanisms and shared standards for decent work limits their ability to guarantee equitable outcomes. In this regard, aspects of DAO work may involve the precarity associated with the gig economy, rather than the cooperative or mutualist organisations traditionally associated with the solidarity economy.

5.3 Proposals to align DAO working conditions with solidarity economy goals

Addressing these challenges requires creative strategies and proposals, some of which were derived from the web3 work forums. For one, organisations should develop new standards that create the conditions for decent work. A model contributor agreement, for instance, could address issues such as working time, specific working conditions, payment form, and access to, web3-native social security funds. Such defaults could also raise awareness of 'functional gateways' such as Opolis and Toku, which can help contributors gain access to healthcare coverage and comply with local tax regulations.

DAOs face unique challenges and affordances due to their technical designs, which influence their operations. Thus, advocacy must align with the product design frameworks that define these organisations. Unlike traditional organisations that primarily rely on law for structuring purposes, DAOs must consider their technological affordances such as value flow via native cryptocurrencies, governance allocation, and the inherent precarity associated with these elements, all of which are interconnected with their products and modes of participation.

Beyond the bilateral contracts between DAOs and their contributors, the uncertain employment status of DAO contributors also complicates collective action. This is not only a practical matter, but also a legal issue: ‘solo self-employed persons’ (as opposed to employees) are constrained from collective bargaining or reaching collective agreements under competition law in many major jurisdictions. However, just as the European Commission has provided clarity on collective agreements between solo self-employed persons and digital labour platforms not violating EU competition law,¹⁵ similar clarity is needed for DAO contributors globally. In lieu of such clarity, it becomes essential that DAO contributors be able to join large freelancers’ cooperatives due to the member benefits, public visibility, and sectoral voice. Finally, there is a need for greater advocacy efforts to raise awareness about the unique dilemmas posed by DAO work, including through engagement with major multilateral bodies like the International Labour Organization (ILO), which have largely ignored developments in this sector. These advocacy efforts can supplement other strategies and proposals mentioned above, and join existing advocacy efforts that promote regulatory clarity about the securities status of crypto-tokens, the legal status of DAOs, and the free movement of labour.

5.4 Future work and concluding remarks

The present study has limitations in terms of its size and scope. Future researchers could build on our findings by testing them with a larger sample of DAO contributors or a curated sample of contributors who have faced structural inequalities in the workplace (e.g., women, racial minorities, migrants) (Reibstein and Schlachter, 2023; Sobering, 2016). This would enable an evaluation of our findings on contributors’ motivations and aspirations, and their perceptions of psychosocial security and financial stability. Human resource management scholars and economists, who have built a large body of literature on job satisfaction, job retention, and worker compensation, have primarily focused on industrial and service workplaces (e.g., Makridis, 2025). There is an opportunity to expand this body of work to include DAOs and other Web3 organisations as new workplaces with distinct characteristics. Moreover, future researchers can empirically validate the performance of the technical mechanisms (e.g., Protocol Guild) and organisational interfaces (e.g., Opolis) that DAO contributors mentioned in our study.

There is also a need for emerging law and policy frameworks concerning DAOs to engage with labour and employment issues. Currently, legal frameworks for DAOs, in the US (e.g., Vermont, Wyoming, Utah, New Hampshire, etc.) and beyond (e.g.,

15. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022XC0930%2802%29>

Marshall Islands) (Błaszczuk, 2024; Sheikh and Sifat, 2024), focus on offering attractive entity structuring options that can enable DAOs to have a separate legal personality from their contributors and contributors to enjoy limited liability protection. Recently, the US Department of Justice has also begun offering more certainty about how it will apply US securities laws to tokens (Blanche, 2025). While these developments in the US in particular address some of the proposals and concerns floated by DAO contributors in our study, labour and employment issues remain a blind spot. This omission can also be seen in England & Wales, where its Law Commission conducted an otherwise comprehensive scoping study of the legal and regulatory issues raised by DAOs (Law Commission of England and Wales, 2024). As with an earlier generation of digital labour platforms, policymakers should engage with DAO contributors to evaluate the risks of DAO contributors being misclassified as independent contractors when they should be deemed to be employees, and how these contributors can contribute to, and benefit from, social security and pension schemes in more than one jurisdiction. Policymakers, along with legal experts, should also assist in the development of standardised contributor agreements that comply with local laws, explore and help alleviate the obstacles faced by DAOs and other Web3 organisations in sponsoring contributors to work in different parts of the world, while complying with tax laws.

In summary, we have presented the first in-depth, qualitative empirical research study investigating the labour outcomes produced by DAOs, aiming to understand if and to what extent DAOs may function as vehicles for the solidarity economy. We conclude that DAOs may promote some of the outcomes we expect from solidarity economy organisations, especially in terms of increased autonomy, participatory governance, and mission-driven engagement. However, they fall short in delivering for others, particularly those related to worker economic security, social protection, and inclusion. Without intentional efforts to address labour precarity and inequality, DAOs are unlikely to meet the full set of expectations associated with decent work and solidarity-centred enterprises in the solidarity economy.

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