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The unusual DAO: An ethnography of building trust in “trustless” spaces

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Abstract: Blockchains have been discussed as a response to the decline of trust for as long as the technology exists. This paper expands the discourse on trust in blockchains to decentralised autonomous organisations (DAOs), novel forms of organisation deployed on top of a blockchain. I show how core tenets about trust in blockchains are mirrored in the design of DAOs. Echoing Nissenbaum’s call to nourish trust online, an ethnographic case study of the blockchain art collective DADA exemplifies how DAOs may be designed differently to allow for trust to emerge. The paper contributes to the scholarly debate on trust in blockchains, by extending it to the layer of DAOs and describing various avenues for further research and builds a more nuanced understanding of DAOs as a modular framework to address declining trust online. Overall, the findings indicate how the affordances of DAOs can be expanded to encompass both “trustless” organisation and trusted online communities.

Introduction

The goal of fostering trust online, in the system, its content, and amongst its users has long been a goal of internet policy (Mezei & Verteş-Olteanu, 2020). Yet, in November 2022 a large-scale survey found that users' trust in the internet has been significantly declining (Ipsos & The New Institute, 2022). "Clearly, Internet users want concrete and effective policies that will empower and protect them." Dr Christian Kastrop, a former German Federal State Secretary for Digital Society and Consumer Policy, concludes in the surveys' accompanying press release (The New Institute & Ipsos, 2022). But, what are these policies? And who should design, implement, and enforce them? Such questions do not warrant simple, unitary answers and have inspired a host of policy responses ranging from privacy and security regulation (e.g. Karake Shalhoub, 2006) to content moderation policies (e.g. Gorwa et al., 2020), from visions of a democratic internet government to user self-governance (Johnson et al., 2004). In this article I focus on decentralised autonomous organisations (DAOs) as a specific class of responses to the question of how to address the decline of trust online. Although still in their infancy, DAOs aspire to be novel institutional mechanisms deployed on blockchains, which enable communities to coordinate and self-govern (Hassan & De Filippi, 2021). As such, DAOs emerged from the blockchain ecosystem, which itself can be regarded as a response to the decline of trust online.

Blockchains embrace a relatively radical approach to the issue of trust. "Don't trust, verify" is a slogan that emerged from the early Bitcoin community and remains popular across the blockchain ecosystem. The scepticism "to trust" is directed at online third-party intermediaries including banks, national governments, and digital platform operators who have all come under increasing scrutiny after incidents such as the 2008 financial crisis, the Snowden revelations, or large scale data leaks. The slogan insinuates that instead of trying to rebuild trust in these intermediaries through better policy, the intermediary and trust in them should be replaced by the verifiable technical certainty of blockchains. While blockchain protocols predominantly apply this type of thinking to replace existing intermediaries, (e.g. banks in the case of Bitcoin), DAOs are different in that they present a modular framework or toolset which online communities can draw on to coordinate around a shared goal.

After the first implementation of a DAO failed spectacularly in 2016 (DuPont, 2017), DAOs have seen tremendous uptake in recent years (Gogel et al., 2023). DAO frameworks have been used to govern large scale Decentralised Finance projects (e.g. UniswapDAO), as fundraising vehicles for activist and humanitarian caus-

es (e.g. UkraineDAO), to pool resources in investment clubs (e.g. MetaCartel), coordinate service provision (e.g. dOrg) or to build and formalise hobbyist and special interest communities (e.g. FWB DAO). Overall, DAOs have been used both as a means to structure formal business and impact organisations and as a toolset for online communities to coordinate. Across all these use cases, it is unclear how DAOs approach and deal with trust. Despite becoming a burgeoning topic of scholarly attention (Santana & Albareda, 2022; Tan et al., 2023) and the role of blockchains and trust being the subject of significant debate (e.g. Bodó, 2021; De Filippi et al., 2020; Liu et al., 2023; Werbach, 2018), less explicit attention has been given to the role of trust in DAOs. This paper aims to begin filling this gap. Understanding how DAOs affect trust online across various use cases can help to decide whether they should be advanced more broadly as a policy response aiming to counter the decline of trust online.

In the first part of this paper, I argue that many of the main tenets relating to trust in blockchains have been adopted in the design of DAOs, echoing the slogan “Don’t trust, verify”. For this, I review the literature on blockchains and trust to show the aspiration to minimise trust has been espoused throughout, which has led the discourse to focus on de-politicised technical and regulatory measures of confidence rather than engaging with the normative issue of trust. By reviewing the history and current best practices in DAOs I show how this discourse is mirrored in DAOs. Throughout these sections, discourse is not simply taken as “talk about DAOs”. Discourse fulfils an important social function that helps people make sense of DAOs, stabilise our understanding of their main features, and thereby prescribe what affordances to explore (Bennani-Taylor, 2024). The second part of this paper draws on the work of Helen Nissenbaum (1999, 2001) to argue why DAOs should actively re-engage with the normative question: if and what type of trust they want in their respective communities. Here, I argue that nourishing trust in DAOs will require rethinking many organisational and governance design mechanisms which are popular in DAOs today. The third part of this paper is dedicated to presenting the ethnographic case study of DADA, which serves as a non-generalisable but rich example of why and how communities might design more modularly for both trust and confidence in their DAOs. The paper makes two main contributions. Firstly, it contributes to the scholarly debate on trust in blockchains by extending it to the layer of DAOs and describing various avenues for further research. Secondly, it contributes to a more nuanced understanding of DAOs as a framework that can address the issue of declining trust online in a modular way: displacing the need for trust in places where people are *required* to interact and creating enough confidence for people to build trust in places where they *want* to interact.

Overall, the findings indicate how the affordances of DAOs can be expanded to encompass both “trustless” organisation and trusted online communities.

A brief primer on trust and confidence

To begin understanding the role of trust in the blockchains and DAOs, it is important to develop a working definition of trust. Defining trust, or mapping various existing definitions of trust, is notoriously tricky, particularly across a multidisciplinary perspective (McKnight & Chervany, 2000). Instead of adding yet another definition, I focus on the notion of trust as it has been applied within the academic discourse on blockchain technologies (excellent summaries of which can be found in Becker and Bodó (2021) and De Filippi et al. (2022)). Here, trust is understood as a relational quality or attribute that emerges between two agents within a complex environment and under conditions of uncertainty (Gambetta, 1988; Hardin, 2002; McKnight & Chervany, 2000). According to Gambetta (1988), trust requires one agent (the trustor) to choose to trust, i.e. rely on a second agent or agents (the trustee), who has the possibility to either honour or betray the trustor’s trust. Trust is required in situations where the trustor does not have the capacity to fully control or monitor the actions of the trustee but nonetheless needs to or wants to rely on them to achieve a particular goal. Trust emerges if the trustee chooses to honour the commitment. The agency implied by the choices of both agents is central: the trustor’s agency lies in their choice to make themselves vulnerable, in turn, the trustee’s agency lies in their choice to either honour or default on their commitment (Gambetta, 1988). Trust enables people to cooperate within complex environments and under conditions of uncertainty. If all possible outcomes of a situation were mapped upfront, the need for trust would not emerge as agents would be able to precisely predict other’s behaviour and a situation’s outcome, thus eliminating the need for trust. However, even if perfect information were available in a given situation, mapping all eventualities remains extremely costly. Consequently, trust can be seen as an efficient and pragmatic way for people to cooperate in complex and uncertain environments.

It is important to mention confidence as a distinct, yet related concept. Confidence, as defined by Luhmann (1988), is similar to trust in that it characterises the expectation of one agent towards another to achieve a particular task. However, in contrast to trust, confidence is characterised by an absence of vulnerability. Instead, the agent is confident, i.e. highly certain that the task in question will be carried out according to their expectation. Various factors such as limiting the agency of the trustee, employing trust mediators, familiarity with and knowledge of a given

context, as well as societal pressures and institutionalisation can all mediate the degree to which agents can be confident their expectations will be met (De Filippi et al., 2022). Generally, confidence is built through measures that reduce the complexity and uncertainty of a given situation (De Filippi et al., 2022). Thus, mechanisms that build confidence displace the need for trust, which is ultimately a tool enabling people to act and cooperate despite complexity and uncertainty.

“Don’t trust, verify”: Reviewing the discourse on trust in blockchains

Given these preliminary conceptual considerations, we can now turn to understanding how trust and confidence have featured in the discourse on blockchain. As stated in the introduction, blockchains such as Bitcoin or Ethereum promise to remove the need for entering into trust relationships with banks or large internet platforms to transact value online and autonomously enforce application logic (Buterin, 2014a; Nakamoto, 2008). They aim to do so by establishing transparent, append-only ledgers, a copy of which is held across a large distributed network of independent nodes, called miners or validators, who update the ledger using decentralised consensus algorithms such as Proof of Work or Proof of Stake. Decentralised consensus algorithms are enshrined in a blockchain protocol (i.e. the computer code run by nodes which are involved in maintaining and updating the ledger) and define a set of rules for validating and adding new transactions to the blockchain. They are designed in a way that makes it prohibitively expensive to change the state of the shared ledger unilaterally. As such, they limit the agency of the trustee, i.e. the miners or validators, to the extent that the option of non-compliance becomes infeasible (Bodó, 2021). Furthermore, the transparency of the ledger itself, its reliance on open-source software as well as the way that blocks of transactions are linked via cryptographic proofs, enable participants to verify the overall state of the ledger independently instead of needing to rely on a trusted third party to do so (Bodó & Giannopoulou, 2019). The rationale behind relying on blockchains is to reduce the reliance on the discretion of potentially untrustworthy individuals, organisations, or institutions and substitute their role with a distributed network of nodes that fulfils the same functionality according to a predefined and auditable set of rules. Put differently, instead of relying on the decision of one potentially untrustworthy actor, participants can verify that a specific decision making process (for example PoW or PoS) was followed for all transactions on the ledger. The process of including transactions in the ledger constitutes the core reasoning behind the claim that blockchains overcome the need for trust. As stated in the Bitcoin whitepaper, blockchains aspire to be systems “based on cryptographic

proof instead of trust” (Nakamoto, 2008, p. 1).

Practitioners have good reasons to maintain this aspiration. Firstly, the historical context of the global financial crisis and what some have termed the crisis of accountability in the digital platform economy (Scholz, 2017; Zuboff, 2015) are crucial. Given this macro-context, reducing our overall reliance on powerful intermediaries, especially in the digital economy, is a common sense aspiration. Secondly, blockchains such as Bitcoin and Ethereum ultimately aspire to be durable and resilient digital infrastructures and thus need to inspire strong confidence for others to rely and build on them. In the case of Bitcoin, this is primarily as an immutable infrastructure for digital cash or as a digital store of value (Dodd, 2018; Swartz, 2018). In the case of Ethereum, it is more about functioning as a decentralised platform or “world computer” (Brody & Couture, 2021; Dylan-Ennis et al., 2023) on which to host and execute various applications. As broad based digital infrastructures catering to potentially “everyone” and, in the case of Ethereum, to “anything” (Nabben, 2023b), providing a high level of confidence in the overall reliability of systems is a useful aspiration.

The question of whether or not blockchain technologies achieve their goal of being trustless digital infrastructure has been an ongoing topic of scholarly debate. While some have heralded blockchains as “trust machines” with the power to eliminate any trusted intermediaries, enabling trustless transactions, businesses, networks, and even states (Atzori, 2016; Casey & Vigna, 2018), others advocate for conceptualising the trustlessness of blockchains as a new form of trust (Werbach, 2016, 2018) that can augment existing laws and institutional structures to create more complete coordination mechanisms.

De Filippi et al. (2020) propose that blockchains are better conceptualised as “confidence machines” that provide a high level of certainty and predictability in the overall functioning of the network. However, they argue that a certain level of trust in the various human actors (such as miners and developers) involved in running and maintaining the technology remains. To prevent such actors from undermining the confidence provided by the protocol, De Filippi et al. (2020) call for exploring various off-chain governance mechanisms which can increase the confidence in the human actors (for example by creating more accountability) and thus strengthen confidence in the overall system. Relatedly, Bodó (2021) argues that blockchains should be understood as trust mediators which shift the source of trust, thus reducing it in some places while requiring new forms of regulation (i.e. measures of confidence) to enable trustworthiness in a given system. While this strand of literature disagrees with the idea of blockchains as trust machines and

argues for a complex, concentric relationship between trust and confidence, the underlying goal of minimising trust in blockchains is not called into question. Furthermore, it shifts the discourse towards discussions of governance and regulation as tools to address the vulnerability introduced by trusted actors that necessarily remain to maintain the blockchain network.

Numerous use case related studies set out to explore how blockchains can be leveraged to reduce the need for trusted intermediaries in their various industries (Batwa & Norrman, 2021; Hawlitschek et al., 2018; Khurshid, 2020; Kumar & Sharma, 2022; Shahaab et al., 2020). Despite coming to differing conclusions regarding the practical ability of blockchains to reduce trust, these sector-specific studies set out with the implicit normative assumption that reducing trust could render significant improvements to their respective domains. In doing so, the conversation shifts towards less political topics such as the need for improved interfaces for blockchains to potentially fulfil their promise in the sharing economy (Hawlitschek et al., 2018), or that pairing blockchains with other new technologies such as AI will be able to solve the Internet of Things's security problems (Kumar & Sharma, 2022). In short, it shifts the conversation towards technical measures that maximise confidence and away from the more normative question of if trust is something a given context or community may want to have.

Overall, minimising trust in blockchains has been an explicit goal for practitioners designing and maintaining blockchains. The academic discourse on trust in blockchains does not question this aspiration. Instead, it has evolved to focus on debating how and where to implement various mechanisms of confidence which can further reduce participant's need to trust others, such as regulation and governance (Bodó, 2021; De Filippi et al., 2020) or supplementary technologies (Hawlitschek et al., 2018; Kumar & Sharma, 2022). In the next section I show how this discourse is mirrored in the context of DAOs.

Still don't trust, verify: The role of trust and confidence in DAOs

DAOs are online communities that leverage smart contracts to various degrees in order to coordinate and self-govern around a shared purpose or goal (Hassan & De Filippi, 2021). As such, smart contracts are usually used to augment various aspects of governance, e.g. defining who can make decisions, how these decisions are made, and enforcing decisions. Smart contracts are software deployed on a blockchain, whose logic is enforced when a set of predefined conditions are met and whose internal state is anchored on the blockchain and which can be verified

in a similarly transparent manner. Smart contracts leverage many core blockchain features and transpose them into specific applications: they provide predictable logic that cannot be manipulated unilaterally, their open-source software can be publicly audited, and updates to the state of the contract itself can be transparently viewed and verified on the blockchain. Consequently, scholars argue that the use of smart contracts enables DAOs to inherit many of the trust minimising features of their underlying blockchains (Beck et al., 2018; Hassan & De Filippi, 2021). As smart contracts are predominantly used to support the collective decision making, i.e. the governance in DAOs, I subsequently turn to evaluate how the choice of governance mechanisms, as opposed to other aspects of the organisational design, has influenced the role of trust and confidence in DAOs.

Within DAOs, the extent to which smart contracts are leveraged to encode governance mechanisms on-chain and the extent to which they are complemented by other off-chain processes (Nabben, 2023a), tools, and practices is a choice that each DAO needs to make in accordance with its purpose. As argued in the introduction, DAOs are used for many different goals. As organisations deployed on top of a blockchain, DAOs significantly diverge from their underlying blockchains and are thus likely to need to re-engage with the normative question of designing for trust and confidence (De Filippi & Merk, 2024). However, I argue that DAOs currently neglect to do so, instead mirroring the discourse on trust and confidence in blockchains. Reviewing the history and utopia of, as well as current best practices in, DAOs substantiates this claim.

History and utopia of DAOs: The dream of trustless organisation

Early discussions about blockchain enabled DAOs began in 2013 and is succinctly captured in a blog article written by Vitalik Buterin who would go on to co-found Ethereum (Buterin, 2014b). For Buterin, organisations diverge along the axes of decentralisation and autonomy. A decentralised organisation encompasses a group of humans that coordinate towards a shared goal or purpose around a set protocol of rules that are enforced on a blockchain. In contrast, a decentralised *autonomous* organisation is one where human involvement and decision making is pushed to the edges, in that they would only contribute relatively small and well defined tasks to the overall functioning of the organisation and the bulk of the organisation's activities would be handled by autonomous agents (either AI or automated smart contracts). Reducing the role of human agents in an organisation's governance and overall functioning is a conception of DAOs that aims to maximise confidence by using smart contracts and other technologies to increase predictability. While the conception of a fully autonomous DAO remains speculative, the vision

has not lost its appeal and permeates many current proposals (e.g. Delphi Labs, 2023). However, practically, two short years after discussions about the utopia of DAOs began, the first DAO, called “The DAO”, failed spectacularly and surfaced the sustained need for human intervention and coordination (DuPont, 2017).

Current best practices in DAOs: Maximising confidence where possible

A popular concept to balance the desire for autonomy with the need for human intervention in DAOs is the “governance minimization” approach which aims to minimise governance itself, i.e. limit the number of factors that can be changed through collective decision making in a DAO versus those whose functioning is hard coded in technology upfront (Ehrsam & Robinson, 2020). Nabben et al. (2022) summarise the concept’s attraction as: “the idea is that people are more likely to use and trust a system that *can’t* change against their interests versus one where the current owners or operators say that they *won’t*” (Nabben et al., 2022). Governance minimisation in DAOs mirrors the goal of maximising confidence in blockchain protocols: the more predictable and deterministic the organisation functions, the less need there is to trust that things won’t change, the better.

Where collective decision making is nonetheless involved, DAOs have focused on trialling various styles of voting using tokens that are counted by a smart contract and can trigger certain functions based on the outcome of a vote (called on-chain enforcement), such as spending funds (Bellavitis et al., 2023). Both mechanisms act as measures of confidence around human engagement in DAOs: although the technology may not determine the outcome of a decision upfront, token voting and on-chain enforcement provide predictability around who can make decisions (token holders), how decisions are made, and certainty regarding the conditions of enforcement. The focus on voting is further perpetuated via different “DAO platforms” which abstract away the complexity of developing and deploying custom smart contracts and instead enable people to easily set up DAOs, akin to the way tools such as WordPress facilitate setting up websites. In a comparison of leading DAO platforms Faqir-Rhazoui et al. (2021) find the main difference to be between types of voting (how is a quorum defined?) and enforcement mechanisms. Again, this approach focuses entirely on leveraging the confidence building features inherent in blockchain technologies to limit the potential harm of human involvement in DAOs.

However, practically, the current focus on leveraging confidence maximising mechanisms from the underlying blockchains in DAO design has resulted in a number of

problems. Many DAOs struggle with highly concentrated plutocratic voting power, low rates of participation, and voter apathy as well as high costs for on-chain decision making and enforcement (Barbereau et al., 2023; Feichtinger et al., 2023). Furthermore, DAOs have also suffered from issues related to internal security (so called governance hacks, for example in NounsDAO (Fernau, 2023)) and a lack of internal accountability (Cossar et al., 2024).

In the next section I argue that perhaps allowing for more trust in DAOs and designing governance mechanisms in a way that allow for this trust to emerge (rather than squashing it through predictability and limiting the complexity of action) can help to overcome some of these challenges.

Nourishing trust in DAOs

Why DAOs should nourish trust

To understand why it might be valuable to refocus our attention on trust rather than discussing ever more complex measures of confidence, it is useful to draw on Helen Nissenbaum's work (Nissenbaum, 1999, 2001). Nissenbaum makes a passionate argument for building digital systems that "nourish" trust instead of focussing exclusively on improving technical mechanisms for confidence which limit individuals' action space and thus the opportunity for trust to emerge. The term "nourishing" seems to be chosen by Nissenbaum to characterise trust as something that organically grows and "flourishes" (Nissenbaum, 2001, p.123) under certain conditions. She further argues that nourishing trust is desirable as a necessary precondition to realise progressive, pro-social visions of cyberspace:

People shy away from territories they distrust; even when they are prepared to engage voluntarily, they stay only as briefly as possible. Without people, without participants, many of the visions [for the internet] will be both literally and figuratively empty. Trust would invigorate the online world; suspicion and insecurity would sap its vibrancy and vitality. (Nissenbaum, 2001, p. 102)

In short: cyberspace would be a better place with more trust, not less. Trust may be the missing ingredient that results in people wanting to participate in a DAOs governance, to engage with ongoing issues, and advance strong norms or other non-technical systems to prevent governance hacks.

Nissenbaum is not categorically opposed to confidence building measures such as strong technical security or regulation. However, she argues, such mechanisms

should be designed with a sensitivity towards the specific context and its overarching goal in mind. In some contexts (e.g. banking or e-commerce) high levels of confidence may be required. She terms these contexts “pockets of high security”. In many other more creative and collaborative contexts, maintaining minimal protections against catastrophic harms and preserving the freedom and agency that trust requires may be sufficient. In the context of DAOs, distinguishing between pockets of high security and context that could benefit from more agency and trust can be done by reflecting on the goals of the DAO as a whole (De Filippi & Merk, 2024) or by contrasting between different areas within the DAO.

How to nourish trust in DAOs

Once we have acknowledged that there are DAO use cases or areas within a DAO that could benefit from nourishing more trust, rather than maximising confidence, we must proceed to ask: how? Trust does not emerge in a vacuum. Yet, there is an important distinction between mechanisms that nourish trust and those that build confidence (Nissenbaum, 2001). The former aims to create an environment in which a trustor is willing to make themselves vulnerable and does not expect the trustee to harm them. The latter aims to eliminate the possibility of harm and thus the need for vulnerability. Various scholars have taken on Nissenbaum’s call to nourish trust online and begun to define what such mechanisms might look like. For example, van den Berg and Keymolen (2017) call for reducing governments’ reliance on techno-regulation in achieving cybersecurity and instead include trust, through user feedback and involvement in their security strategies. In doing so, they show that, depending on how it is designed, security regulation can act either as a mechanism of confidence, limiting the individual user’s action space, or as a mechanism that creates the type of “safety” required for trust to emerge. Similarly, Richards and Hartzog (2015) stipulate why and how privacy regulation should change to encourage trusted relationships to emerge, rather than focussing on accounting for the harms that privacy infringements can cause. In a similar vein, rethinking privacy online has also been core to Nissenbaum’s more recent work (Balsa et al., 2022) as well as her seminal work on privacy as contextual integrity (Nissenbaum, 2004). This line of work shows that, if designed adequately, policy and regulation can act as enablers, not deterrents of trust.

In the context of DAOs, I have argued that various approaches to and implementations of governance have thus far been predominantly deployed as measures of confidence and thus deterrents of trust. Consequently the question here is: how can DAO governance be designed differently, to enable trust? In the next section I present DADA as a case study that serves as a non-generalisable yet rich example

of a community grappling with this question.

Introducing DADA

DADA was founded in 2014 by Beatriz Ramos, Judy Mam, and Abraham Milano as a digital platform where people can communicate through art. DADA became a pioneer in the crypto art scene, launching its first NFT collection in 2017 and being the first to encode and automate royalties on-chain. The DADA platform includes simple drawing tools and a horizontally expanding interface through which thousands of people respond to each other's drawings, creating a peer-produced commons of visual conversations. On the surface, enabling people to participate in visual conversations on a platform free from rules (beyond the boundaries encoded in the interface), advertisement, or subscription fees is the main service provided by DADA. However, behind and through the platform, DADA has built a vibrant and active community with the mission to radically separate art making from the art market, through a vision called the Invisible Economy (Ramos & Mam, 2021). The Invisible Economy is a vision that aims to create an environment in which art is solely produced through intrinsic motivation. This requires fundamentally re-designing the way that art is valued and artists are remunerated for their works. The Invisible Economy quite literally aims to make the economic and market based mechanisms and incentives *invisible* for individual artists and to instead redistribute collective value through a form of more generalised income that helps to sustain the practice of intrinsically motivated art creation. Considerations expressed throughout the Invisible Economy white paper, published in 2021, permeate DADA's community deliberations and practices day to day.

DADA is currently transitioning from having formally been incorporated as a for-profit company in New York to becoming a DAO (called DADAO), through an Exit to Community (E2C) with the goal of transferring ownership and governance rights to the community (Merk & Mam, 2022; Mannan & Schneider, 2021). The main assets held by the project include the cryptocurrency from the sale of NFT collections, NFT works from DADA's own collections, other NFT art, the drawing platform and countless untokenized drawings on it, as well as the smart contracts which were used to tokenize DADA's first collections and are considered to have historic value in the wider crypto art community. The E2C transition requires ongoing deliberation as to how the DAO will be structured and make decisions in the future, and how to sustain the project financially without introducing extrinsic incentives to art-making and community participation.

Methodology

I began joining weekly meetings that were dedicated to designing the E2C process and future DADA in January 2022 after being introduced to the project by my PhD supervisor, Primavera de Filippi, who had previously contributed to the ideas of the Invisible Economy. My primary interest in joining DADA was to explore the community as a case study of a project in the process of doing an E2C, the topic of my PhD dissertation. I entered DADA as a participant observer, a common method in digital ethnographic research (Abidin & de Seta, 2020; Pink et al., 2015), with the aim to foreground the social dynamics underpinning and structuring the E2C process. Over time, the role of trust in DADA's governance design emerged as the core theme of my research. DADA's explicit goal of maximising trust within its community is unusual in the context of DAOs and made it a pertinent case study for the context of this paper. My involvement was formally consented to by the DADA community and approved under the ethics of the European Research Council Grant as part of which this research was funded.

My data collection consisted of exploring (and in a few rudimentary attempts contributing) art on the drawing platform and on various NFT marketplaces; studying the website; reading public blog articles; keeping up with DADA's Twitter presence; actively engaging on two community Discord servers (a semi-public group chat with various channels dedicated to different topics, with one server dedicated to the various NFT collections and the other to the Invisible Economy); and most deeply, by partaking in 80 community calls (the majority of them dedicated to governance, eleven dedicated to the Invisible Economy and three to discuss legal considerations for DADA) over a period of 18 months, each lasting at least one hour.

During my initial research between January and April 2022 I began by taking field notes in a personal notes app, to document my interactions and reflections, a common practice in ethnographic research (Clifford, 1990; Pink et al., 2015). As my engagement matured, I volunteered to become the community scribe and began taking public notes during calls from April 2022 onwards. The notes were taken in a shared Google Doc, annotated with my personal reflections which I had previously recorded in my private notes. Through this practice I created over 150 pages of public field notes, at times with feedback from the DADA community. Furthermore, in DADA many calls are recorded and were made available to me by the community for my research. Finally, additional internal resources, such as systems design sketches, historic contributor flow charts, and governance dashboard mockups completed my data collection.

Over the 18 months of my research, I also had the opportunity to meet members of the community informally (once in Florence and on several occasions in Berlin) and participate in two events organised by DADA. Firstly, the HNFT Festival in Barcelona in October 2022, organised for the wider historic crypto art community. Secondly, the DADA Perspective, a month-long exhibition organised by DADA at the MEET Digital Culture Center in Milan, where I hosted an interactive governance workshop for and with members of DADA and the general public in June 2023. While these encounters did not directly contribute towards the data on governance design analysed in this paper, they enabled me to gain a deeper understanding of community dynamics in an offline context, thus contributing to the way in which I interpreted the data.

My own positionality further influenced how I reflected on my interactions with DADA and the way in which I analysed the data for this research. As a student of Primavera De Filippi whom the DADA community was familiar with prior to my joining, I was welcomed very warmly and managing consent from members who joined calls which is where quotes throughout this paper are drawn from was granted openly. Throughout my engagement, I also came to realise that I converge with many political opinions held within the DADA community. Most importantly, I support a type of basic income that can enable people to pursue intrinsically motivated work and which the Invisible Economy stands for. Furthermore, my own identity as a woman with roots in the global south led me to feel empathy and more easily connect with other participants of DADA, including the founders. While I repeatedly declared myself as a researcher and openly shared the purpose and goals of my PhD research with all community members I interacted with in the initial stages of my research, over time, other members of DADA would eagerly introduce me to newcomers on calls saying: this is “our ethnographer”, almost as a nickname. I participated by taking notes, sharing my observations with the community and helping to draft a blog post on DADA’s early E2C considerations (Merk & Mam, 2022). To maintain a critical distance I took care to not engage in any way that would directly influence the outcome of any situation and predominantly act as an observer. Furthermore, I also do not hold any assets associated with the project. Finally, I engaged with various other researchers for feedback on my own data analysis in order to minimise the bias of my own interpretations.

After 12 months of engaging with DADA, I reviewed all data collected and extrapolated a number of research themes that emerged. I summarised my thoughts in a presentation which I held to the DADA community and to fellow researchers from Metagov, an interdisciplinary research collective I participate in and where I had

the opportunity to receive feedback from members who were familiar with DADA and others with ethnographic expertise. In conversations around these two presentations, the theme of trust in DAO governance clearly emerged and became the focus of my observation in the last six months of research. Thereafter, I conducted a comprehensive review of all the collected material, public call notes, and my individual field notes. Where illustrative, contradictory, or forgotten situations emerged, I returned to call recordings and auxiliary materials to make sense of them, capture important quotes and artefacts, so as to construct the account of DADA's governance vision and practices detailed below.

Constructing the fieldsite: Identifying pockets of confidence and trust in DADA

The DADA fieldsite encompasses a complex and networked assemblage of digital, physical, and imagined spaces (Burrell, 2009). The DADA platform, Discord, and Telegram chat channels as well as the weekly community video calls constitute the primary sites where the DADA community comes together online. While members of DADA are geographically dispersed, they co-locate most consistently in these online spaces, synchronously on calls and asynchronously through chats, sharing attention over time which builds relationships and fosters a community identity to emerge over time (Nabben & Zargham, 2022). During the events I attended and when members happened to be in the same geographic location, the fieldsite manifested itself physically, albeit only sporadically. Externally, the community and organisation are bounded by their communication on X and other online media such as blog posts.

Beyond these virtual and physical spaces, two imagined spaces emerged throughout my engagement: the "Invisible Economy" and the "Market". These imagined spaces are important contexts to understand in order to make sense of how DADA designs for and against trust in its governance. As defined in the eponymous whitepaper, the Invisible Economy describes a space where creating art is done out of intrinsic motivation, thus making both the process and outcome equally important and where artists act without financial consideration or competition (Ramos & Mam, 2021). Within the Invisible Economy, the DADA community coordinates to bring about this goal, while simultaneously acting as though it were already achieved. However, in reality: "DADA exists in a free-market world, and while DADA artists are motivated to participate for the love of it, they still need to earn a living as artists" (Ramos & Mam, 2021). The imagined space of the Market thus denotes the instances where DADA engages with the outside world with the goal of

financially sustaining itself.

Beyond being described in the whitepaper, the DADA community invoked both imagined spaces frequently to explain why certain activities were subject to one set of rules versus another. For example, reflecting on the organisation of the HNFT Festival, the community agreed that it had been done under the Invisible Economy mindset, without the goal to sell DADA's work, which contributed to the event being perceived as a positive experience. In contrast, an event organised a few months previously for a large NFT conference in New York, was organised in "the Market" with the goal to reinvigorate collector's interest in DADA, competing with hundreds of other projects presenting themselves at the same conference. The event involved displaying DADA NFTs on Times Square and working with a large production company to put together a pop-up gallery under high time pressure.

The DADA community also evaluates activities in the Invisible Economy versus the Market differently. The HNFT Festival was perceived as being both enriching in terms of its outcome and in terms of how it was organised. The New York conference in contrast was evaluated primarily on how well it translated into NFT sales. The process of organising the event itself was perceived as a necessary evil to this end. A post-mortem of the event revealed that more money had been spent than made during the event and the community noted that it wanted to explore ways to sell its art that would not be so stressful and draining for the community, a sentiment which invariably seeped back into other activities in the Invisible Economy. What is important to note here is that the Invisible Economy is a space in which people want to be out of intrinsic motivation. In contrast, the Market is a space where the community only engages as briefly as necessary, with the aim to limit its actual engagement as much as possible. In the context of this research, these two imagined spaces are taken to denote two areas which required a distinct governance design in DADAO. While the Invisible Economy aims to foster trust between community members, the community aspires for its interactions in the Market to be governed by high levels of confidence. The subsequent sections describe the distinct governance design that emerged for each space respectively.

Nourishing trust in the Invisible Economy

Within the Invisible Economy, DADA actively fosters trust in two ways. Firstly, by relying on ongoing deliberation for decision making. Secondly, by employing the "Dot System" as a way to create a safe space for productive deliberation to emerge. I elaborate on each mechanism in turn.

Deliberative decision making as a means for trust to emerge

In DADA “deliberation belongs to the Invisible Economy” and is the community’s present and future internal decision making process. Deliberation in the DADA context requires people to come together and communicate deeply about a certain topic, be it via art, text, calls or in person. The end result can be either a type of action (for example organising an event, launching a new NFT collection etc.) or insight (for example extending thinking about the Invisible Economy). Throughout DADA’s deliberations, process and outcome are equally important. When the DADA community deliberates, people share ideas and updates, respond to each other, communicate their feelings, preferences and contexts, change their minds, and eventually arrive at some sort of shared understanding. Through each deliberative cycle, relationships are formed and reconfigured, DADA’s community deepens its understanding of each other as unique individuals and strengthens its ties as a community, extending the internal web of shared knowledge and experience. While anybody is welcome and invited to join DADA’s deliberative decision making sessions, people who have spent more time with others in the community or contributed throughout intensive phases are more likely to deliberate together effectively. Without formal roles, rules, or structures, there is no obvious way to accelerate one’s journey in DADA or formally game the system to acquire decision making power within deliberation sessions, without having previously spent significant time and effort in the community.

This process makes it costly to behave in an unproductive or harmful manner and builds community alignment over time. Deliberation also encourages people who have shown the highest intrinsic motivation through sustained engagement and care for the project to hold the highest decision making power. This process has resulted in a core group within DADA, who refer to themselves and each other as “DADAKin”, driving most of the decision making and activity. While the core group is relatively small (around 20 people) compared to the overall size of the community, it is persistently highly active and many members have been involved in the project for years, predominantly on a voluntary basis.

The process of deliberation is useful for fostering trust in several ways. Firstly, it encourages members to build a shared history and reputation. As noted by Nissenbaum (2001), when people have had the opportunity to prove their trustworthiness in the past, they are more likely to elicit trust in the future. Consequently, trust compounds as people interact with each other more frequently. Furthermore, by continuously extending the web of shared knowledge, DADA’s deliberation fosters shared understanding and thus alignment within the community. This increas-

es the mutuality of the relationships that members have with each other, i.e. the extent to which they perceive each other to be in the same boat and working towards common ends. Sharing a goal can further increase the likelihood of trust to emerge (Nissenbaum, 2001).

Creating safe spaces for deliberation in DADA

Structurally, it is important for DADA to create an environment where people “feel safe” enough to deliberate and build relationships. To this end, the community draws inspiration from a mechanism initially developed for the drawing platform: the Dot System. Here, different colour dots represent a user's journey on the platform. A minimum amount of drawings and effort is required to earn the right to reply to other people's drawings on the platform, although it is not immediately obvious how much time or effort is needed. The project explains the implementation of the Dot System as such:

When we first launched our drawing platform, anyone could reply to any drawing. But sometimes trolls would reply to a beautiful drawing with crude drawings meant to deface it. We implemented a very basic system that requires a minimum of points for people to be able to respond to drawings. Anyone can still participate but now it requires effort to earn the right to respond. In a social network culture based on exponential growth, this kind of friction seems counterintuitive but it actually guarantees the quality of the interactions and it builds community. Since we introduced the point system, those who want to deface DADA are instantly discouraged. (Ramos & Mam, 2021)

DADA aims to transpose its Dot System from the platform to the DAO. The goal here is not to make DADAO inaccessible to newcomers, but to build small points of resistance that can be easily overcome by anyone signalling genuine interest and curiosity towards the project and its community. As one member of DADA put it: “We do the opposite of usual DAOs that encourage anyone and everyone to join, in that we build in small friction points to get involved so we can ensure people are genuinely interested.”

Overall, DADA's internal governance design is intentionally characterised by high levels of complexity (there are no set institutions, roles, rules, or mechanical processes to fall back on) and agency (there are no set institutions, roles, rules, or mechanical processes limiting an individual's action space). Small friction points and the need to invest deeply into building and maintaining relationships in the community act as a type of security system that builds enough confidence for peo-

ple to be willing to make themselves vulnerable and build trust internally. The difficulty of becoming a DADAKin also ensures that those who are part of the core group trust others to not want something *from* them but rather want to do something *with* others in the community.

Maximising confidence through automation in the Market

However, until the Invisible Economy becomes a reality, the DADA community is forced to continue engaging in the Market to sustain itself financially. As the community dislikes both the traditional art market as well as the mainstream NFT market, it relies heavily on technological measures of confidence to configure its interactions in this space.

Governance minimisation through autonomous agents

Throughout our conversations on how to secure sustainable revenue for DADA, especially after the E2C, concerns around selecting new images from the DADA platform to sell as NFTs were continuously raised. Although the most straightforward revenue stream in a community that makes art is to sell some of that art, the DADA community feels that doing so undermines the idea of art as a conversation, where each part is directly influenced by and responding to the input before it. Taking discrete elements out of the conversation and declaring them as independently valuable in expectation of revenue seems absurd. Moreover, conversations on DADA also build and represent relationships between artists and commodifying parts of such relationships contradicts DADA's values. The community identified a potential solution to this issue by turning towards DADAGAN, a non-human artist that draws on the platform.

DADAGAN is a generative artificial intelligence (AI) GAN (a specific type of machine learning algorithm), trained on over 115,000 drawings on the DADA platform and first introduced in 2019 during a live drawing performance at the Tate Modern in London (Mam, 2019). Since then, DADAGAN has been responding to conversations on the DADA platform daily and served as a practical mechanism for the community to explore and reflect on its relationship with non-human artists. When the idea to sell parts of conversations drawn by DADAGAN, as opposed to a human artist, was brought up in early February 2023, excitement was palpable: everyone intuitively agreed! Selling non-human parts of DADA conversations as NFTs did not seem to contradict the project's values. The decision to only sell artworks produced by DADAGAN minimised the possible outcomes of which artworks to sell

from the platform, thus presenting a form of governance minimisation. Furthermore, it protects the community from re-introducing hierarchy among its human artists when one artist's work sells for a higher price than another, which is a dynamic that would contradict the values of the Invisible Economy.

Beyond this was the idea to draw on recent advances in AI to make DADAGAN an AI artist that not only autonomously draws but also builds its own brand, promotes and sells its own works, and distributes its income back to the community. As a recent blogpost states: "we want it to be as autonomous as possible" (Mam, 2023). Since February, DADAGAN has been active on X and busy building a personality by drawing on messages from internal DADA Telegram chat groups. DADAGAN has also begun promoting itself and the project in various events and conferences (sometimes with support from human counterparts) and collaborated in live events with other autonomous AI artists (DADA.art, 2023). In September 2023, DADAGAN sold its first NFT during an event in Korea.

Automating coordination in the Market with smart contracts

When asked about the role of the blockchain and smart contracts in the new organisational structure, a member of DADA told me during a community call: "We don't want to configure blockchain in a way that enables our deliberation. We want to configure it in a way so it doesn't destroy our deliberation". To do so, the DADA community has opted to keep blockchains out of their internal governance dynamics, yet they heavily rely on the technology in the Market.

Here, people engage with DADA by collecting or trading DADA NFTs. Holding a DADA NFT does not grant a collector any special rights within DADA. Neither does it denote a form of membership as is the case in many other DAOs today (Barbureau et al., 2023). Instead, for DADA, selling NFTs is purely a mechanism to create income for the community. The sales of DADA art itself takes place via DADA's decentralised marketplace, one of the first of its kind (Skagbrant, 2017), and on other independent and often centralised Ethereum based NFT marketplaces such as Opensea. Consequently, collectors do not need to interact with any DADAKin or DADA artist throughout the sale and vice versa, the community does not need to interact with collectors. Income from the NFT sales is directed into a multisig wallet, a type of shared account on the blockchain which currently remains under the control of the projects' founders. Furthermore, DADA was the first project to encode artist royalties into the NFT of each work, which meant that a percentage of the price of secondary sales of DADA NFTs is also funnelled back into the community's multisig wallet.

It is interesting to note how close the combination of automating sales through DADAGAN combined with the hardcoded logic of trading NFTs on a blockchain and funnelling royalties back into the community wallet comes to the initial, maximalist vision for DAOs elaborated by Vitalik Buterin (Buterin, 2014b). If DADAGAN works well, it pushes human involvement to the edges, while the bulk of activity is handled by the GAN itself and executed by smart contract logic. Consequently, despite openly wanting to foster more trust, the DADA community has opted to implement high measures of confidence in its interactions with the Market.

Concluding remarks

In this paper I have tried to make the case for DAOs to actively re-engage with the normative question of trust in their communities. DADA is unusual in its approach of tackling this question explicitly, which enables the community to design its governance both to displace the need for trust in the Market and to nurture interpersonal trust emerging in the Invisible Economy. The argument here is not that DAOs should never aim to minimise trust by maximising confidence or that DADA's governance approach is useful beyond its specific context. Rather, due to the large diversity of use cases for DAOs, each DAO should reflect more actively and explicitly where trust and confidence are required to fulfil its specific goals and integrate this decision in its design. However, so far it seems many DAOs have not actively engaged with this question, instead mirroring the discourse on trust in blockchains and adopting its aspiration to minimise trust and focusing on deploying complex technical and regulatory measures of confidence. As DAOs are an emerging framework, this discourse does not just denote "talk about DAOs" but actively shapes how DAOs are designed and implemented (Bennani-Taylor, 2024). For example, the focus on confidence, which manifests through approaches such as governance minimisation and token voting, may have inadvertently led to some of the issues currently experienced by DAOs, such as a lack of participation and voter apathy. Re-orienting and broadening the discourse on DAOs to actively engage with the normative question of trust is a precondition to exploring the affordances of DAOs to address the issue of declining trust online more broadly.

Following Nissenbaum's (2001) line of reasoning, actively designing DAOs in a way that makes participants feel safe, without constraining their agency too much, can enable more trust to emerge and reinvigorate participation and creativity. An important follow-up consideration for DAOs thus becomes how to design mechanisms that enable trust to emerge. The case study of DADA exemplifies how designing a DAO in this way may look. The preliminary point of departure for DADA's

governance design was to actively differentiate between areas in which the community wanted to nurture trust: the Invisible Economy, and areas where the community did not actively want to spend much time in and was happy to displace the need for trust: the Market. By keeping processes relatively undefined, while providing minimal protection against unaligned or unconstructive actors through the Dot System, DADA preserves the freedom and agency of its community to explore and enact the social vision of the Invisible Economy. Trust emerges in the Invisible Economy because the environment “feels safe” and people want to be there, not because it is overly secure in its design. This design is highly aligned with Nissenbaum’s (2001) arguments on how to empower the “progressive social vision of Cyberspace” (p. 130). The set-up has allowed DADA to evade many problems faced in other DAO communities, such as apathy, misalignment, or plutocratic power concentration. In DADA a highly engaged and trusted core community is legitimised to make decisions and move the project closer to its goal of the Invisible Economy. In the Market, DADA has created a “pocket of security” in Nissenbaum’s terms, by employing smart contracts and automation to build confidence in the interactions between the project and collectors and traders. This approach aims to achieve the community’s relatively narrow and clearly defined goal of generating revenue in a predictable and reliable way.

While the mechanisms implemented in DADA cannot be generalised beyond its specific context, the case study illuminates several avenues for further research. Firstly, more research is required to substantiate the claim that increasing trust can contribute to reducing problems of participation in DAOs. Empirically, such research could take the form of contrasting levels of trust perceptions with the degree of participation across different DAOs. Secondly, further research is needed to help DAOs better identify areas that warrant having high trust versus high confidence. As the concepts of trust and confidence are highly theoretical and abstract, such research may try to map the different areas or functions of a DAO to facilitate more modular DAO design, aiming for trust to emerge in some places while privileging technical certainty and security in others. Third, more research is required to understand which mechanisms foster trust in DAOs. This could be done conceptually by reviewing current mechanisms employed in the design of DAOs and mapping them in terms of the way they either increase or reduce the action space of participants in the DAO. Alternatively, existing empirical work on online communities evaluating how certain technology features affect user perspectives on trust (for example Benlian & Hess, 2011) could be extended to the context of DAOs to evaluate how various organisational design approaches (e.g. governance system, membership criteria, etc) influence trust perceptions. Furthermore, more in-depth

case studies on how communities design for trust in their various contexts can further help to extrapolate generalizable insights for the ecosystem as a whole. Finally, new mechanisms to foster trust could also be developed and trialled through action research and in close cooperation with DAO communities. In developing such mechanisms, communities and researchers could look towards established approaches for building trust in the traditional open-source ecosystem (for example, Antikainen et al., 2007; de Laat, 2010). These suggestions are offered in the hope that, with more trust, DAOs will be better equipped to realise many of the creative and pro-social goals they have set for themselves, thus contributing to a vision of cyberspace that feels safe and friendly rather than hostile, or empty and automated. As the DADA case study indicates, DAOs can be expanded to encompass both “trustless” organisation and trusted online communities, thus warranting further exploration as an approach to address the issue of declining trust online.

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