

# **SOCIETAS SINE PERSONA: DAOS (DECENTRALIZED AUTONOMOUS ORGANIZATIONS) IN THE LIGHT OF ROMAN CORPORATE DOGMATICS.**

## **ALGORITHMIC LIABILITY, *AFFECTIO SOCIETATIS* AND THE RETURN OF UNLIMITED LIABILITY.**

Gerardo Marco BENCIVENGA

Lawyer, PhD, Professor of Legal and Economic Matters at the Ministry of Education, University and Research (MIUR) - Adjunct Professor of Comparative Public Law at SSML Teseo (Salerno)  
mabenci149@gmail.com

### **Abstract**

**Decentralized Autonomous Organizations** (DAOs) represent the most radical challenge to contemporary commercial law: organizations managed by *Smart Contracts* on *Blockchain*, without a physical headquarters, formalized administrators and registered legal personality. Faced with the civil or financial tort committed by a DAO, modern law falters, stuck in the dilemma between treating them as legal *entities* or as legal nullities. The present study proposes a hermeneutical solution drawing on the Roman dogmatics of the *Societas* (D. 17.2). Unlike the modern corporation, the Roman *societas* did not generate a third legal entity (*universitas*), but created a direct obligatory bond between the partners. Applying this paradigm, it is argued that the holders of *Governance Tokens* are not comparable to "shareholders" protected by limited liability, but to Roman "shareholders" with unlimited liability for the obligations contracted by the algorithm. *Law & Economics' analysis* confirms that this regime is the only efficient way to mitigate *Moral Hazard* in anonymous environments, reaffirming the principle that there can be no decision-making power (*voting*) without asset risk (*liability*).

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### I. Introduction: The Phantom of the Machine and the Liability Gap

#### 1.1. Anatomy of a DAO: between "Network State" and contractual anarchy

The advent of *Blockchain* has spawned a new institutional species: the **Decentralized Autonomous Organization (DAO)**. Ontologically, a DAO is not a company, nor an association in the modern sense of the term; it is a socio-technical system coordinated by *Smart Contracts* — immutable self-

executing protocols — that allow a multitude of anonymous actors to manage common resources without a central authority [1]. As observed by Zatti [2], DAOs place themselves in a dialectical tension with the Nation-State: they aspire to become "Network States", supranational entities operating in an a-jurisdictional cyberspace, governed not by the *Rule of Law* but by the *Rule of Code*[3]. However, this aspiration for algorithmic autonomy clashes with economic reality. DAOs manage trillions of dollars in *treasuries*, lend, invest in digital and real assets. As highlighted by Cardoso [4], we are facing an unprecedented convergence between technology, *governance* and law, where the ability to act (*agency*) is delegated to the code, but the economic effects fall on natural persons.

## 1.2. The Qualification Dilemma: "Mind the Gap"

The fundamental legal problem, defined by Borgogno as the "Gap" between digital existence and legal life [5], lies in the absence of legal personality. Modern civil codes are built on the paradigm of the "legal person" (S.p.A., S.r.l., Foundation) as a center of imputation of interests distinct from the natural persons who compose it. The DAO, by rejecting state registration to preserve decentralization, is in limbo:

1. **Private International Law:** As Guillaume [6] and Pinheiro [7] note, it is impossible to determine the *lex societatis* of an entity residing on nodes distributed throughout the world. Where is Ethereum's registered office?
2. **Liability:** If the code performs an illegal operation (e.g. a *hack* due to negligence, or a financial scam), who is liable? Modern doctrine oscillates between considering the DAO a *res* (an object) or an autonomous subject, as suggested by theories on the *e-personhood* of robots [8].

However, Schillig [9] warns that granting legal personality to a DAO without a central registry would create a perfect "veil of irresponsibility", incentivizing *Moral Hazard*.

## 1.2. The jurisprudential response:

### The *Ooki DAO* case and the collapse of the veil

The theory gave way to practice in September 2022, when the U.S. *Commodity Futures Trading Commission* (CFTC) took action against **Ooki DAO**. Faced with the absence of a registered entity, the American regulator

applied a brutal but effective logic: if the DAO is not a *Corporation*, then it is a **General Partnership**. The consequence is seismic: every holder of *Governance Tokens* who voted on the DAO's decisions was held personally and unlimitedly liable for violations of the platform. As analyzed by Napieralska and Kępczyński [10], this case marks the end of the illusion of algorithmic immunity. Decentralization is not a shield.

#### 1.4. Methodology: The Return to the *Societas Romana*

If the *Corporation* (limited liability) model is unenforceable due to lack of registration, and the Common Law *General Partnership* model appears too punitive and unnuanced, where can a balanced solution be found? Heine and Quintavalla [11] have recently proposed looking to Roman Law to fill the "accountability gap" of Artificial Intelligence. Following this intuition, the present study advances the hypothesis that the **Roman Societas** (D. 17.2) is the perfect archetype for the DAO. Unlike modern society, the *Roman societas* was a pure consensual contract, without external legal personality, based on *affectio societatis*. It allowed for joint action without creating a fictitious "entity". By applying the Roman categories of liability (solidarity, *actio pro socio*, liability for wilful misconduct and negligence of managing partners), we can build a legal framework — as advocated by Borgogno and Martino [12] — that goes "beyond the hype", anchoring the volatility of the *blockchain* to the millennial solidity of personal responsibility.

## II. Legal Archaeology: The *Societas* as a Pure Contract

To understand the legal nature of a DAO, it is necessary to carry out an operation of "institutional archaeology". The contemporary jurist, trained on the codes of the nineteenth and twentieth centuries, suffers from a perspective deformation: he tends to superimpose the concept of "society" with that of "legal person". However, this identification is a recent product of the history of law. In Classical Roman Law, the *Societas* (regulated in Book XVII, Title 2 of the *Digesto Pro Socio*) represented a radically different archetype, which today offers the keystone to decipher the enigma of decentralized organizations.

### 2.1. *Universitas* vs *Societas*: the denial of legal personality

In the Roman system, there was a clear dichotomy between the entities that possessed a personality distinct from the members (*Universitas*,

*Collegium, Municipium*) and the commercial society (*Societas*). While the *Universitas* had its own patrimony and its own legal capacity ("*Si quid universitati debetur, singulis non debetur*", D. 3.4.7.1), the *Societas* was a pure **consensual contract**.

"*Societas ius quodammodo fraternitatis in se habet.*" (D. 17.2.63)

Roman society did not create a "third party". It was an internal obligatory bond (*inter partes*) that bound the partners to the pursuit of a common purpose, without erecting a legal shield to the outside (*erga omnes*). The assets contributed to the company did not become the property of an abstract entity, but remained in co-ownership (*condominium*) or were managed in common [13].

This structure is isomorphic to that of a DAO. As noted by Schillig [14], a DAO on Ethereum is not a registered entity: it is an aggregate of *Smart Contracts* that coordinate funds (Ether/Tokens) contributed by users. Ontologically, the DAO is a **Societas without Universitas**. There is no "Corporate Veil" because there is no *Person*. There is only the pact. Attempting to apply the categories of the S.p.A. (which presuppose a registered entity) to the DAO is a categorical error; applying the model of the *Societas* (which presupposes only agreement) is an act of legal realism. The *blockchain* acts as an immutable ledger of the pact, but it does not ipso facto generate a legal entity.

## **2.2. The digital *Affectio Societatis*: possession of the Token as a negotiating will**

If the DAO is a consensual company, where does the consensus lie? In Roman law, the *Societas* was perfected *bare consensu* (with simple consent), which could also be manifested tacitly (*re*, for conclusive facts). The constitutive psychological element was the **Affectio Societatis**: the continuous and permanent desire to remain members and to share risk and profit.

In the digital context, *Affectio* materializes in the possession and use of **Governance Tokens**. Buying a governance token is not a mere passive investment (like buying an Apple stock for dividends). The token confers the right to actively vote (*on-chain voting*) on changes to the protocol. When a user buys the token and uses it to vote on a proposal (e.g., "Invest treasury in project X"), they are unequivocally manifesting *affectio societatis*. He is saying, "I want to be part of this joint venture." According to Roman dogmatics, this act constitutes the social bond. A written contract signed by the notary is not

required; the conclusive behavior of participation in management is needed. As argued by Madalena et al. [15], active participation in *algorithmic governance* is the cybernetic translation of the *Roman consensus in idem*. Therefore, every *active token holder* is, for all intents and purposes, a *socius*.

### 2.3. The liability regime: from *beneficium competentiae* to solidarity

The immediate consequence of the DAO's qualification as a *Societas* (and not as a *Universitas*) affects the asset liability regime. This is the critical point raised by the *Ooki DAO case*. In classical Roman law, in the absence of a third legal personality, the shareholders were liable for debts contracted in the interest of the company. The historical evolution of the institute offers two applicable models:

1. **Pro Rata Liability (Civil Model):** Originally, each member was liable only for his share.
2. **Joint and several liability (Publicani Model):** For tax contracting companies (*Societates Publicanorum*) or bankers' companies (*Argentarii*), joint liability (*in solidum*) developed. The creditor could attack the entire assets of any of the partners for the total debt of the company.

In the context of DAOs, which operate in global financial markets exposing third parties to systemic risks, the bankers' model (*Argentarii*) is the most pertinent. Because the DAO acts in the shadow of anonymity and with no guaranteed minimum share capital, the protection of third-party trust requires **unlimited joint and several liability**. As Heine and Quintavalla pointed out [16], Roman law used personal responsibility as a counterweight to the absence of state regulation. If DAO members want to operate without registering (rejecting the *limitation of liability* offered by the state), they must accept the "Roman risk": their personal assets (home, savings, other crypto-assets) are generic collateral for the DAO's bonds. The *Token* is not just an asset; it is a potential debt security. There is no power (*vote*) without risk (*responsibility*).

### III. Pathology of DAOs: The illusion of algorithmic immunity

If the qualification of the DAO as a *Societas* solves the structural problem, the pathology of the system remains to be addressed: the claim, widespread in the *crypto community*, that Blockchain technology operates in a dimension of legal extraterritoriality. This section analyzes the three great

illusions of decentralized *governance* — the infallibility of the code, the impunity of anonymity, and the irresponsibility for wrongdoing — by refuting them through the categories of civil liability and Roman law.

### 3.1. "Code is Law"? The humanistic critique of contractual automatism

The founding mantra of the Ethereum ecosystem is "Code is Law", theorized by Lawrence Lessig and radicalized by *DeFi maximalists*. According to this doctrine, if the *Smart Contract* allows an action (e.g. emptying a treasury by exploiting a *bug*), that action is legitimate because it is "compliant with the code". This vision establishes what Filippi, Mannan and Reijers call **the Rule of Code**, as opposed to the **Rule of Law** [17].

However, the Roman jurist rejects with horror the idea that technique (*techne*) can prevail over equity (*aequitas*).

"*Summum ius, summa iniuria.*" (Cicero, *De Officiis*, I, 10, 33)

The blind and literal application of a rule (or a computer code), unanchored from the will of the parties and from the general principles of the legal system, generates the utmost injustice. Legally, the *Smart Contract* is not the Law; it is only the means of execution (*instrumentum*) of the negotiating will. If the code contains an error (*bug*) or allows abuse, we are not facing a "new legality", but a defect of consent or a non-compliance. As argued by Guillaume and Riva [18], the resolution of disputes in DAOs cannot be left to *on-chain* binary logic alone; the law must be able to intervene to correct (*restitutio in integrum*) the errors of the algorithm, reaffirming the primacy of human intention over computer syntax.

### 3.2. The anonymity of the shareholders and the paradox of the *Societas Occulta*

The second defensive barrier of DAOs is the pseudonym. Members are identified only by cryptographic keys (e.g. 0x123...). How can responsibility be attributed to a ghost? Roman law is well aware of the figure of the company in which the partners remain hidden from third parties. However, concealment is not a cause of exemption from liability, but of aggravation.

If a *Societas* operates in an opaque manner, the logic of protection of trust applies. Although the direct action (*actio pro socio*) concerns internal relations, the liability towards injured third parties remains intact. The

anonymity of the Blockchain is, legally, a thin veil. When a judge ascertains the nature of *de facto Societas*, joint liability is triggered. The fact that the shareholders are anonymous simply means that the creditor (or the tax authorities) will be able to attack the first shareholder who manages to identify (deanonymize) for the entire debt (*in solidum*). It will then be the burden of that unfortunate member to exercise the action of recourse towards the other "ghosts". In economic terms, anonymity increases the individual risk of the identifiable member, disincentivizing participation in DAOs that do not implement identity verification (KYC) procedures.

### 3.3. Who is responsible for the algorithm? Imputation of damage *ex delicto*

The most critical point concerns non-contractual liability (Aquilian). If a DAO, due to poorly written code or predatory governance, causes harm to third parties (e.g., copyright infringement, cheating, or a *hack* that drains funds from users), who is liable? Here the analogy with the **Noxa Caput Sequitur** or with the owner's liability for damage caused by animals or slaves comes to the rescue.

The autonomous algorithm, as Okuno notes [19] analyzing the liability of AI, acts as a semi-independent entity. However, having no assets, he cannot compensate. According to the Roman model of *Culpa in Vigilando* or *Eligendo*, the "masters" of the algorithm (the *token holders* who voted for its deployment or who did not update/correct it) are responsible. The vote cast in the DAO is not a political opinion; it is an act of management. If members vote to implement a risky protocol without having commissioned a proper security audit, they are grossly negligent (*culpa lata*).

*"Culpa lata dolo aequiparatur."* (Ulpian, D. 50.16.213.2)

Gross negligence in code management (e.g., ignoring known vulnerabilities) is tantamount to malice. Therefore, the shareholders are liable for the *ex delicto* damages caused by the DAO with their personal assets. There is no "algorithmic immunity": those who profit (*cuius commoda*) from the operation of the machine must bear the risks (*eius et incommoda*).

## IV. *Law & Economics*: The Cost of Irresponsibility

The qualification of the DAO as an *unlimited liability Societas* might appear, at first glance, as an insurmountable obstacle to innovation. However, the economic analysis of the law shows exactly the opposite: in a "trustless" and anonymous environment, the financial responsibility of the participants is the only mechanism capable of aligning incentives and ensuring market efficiency.

### 4.1. *Moral Hazard* and Limited Liability: A Privilege, Not a Right

The economic theory of the company teaches that **Limited Liability** is not a natural right, but a state subsidy granted to shareholders to encourage the diversification of investments. In exchange for this shield, the state demands transparency: registration, public budgets, minimum capital and identifiable administrators. DAOs, by their nature, reject this "exchange": they want asset immunity without offering transparency (anonymity) or guarantees of solvency (absence of tied share capital).

Granting the limitation of liability in this scenario would generate a textbook case of **Moral Hazard**. If *token holders* know that they can earn unlimited (*upside*) by risking only the negligible value of the token (*downside capped*), they will be incentivized to vote for very high-risk or even predatory protocols (e.g. *Algorithmic Ponzi schemes*). As Sims [20] points out, decentralized *governance* suffers from a dispersion of responsibility: "If everyone is responsible, no one is." The Roman model of joint liability breaks this asymmetry: by forcing each shareholder to respond with his or her entire assets, it reintroduces prudence (*prudencia*) in voting decisions.

### 4.2. The *Token Holder* as a "Cheapest Cost Avoider"

According to Guido Calabresi's **theorem** on the cost of accidents, the responsibility must fall on the subject who is in the best position to avoid the damage at the lowest cost (*Cheapest Cost Avoider*) [21]. In the context of a DAO that causes damage to third parties (e.g. due to a bug in the code that allows the theft of funds, or for violation of anti-money laundering regulations), who is this subject?

- Not developers (often anonymous or simple *open-source executors*).
- Not passive users.
- These are the **Token Holders with voting rights**.

They have the power to approve or reject code updates (*proposals*). They have the power to commission *security audits before deploying a Smart Contract*. If we apply the **Societas** (personal responsibility) regime, shareholders will be incentivized to spend resources monitoring the security of the code *before* voting. If, on the other hand, they enjoy immunity, the incentive to control collapses. Unlimited liability transforms the *Token Holder* from a passive bettor to an **active monitor** (*gatekeeper*), drastically reducing the social cost of algorithmic errors.

### 4.3. Efficiency of *Strict Liability* in Decentralized Markets

Finally, the analogy with the Roman bankers' companies (*Argentarii*) suggests the adoption of a regime of *Strict Liability*. In DAOs, proving the "fault" or "negligence" of thousands of anonymous voters is technically impossible and expensive (proof problem). A strict liability regime (profit-sharers are liable for damages, regardless of fault) reduces court settlement costs and acts as a powerful signal of *adverse selection*. Only solid, transparent, and secure DAO projects will attract investors willing to risk their assets. Fraudulent or insecure DAOs will be abandoned, because no one will want to be the "unlimited liable partner" of a sinking ship. As suggested by Borgogno [22], this market mechanism, enabled by strict liability rules, is much more efficient than centralized *ex ante* regulation that would risk stifling technological innovation.

## V. Conclusions: No freedom without a face. For a Humanism of Digital Responsibility

### 5.1. The Decline of the A-Legal Utopia: the Blockchain as an *Instrumentum*, Not as an *Ordo*

At the end of this investigation, which attempted to build a hermeneutical bridge between the wisdom of the Severan jurists and the decentralized architecture of Web3, the failure of the technocratic utopia that claimed to replace the authority of the Law with the inexorability of the Code emerges with sunny evidence. The illusion, cultivated by a certain *cypherpunk rhetoric*, according to which the *Blockchain* could constitute a self-sufficient order (*Lex Cryptographica*), immune from the categories of civil law by virtue of a presumed mathematical extraterritoriality, is shattered against the ontological reality of human relations, which, even when mediated by algorithms, remain

intrinsically relations of power and interest that require a imputation of liability. Recognizing the nature of *Societas* in the DAO does not constitute an act of hostility towards innovation, but the only intellectual operation capable of saving technology from itself: if the *code* is left to reign supreme without the corrective of *aequitas* and without the guarantee of patrimonial liability, it degenerates into an instrument of anonymous predation, making the "Network State" not an evolution of democracy, but a regression to the Hobbesian state of nature, where the strongest (or the most skilled at programming) dominates unchallenged.

### **5.2. The mask and the face: the reintegration of the "Person" into the data flow**

The highest contribution that Roman dogmatics offers to the contemporary debate lies in its anthropocentric conception of responsibility. When we affirm, in the wake of Ulpiano and Paolo, that *token holders* are not atoms dispersed in cyberspace, but *partners* linked by a bond of solidarity, we are carrying out an act of "re-humanization" of commercial law. Digital technology, by its intrinsic structure, tends towards disembodination and anonymity, reducing the individual to an alphanumeric string; Roman Law, on the contrary, requires that behind the "mask" (*person*) there must always be a recognizable face and a heritage that can be attacked. Imposing unlimited responsibility on the participants of a DAO means reaffirming an ethical principle even before it is legal: there can be no decision-making power — the power to vote, to move capital, to influence markets — that is separated from personal risk. The freedom that the *Blockchain* promises cannot be the freedom of impunity, the freedom to act without answering, but it must be the freedom of the citizen who, aware of his actions, agrees to take charge of them *in solidum* with his peers.

### **5.3. Towards a Civil Right of Collective Intelligence**

In the final analysis, the proposal to subject decentralized autonomous organizations to the regime of the *Roman Society* represents a manifesto for a new Digital Humanism. While special legislations (such as the European MiCA) frantically try to chase technology with detailed regulations that become obsolete before they even come into force, the Roman categories demonstrate eternal resilience precisely because they do not regulate technology, but man. The *Societas* is the timeless archetype of human collaboration without a

screen, of trust (*fides*) that is not based on bureaucratic registration but on personal commitment. Applying this model to DAOs means ennobling them: it means transforming them from obscure mechanisms of anonymous speculation into true communities of intent, where the algorithm is degraded to its rightful role as a servant (*instrumentum*) and the human being is reintegrated into his dignity as responsible master (*dominus*). Only through this "dogmatic restoration" will we be able to ensure that the economy of the future, however decentralized and automated, remains an economy on a human scale, governed not by the blind execution of a smart contract, but by the bright, and sometimes severe, *prudentia* of law.

## Notes

- [1] A. Sims, "Decentralised Autonomous Organisations: Governance, Dispute Resolution and Regulation," *SSRN Electronic Journal*, 2021. The author defines the DAO as a structure where *governance* is codified *ex ante* and execution is automated, eliminating the need for interpersonal (*trustless*) trust.
- [2] F. Zatti, "The DAO Between the Nation State and the Network State," *SSRN Electronic Journal*, 2024. Zatti analyzes how DAOs challenge the state's monopoly of legal force, proposing competing algorithmic systems.
- [3] P. D. Filippi, M. Mannan, and W. Reijers, "Blockchain Technology and the Rule of Code: Regulation via Governance," *SSRN Electronic Journal*, 2022. The authors highlight the risk that the "Rule of Code" will become a technical tyranny if it lacks *legal checks and balances*.
- [4] A. Cardoso, "Decentralized Autonomous Organizations – DAOs: The Convergence of Technology, Law, Governance, and Behavioral Economics," *SSRN Electronic Journal*, 2023.
- [5] O. Borgogno, "Making Decentralized Autonomous Organizations (DAOs) Fit for Legal Life: Mind the Gap," *SSRN Electronic Journal*, 2023. Borgogno argues that the gap is not technological, but ontological: the law requires responsible subjects, the DAO offers impersonal processes.
- [6] F. Guillaume, "Decentralized Autonomous Organizations (DAOs) Before State Courts. How Can Private International Law Keep Up With Global Digital Entities?" *SSRN Electronic Journal*, 2023.
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- [8] U. Pagallo, "Vital, Sophia, and Co.—The Quest for the Legal Personhood of Robots," *Information*, vol. 9, no. 9, p. 230, 2018. Pagallo discusses the possibility of creating new legal entities for AI entities, a debate parallel to that on DAOs.
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- [12] O. Borgogno and E. D. Martino, "Decentralised Autonomous Organizations: Targeting the Potential Beyond the Hype," *SSRN Electronic Journal*, 2024.
- [13] V. Arangio-Ruiz, *La società in diritto romano*, Jovene, Naples, 1950. The author masterfully clarifies how the lack of legal personality was not a primitive limitation, but a structural choice aimed at maintaining the centrality of the person of the shareholder.
- [14] M. Schillig, "Some Reflections on the Nature of Decentralized (Autonomous) Organizations," *SSRN Electronic Journal*, 2021. Schillig argues that, in the absence of a centralized "ledger," there cannot be a separate "entity" from the participants. The DAO is, technically, a network of multilateral contracts.
- [15] P. de O. Madalena, R. Garcia, et al., "Decentralised Autonomous Organisation (DAO) Regulation," in *Mohr Siebeck eBooks*, 2024. The authors link the technical nature of the token (control tool) to the legal nature of social participation.
- [16] K. Heine and A. Quintavalla, "Bridging the accountability gap of artificial intelligence – what can be learned from Roman law?" *Legal Studies*, vol. 44, no. 1, 2023. This study is crucial to legitimize the analogy: just as Rome imputed *the actions of the slave or partner* to the Pater Familias, we must attribute *the actions of the algorithm to the Token Holder*.
- [17] P. D. Filippi, M. Mannan, and W. Reijers, "Blockchain Technology and the Rule of Code: Regulation via Governance," *SSRN Electronic Journal*, 2022. The authors deconstruct the myth of the neutrality of the code, demonstrating how it incorporates political choices and values of programmers, which must be subject to the scrutiny of the law.
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- [21] G. Calabresi, *The Costs of Accidents: A Legal and Economic Analysis*, Yale University Press, 1970. The principle of the *Cheapest Cost Avoider* is the

cornerstone of the economic analysis of civil liability. Applying it to DAOs means identifying the vote of *token holders* as the economic causal act of the damage.

- [22] O. Borgogno, "Making Decentralized Autonomous Organizations (DAOs) Fit for Legal Life: Mind the Gap," *SSRN Electronic Journal*, 2023. Borgogno argues that the law must provide incentives for DAOs to "self-police," and the threat of personal liability is the strongest incentive available.
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