DECENTRALIZED AUTONOMOUS ORGANIZATIONS UNDER THE PHILIPPINE LEGAL FRAMEWORK*

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ABSTRACT

A Decentralized Autonomous Organization ("DAO") is a new species of organization that exists only in cyberspace. Essentially, it is comprised of lines of computer code that execute a specific business logic and govern how its members transact with each other. The code is stored in a blockchain, which makes the DAO decentralized, trustless, cost-efficient, and precise. While DAOs are designed to operate without any regulation other than the rule of code, the code cannot always provide for the protection of the interests of DAO members and of the public. As such, a form of external regulation is necessary. After careful analysis, this Article submits that the current state of Philippine laws is not ready to provide such regulation. The main business organizational laws in the Philippines, Partnership Law and Corporation Law, do not address the legal problems that DAOs may encounter without significantly altering their nature and unique features. Organizing a DAO as a Philippine partnership or corporation is comparable to fitting round pegs into square holes. Thus, it is necessary to enact new legislation to govern DAOs. The new law must give full protection to public interest, but still maintain the essence and integrity of DAOs.

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I. INTRODUCTION

The potential impact of blockchain technology is likened to that of the Internet in terms of its capacity to reshape the social and commercial lives of its users and the structure of many commercial enterprises. Since blockchain is a distributed ledger that uses cryptography to secure transactions, it allows for radically decentralized commercial transactions that are completely transparent, direct, i.e., person-to-person, trustless,[1] and speedy. The most common way of executing transactions in the blockchain is through smart contracts, which are programs stored in the blockchain that automatically execute pre-programmed consequences when certain conditions are met. Using smart contracts in the blockchain, users can transact with each other without the need for a third-party institution. Such transactions are both encrypted and public. They are secured and undergo a verification that renders the entire process trustless.[2]

One special form of smart contract is a Decentralized Autonomous Organization ("DAO").[3] DAOs are created to perform functions traditionally executed by companies, associations, and other institutions, but without the need for a central board controlling the corporate and governance decisions. Instead, DAOs are controlled by protocols built into the smart contract which may be modified only through a purely democratic voting by all the members thereof.

The prospective uses of DAOs for businesses, grants, and other social dealings expose legal problems that may be encountered in their operation in the Philippines and the need for their regulation. This Article will examine how DAOs would operate under Philippine laws. Part II describes what DAOs are and how they work. Part III explains why the operation of DAOs needs regulation. Part IV identifies the main legal problems that DAOs may encounter. Part V analyzes how DAOs may, if possible, fit within the

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[1] A trustless system does away with a centralized trusted authority or a middleman. Instead, it executes the action through computer codes and without reliance on a human element. *See* Mattis Jacobs, *How Implicit Assumptions on the Nature of Trust Shape the Understanding of the Blockchain Technology*, 34 PHILO. & TECH. 573, 573–74.

[2] *What are smart contracts for blockchain?*, IBM, *available at* https://www.ibm.com/topics/smart-contracts#:~:text=Smart%20contracts%20are%20simply%20programs,intermediary's%20involvement%20or%20time%20loss (last accessed Jan. 10, 2022).

[3] Jacek Czarnecki, *What are smart contracts and DAO?*, *in* BLOCKCHAIN, SMART CONTRACTS AND DAO 8 (2016), *available at* https://newtech.law/wp-content/uploads/2017/08/Wardynski-and-Partners-Blockchain-smart-contracts-and-DAO-2.pdf.

traditional business organizations to address the legal problems. Part VI concludes that currently, Philippine laws fall short in regulating DAOs.

II. WHAT IS A DAO, AND HOW DOES IT WORK?

Broadly, a DAO is a distributed network of stakeholders that operates like an organization existing exclusively in cyberspace.[4] Instead of employment contracts or articles of incorporation or partnership, the stakeholders are primarily governed by smart contract provisions occurring as a software code.[5] This code automates organizational governance and decision-making for stakeholders to work together collaboratively outside traditional business organizations like partnerships and corporations.[6] Since the main protocol of a DAO is embodied or coded in a smart contract, it is automatically executed once certain conditions are met. Moreover, as a smart contract is stored in a blockchain, the DAO that uses a smart contract also has the attributes of a blockchain. Thus, to fully understand DAOs, a brief discussion of smart contracts and blockchain is necessary.

A. Smart Contracts and DAOs

The idea of smart contracts was first developed by Nick Szabo. According to Szabo, many kinds of contractual clauses can be embedded in hardware and software,[7] which would reduce mental and computational transaction costs imposed by the parties, third parties, or their tools.[8] Hence, smart contracts are computer codes that embody contract clauses and automatically execute them once specific, pre-programmed conditions are met. A real-life example of a simple smart contract cited by Szabo is a vending machine.[9] A vending machine is governed by a protocol with the logic that when a person inserts coins or cash of sufficient value and chooses an

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[4] *Id.* at 8; Krzysztof Wojdyło, *What is DAO from the legal perspective?*, *in* BLOCKCHAIN, SMART CONTRACTS AND DAO 21 (2016), *available at* https://newtech.law/wp-content/uploads/2017/08/Wardynski-and-Partners-Blockchain-smart-contracts-and-DAO-2.pdf.

[5] Timothy Nielsen, *Cyptocoporations: A Proposal for Legitimizing Decentralized Autonomous Organizations*, 2019 UTAH L. REV. 1105, 1110.

[6] Christoph Jentzsch, Decentralized Autonomous Organization to Automate Governance, at 1 (White Paper under review), *at* https://lawofthelevel.lexblogplatformthree.com/wp-content/uploads/sites/187/2017/07/WhitePaper-1.pdf (last accessed May 19, 2023).

[7] Nick Szabo, *Formalizing and Securing Relationships on Public Networks*, 2 FIRST MONDAY 1, 3 (1997) *at* https://journals.uic.edu/ojs/index.php/fm/article/view/548/469.

[8] *Id.* at 7.

[9] *Id.* at 3.

available product, the machine automatically drops the chosen product. In that example, the sale was *executed* without the need of human intervention.

This is not to say, however, that smart contracts are the same as legally enforceable contracts in the form of computer code. An important distinction must be made between the two. Under Philippine law, legally enforceable contracts require the presence of three elements, namely: *the consent* of the contracting parties; an *object* certain which is the subject matter of the contract; and a *cause* of the obligation which is established.[10] Once these elements are present, the obligations of the parties as agreed upon become legally binding. Thus, contracts facilitate transactions by ensuring that the parties will comply with their obligations.

On the other hand, with the multifarious ways that smart contracts can be made, not all smart contracts will embody these three elements. Among the prominent uses of smart contracts are safeguarding efficacy of medications by tracking pharmaceuticals through the supply chain, increasing trust in retailer-supplier relationships through real-time communication and better visibility in the supply chain, and simplifying trading options in financial markets.[11] In all of these activities, smart contracts are merely means for expediting and securing business operations. There is no meeting of the minds to create obligations that result in perfected contracts. Instead, these smart contracts only automate certain parts of the business operation.

While simple smart contracts only involve transactions between two persons or entities, they can also be programmed to include much more complex transactions between individuals that mimic functions of some organizations. This is precisely what a DAO is: a smart contract taking the structure of an organization, designed to "automate organizational governance and decision-making."[12] DAOs are not run by humans but by simpler smart contracts, algorithms, and computer codes.[13] Although humans may be members of DAOs or writers of their codes, human influence over DAO operations are indirect because an algorithm governs it.[14] Thus, a DAO is *autonomous* because humans cannot directly control the code of the smart contract comprising it and its behavior. That is, the business logic of the

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[10] CIVIL CODE, art. 1318.

[11] IBM, *supra* note 2.

[12] Nielsen, *supra* note 5, at 1110, *citing* Jentzsch, *supra* note 6, at 1.

[13] Gail Weinstein et al., *A Primer on DAOs*, HARVARD LAW SCHOOL FORUM ON CORPORATE GOVERNANCE WEBSITE, Sept. 17, 2022, *at* https://corpgov.law.harvard.edu/2022/09/17/a-primer-on-daos/.

[14] *Id.*

DAO is pre-coded[15] and automatically executed with little to no human intervention. To illustrate, a DAO may operate the business of a transportation network vehicle service ("TNVS"). Instead of being managed and operated by a corporation's board of directors and employees, the management and operation will be done entirely by algorithmic systems and code-based rules. As such, the hiring and firing of drivers, matching of drivers and riders, collection of fees, payment of business expenses, and all other business activities would be managed exclusively by code.[16] Nonetheless, the degree of autonomy of DAOs is limited by the current technology. Until machine learning and artificial intelligence ("AI") are sufficiently developed, there can be no true autonomous DAO.[17]

Earlier versions of smart contracts, such as the one conceived by Szabo in 1994, are not capable of implementing a DAO. The main problem in these versions was that each participant in the smart contract required separate instances of the smart contract program running on separate systems,[18] which is counterintuitive to the operation of a supposedly singular organization.

However, the development of blockchain technology in 2008 gave rise to a platform on which a smart contract can be hosted, and in which digital records can be "shared instantaneously across a network of participants."[19] A smart contract using blockchain as its peer-to-peer network mechanism allows the implementation of a DAO.

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[15] While there is agreement that human intervention is indirect for DAOs, some thinkers diverge on the extent of autonomy. For example, some believe that DAOs must not only operate on a pre-fixed business logic, but even make and iterate decisions based on "its own intelligence." *See* Gavin Yue, *What's the difference between DApp, iDApp and DAO? And why they are the future of blockchain?* (2018), *available at* https://medium.com/swlh/whats-the-difference-between-dapp-idapp-and-dao-and-why-they-are-the-future-of-blockchain-52758f50474e.

[16] Weinstein et al., *supra* note 13.

[17] Yue, *supra* note 15.

[18] Kyung Taeck Minn, *Towards Enhanced Oversight of "Self-governing" Decentralized Autonomous Organizations: Case Study of the DAO and Its Shortcomings*, 9 NYU J. INTELL, PROP. & ENT. L. 143 (2019).

[19] Nielsen, *supra* note 5, at 1110, *citing* Int'l Swaps and Derivatives Ass'n (ISDA) & Linklaters, *Whitepaper: Smart Contracts and Distributed Ledger – A Legal Perspective*, 7 (2017), *available at* https://www.isda.org/a/6EKDE/smart-contracts-and-distributed-ledger-a-legal-perspective.pdf. The ISDA refers to distributed ledger technology; "blockchain" is a synonym for said term.

B. Blockchain and DAO

Blockchain is a distributed and immutable ledger that enables the recording of transactions and tracking of assets in a business network.[20] "Distributed" means that the records are shared instantaneously among all the participants. As such, the entire database is maintained by all the participants, which are also the *nodes* in the blockchain network.[21] The system uses math and cryptography to process and manage transactions.[22] Every block represents the record of a transaction, with the latest block on the blockchain aggregating the most recent transactions. For new blocks to be added they must first be broadcasted to and verified by most of the nodes in the network.[23] Adding new blocks requires enormous computing power because blocks are authenticated by "proof-of-work,"[24] which means that new blocks may only be linked to previous blocks by solving a cryptographic puzzle. Such a process is called *mining*, where the puzzle is solved by trial and error, and a puzzle solved is rewarded by a cryptocurrency native to that blockchain.[25]

When a new block is added or changed, the updated blockchain is broadcasted again to all the nodes. Changing a block would require changes to subsequent and previous blocks. Thus, to successfully change a single block without anyone noticing necessitates that the entire blockchain network be changed accordingly. To illustrate, after about 1,000 layers, the blockchain is practically immutable because 999 blocks must be adjusted to clandestinely change one block. Moreover, this process renders transactions trustless, such that parties to a transaction need not trust or know one another (or a third party), because the authenticity of the transaction is guaranteed by the immutable system itself.[26]

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[20] IBM, *supra* note 2.

[21] Minn, *supra* note 18, at 143–44. For blockchain purposes, a node is a "device-stakeholder pair that participates in running the protocol software of a decentralized network. In lieu of a central entity, nodes work together to form the governing infrastructure of a blockchain." Brooke Becher, *What Are Blockchain Nodes and How Do They Work?*, BuiltIn, Sept. 29, 2022, *available at* https://builtin.com/blockchain/blockchain-node.

[22] Robbie Morrison, Natasha Mazey & Stephen Wingreen, *The DAO Controversy: The Case for a New Species of Corporate Governance?*, 3 FRONTIERS IN BLOCKCHAIN 1, 4 (2020), *available at* https://www.frontiersin.org/articles/10.3389/fbloc.2020.00025/full#:~:text=The%20DAO%20presents%20new%20challenges,traditional%20mechanisms%20of%20corporate%20governance.

[23] Minn, *supra* note 18, at 144.

[24] Morrison et al., *supra* note 22.

[25] *Id. See also Intro to Ethereum*, Ethereum.org, *available at* https://ethereum.org/en/developers/docs/intro-to-ethereum (last modified April 30, 2023).

[26] *Id. See also* ISDA & Linklaters, *supra* note 19, at 4.

Older blockchains, such as the Bitcoin blockchain, only allow the recording of simple exchanges of cryptocurrency for every block. However, modern blockchains, such as the Ethereum Blockchain, allow the recording and implementation of more complex functions including smart contracts and DAOs.[27] When a DAO is implemented by a blockchain, it will likewise possess the qualities that the blockchain possesses, (i.e., that a DAO will be "flat and fully democratized;" the voting of members is required to implement changes; the outcome of votes is automatically implemented without any trusted intermediary; the services are performed automatically in a decentralized manner; and the activities are "transparent and fully public").[28]

C. DAO Membership

As previously emphasized, while DAOs are designed to be autonomous, humans are not entirely left out of the picture. They may act as writers of the codes, members of DAOs by holding tokens with voting rights, or curators of proposals made by members. The protocols and business logic built into the DAOs may only be changed through the exercise of the voting rights of the members. Membership in DAOs come with other rights, such as: the right to a portion of profits or losses; the right to access, manage or transfer resources; and the right to propose business plans for the future.[29] Since the possible ways to structure a DAO are as numerous as human imagination and logic permits, DAOs adopt different models of membership, the most common of which is *token-based membership*.

In token-based membership, one who owns a cryptographic token issued by a DAO is a member thereof, and possesses certain rights granted by virtue of the token.[30] A *cryptographic token* is a programmable digital asset that is built on the top layer of the blockchain.[31] Since they are digital assets and are programmable through smart contracts, they are units of value that may be traded in decentralized exchange, and they may grant certain rights to its owner, correspondingly.[32] As opposed to a cryptocurrency that is *native* to and

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[27] *See, generally*, Czarnecki, *supra* note 3, at 6.

[28] *Decentralized autonomous organizations*, Ethereum.org, *available at* https://ethereum.org/en/dao (last accessed May 25, 2023).

[29] Aaron Wright, *The Rise of Decentralized Autonomous Organizations: Opportunities and Challenges*, 4.2 STAN. J. BLOCKCHAIN L. & POL'Y 152, 156 (2021).

[30] Ethereum.org, *supra* note 28.

[31] Nielsen, *supra* note 5, at 1109. *See also* Cryptopedia Staff, *Digital Assets: Cryptocurrencies vs. Tokens* (2022), Cryptopedia, *available at* https://www.gemini.com/cryptopedia/cryptocurrencies-vs-tokens-difference#section-what-is-a-token.

[32] *Id.*

built on the root layer of the blockchain and is used for mining, a cryptographic token is built on the top layer. The latter signifies that it may be created and programmed according to the preferences of the programmer as regards representing voting rights, ownership rights, claims to other assets, and the like.[33] A cryptographic token bears a close semblance to a share of stock in a corporation, making it the most appealing digital asset to represent membership in DAOs.

Another model of membership is *share-based membership*. In share-based membership, interested participants may join the DAO by contributing tasks or capital in the form of cryptocurrency or cryptographic tokens.[34] The shares of the members directly represent voting power and ownership. Should a member decide to leave, they may claim their proportionate share of the fund.[35] Share-based membership is more permissioned than token-based membership,[36] meaning that the membership or the digital asset representing it cannot simply be traded in another decentralized exchange. It can be inferred that membership in this type of DAO imposes more requirements, such as a recommendation from a member; capital contribution; and expertise, other than mere ownership of a tradeable cryptographic token.

D. DAOs in Practice

The Bitcoin Network is widely regarded as the "first true DAO."[37] It operates on its own blockchain, which provides economic incentives in its main protocol. Through these economic incentives, people contribute real world resources to the Bitcoin network, such as resources used for setting up Bitcoin mining facilities to allow exchanges in its blockchain. As such, the Bitcoin Network was able to provide a product or a cryptocurrency that has economic properties of physical assets like gold.[38] The foregoing was made

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[33] *Id.*

[34] Ethereum.org, *supra* note 28.

[35] Shorya Sbhluxmi, *Decentralized Autonomous Organization*, at 10, *available at* https://capturadvisors.com/wp-content/uploads/2021/10/decentralized-autonomous-organization.pdf (last accessed May 25, 2023).

[36] Yves Longchamp, Chetan Kale & Sonali Gupta, *Decentralized Autonomous Organizations (DAO)*, at 6 (May 2022), *available at* https://www.seba.swiss/wp-content/uploads/2022/05/seba-bank-the-bridge-dao-05-2022-en.pdf; Ethereum.org, *supra* note 28.

[37] Nielsen, *supra* note 5, at 1110.

[38] Jacek Czarnecki & Maciej Ołpiński, *The next stage in evolution of the Internet*, *in* BLOCKCHAIN, SMART CONTRACTS AND DAO 10 (2016), *available at* https://newtech.law/wp-content/uploads/2017/08/Wardynski-and-Partners-Blockchain-smart-contracts-and-DAO-2.pdf.

possible by the mere implementation of a code without the need for a traditional organization to plan, setup, and operate.

With more modern blockchain technology such as the Ethereum blockchain that allows the hosting of smart contracts, DAOs need not have their own dedicated blockchain to operate. So long as their objectives are specific and precise enough to be encapsulated by computer codes, DAOs can be created for different purposes, such as social clubs, freelancer networks, and investments. *Social DAOs* are akin to country clubs in which prospective members gain entry by purchasing a certain number of the DAO's tokens to gain access to a social circle which often shares common interests.[39] *Freelancer network DAOs* connect customers with freelancers for the former to avail of certain services, while prioritizing and distributing freelance works according to its protocol.[40] *Investment DAOs* operate with pooled capital similar to traditional ones, but the token holders vote in a pure democracy as to where the funds will be invested, instead of having a small group of fund managers.[41]

Among the most renowned investment DAOs is *The DAO* due its pioneering work and large investment pool amounting to USD 150 million, but more importantly, because of its hacking incident.[42] *The DAO* was intended to operate as an investment organization, but its main protocol gives voting rights to investors on proposals that were submitted by "contractors," or those who seek funding for their project, and is approved by *The DAO*'s curators.[43] With enough votes, *The DAO* will invest on the approved budget by providing *ether*, the cryptocurrency of the Ethereum blockchain where *The DAO* was created. This radically decentralized governance structure necessitated very complex lines of code in its smart contracts.

The complexity of *The DAO*'s code became its weakness when it was anonymously "hacked" and USD 60 million was stolen (hereinafter "*The*

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[39] Weinstein et al., *supra* note 13.

[40] *See* Ernest Hamilton, *DAO's and the Next Generation of Online Communities*, TECH TIMES, Mar. 4, 2021, *available at* https://www.techtimes.com/articles/257667/20210304/daos-and-the-next-generation-of-online-communities.htm. *See, e.g.*, *A Decentralized Collective of Mercenaries Ready to Slay Your Web3 Product Demons*, Raid Guild, *at* https://www.raidguild.org (last accessed May 25, 2023).

[41] Agnieszka Kraińska, *What the history of The DAO says about the law*, *in* BLOCKCHAIN, SMART CONTRACTS AND DAO 25 (2016), *available at* https://newtech.law/wp-content/uploads/2017/08/Wardynski-and-Partners-Blockchain-smart-contracts-and-DAO-2.pdf.

[42] Robert Leonhard, *Corporate Governance on Ethereum's Blockchain* (2017), at 9, *available at* http://dx.doi.org/10.2139/ssrn.2977522.

[43] Morrison et. al., *supra* note 22.

DAO Hack").[44] *The DAO* Hack was not really a hack in the sense of a security breach or infiltration. Rather, one of the members of *The DAO* found a fault or a loophole in the smart contract which he then exploited. The loophole allowed him to repeatedly execute a transaction to withdraw a total of USD 60 million worth of ether.[45] Attempts were made to prevent the malicious transactions, but the voting threshold required could not be obtained in a short time.[46]

The "hacker" published an open letter after the incident stating that what he found in the code was not a loophole or a bug, but a feature. Since it was part of the smart contract code, it meant that the feature was intentionally made part of *The DAO* and may be rightfully used by any of its members.[47]

The position of the "hacker" regarding the incident is reasonable. However, the incident itself exposes some problems that DAOs may encounter, which cannot be easily resolved. The incident revealed that members of DAOs are not guaranteed absolute security by their utilization of a promising technology like the blockchain. This is because although records are immutable, once a mistake in the code is stored in the blockchain, the mistake becomes immutable as well. In those instances, members need the law as the final protection for their rights and interests.

III. THE NECESSITY OF REGULATION FOR DAOS

DAOs were conceived as alternatives to traditional business organizations like corporations and partnerships. Much of their appeal comes from their decentralized and trustless nature. *On one hand*, by being decentralized, some DAOs do not really need to establish a principal place of business where they would have to rent an office space or build server facilities. The blockchain allows DAOs to function with the help of miners

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[44] Matt Levine, *Blockchain Company's Smart Contracts Were Dumb*, BLOOMBERG, June 18, 2016, *available at* https://www.bloomberg.com/opinion/articles/2016-06-17/blockchain-company-s-smart-contracts-were-dumb.

[45] Morrison et. al., *supra* note 22.

[46] *Id.* Morgen Peck, *DAO May Be Dead After $60 Million Theft,* IEEE Spectrum, June 17, 2016, *available at* https://spectrum.ieee.org/dao-may-be-dead-after-40million-theft; Nathaniel Popper, *A Hacking of More Than $50 Million Dashes Hopes in the World of Virtual Currency*, N.Y. TIMES, June 17, 2016, *available at* https://www.nytimes.com/2016/06/18/business/dealbook/hacker-may-have-removed-more-than-50-million-from-experimental-cybercurrency-project.html.

[47] *Id.* Gautham Narasimhamurthy, *DAO Hack, Attacker Sends Open Letter to Ethereum Community*, NewsBTC, *available at* https://www.newsbtc.com/news/dao-hack-attacker-sends-open-letter-to-ethereum-community/ (last accessed May 25, 2023).

and the peer-to-peer network without having the need to set up their own servers. It also allows the members to work anywhere in the world at their own convenience. Furthermore, DAOs can operate without the need to comply with the bureaucratic rules and formalities imposed by a country and need not limit their business only to whatever is permitted in a certain jurisdiction. This substantially reduces the operation costs of DAOs by eliminating the need to hire professionals, such as accountants and lawyers, for due diligence and compliance.

On the other hand, a DAO's trustless character means that members can maintain *pseudonymity*. It is a concept that is less private than true anonymity because it is still possible to determine the identity of a pseudonymous person by procuring some information that the person might have given for a limited purpose.[48] Since both the operation of a DAO and the degree of participation of its members are governed by the smart contracts, the members of a DAO may come together without trusting and knowing each other, and collaborate according to the goals of the DAO. As such, members can maintain their pseudonymity, which makes membership to DAOs more attractive. Members or users may transact based on aliases and limited disclosure of information, which encourages interactions with strangers.[49]

From the foregoing, it appears that regulating DAOs would contradict some of the qualities that make them an attractive option to conduct business. The case of *The DAO* Hack, however, shows that leaving this organizational model unregulated and without legal safety nets exposes its members and investors to possible unintended losses without any remedy to turn to. In the said hacking incident, the USD 60 million worth of ether remains to be recovered, and the perpetrator is yet to be identified. The real possibility that events like *The DAO* Hack will arise may deter potential investors and other interested participants. Thus, quite ironically, regulating DAOs may actually bolster confidence in their operation and encourage membership. Moreover, as some DAOs offer services to the public, those who may avail of their services may be left with no recourse in cases of breach if DAO activities are not regulated.

Thus, the need to regulate DAOs is primarily for the protection of not only the DAO members and investors, but also the public.

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[48] Juliya Ziskina, *The Other Side of the Coin: The FEC's Move to Approve Cryptocurrency's Use and Deny Its Viability*, 10 WASH. J.L. TECH. & ARTS 305, 308 (2015).

[49] Nielsen, *supra* note 5, at 1109–10.

A. Protection of the Interests of DAO Members

One of the main reasons why traditional business entities like corporations are formed is because they limit the liability of the business owners.[50] A corporation, for example, has a juridical personality of its own that is separate from its shareholders, which means that the obligations that it incurs are its sole liability.[51] Thus, the risk an investor is exposed to extends only up to the amount of one's investment. An investor cannot be made personally liable for the liabilities of the corporation for an amount beyond the value of one's investment; this is the *doctrine of distinct and separate juridical personality*.[52] Only for very specific reasons may a shareholder directly answer to corporate creditors[53] namely: payment of unpaid subscription representing a claim or receivable of the corporation;[55] commingling of assets as ordered by a rehabilitation or insolvency court;[56] nullification of unusual transfer to shareholders during insolvency proceedings;[57] breach of fiduciary duties;[58] and piercing the veil of corporate fiction due to fraud and defeat of public convenience.[59] Investor protection, such as the limited liability rule, is a significant incentive to encourage more investors to participate in the business of corporations.

DAOs, however, do not have such protection for their investors. A DAO may include lines of code in its smart contracts to the effect that token holders are to be liable only to the extent of their investments. Nonetheless, the code will not work as a valid legal defense if a member, in their individual capacity, was identified and sued in court for being a part of an organization that incurred liability. If there is no law that recognizes the separate personality

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[50] *See* Zomer Dev. Co. Inc. v. Ct. of Appeals, G.R. No. 194461, 928 SCRA 110, 137, Jan. 7, 2020, *citing* Phil. Nat'l Bank v. Hydro Resources Contractors Corp., G.R. No. 167530, 693 SCRA 294, Mar. 13, 2013; TERESITA HERBOSA & ERIC RECALDE, THE REVISED CORPORATION CODE OF THE PHILIPPINES (ITS THEORIES AND APPLICATIONS) 34 (2019).

[51] Vda. de Roxas v. Our Lady's Foundation Inc., G.R. No. 182378, 692 SCRA 578, 586, Mar. 6, 2013, *citing* Santos v. Nat'l Lab. Rel. Comm'n, G.R. No. 101699, 254 SCRA 673, Mar. 13, 1996.

[52] HERBOSA & RECALDE, *supra* note 50, at 29.

[53] *Id.* at 29–30.

[55] Enano-Bote v. Alvarez, G.R. No. 223572, 889 Phil. 1044, 1071–72 (2020), *citing* Halley v. Printwell, Inc., G.R. No. 157549, 649 SCRA 116, May 30, 2011.

[56] Rep. Act No. 10142 (2010), § 7. Financial Rehabilitation and Insolvency Act of 2010.

[57] § 58.

[58] This is applicable to stockholders actively engaged in the management or operation of the business of a close corporation. REV. CORP. CODE, § 99(e).

[59] Phil. Nat'l Bank v. Hydro Resources Contractors Corp., G.R. No. 167530, 693 SCRA 294, 307, Mar. 13, 2013, *citing* Sarona v. Nat'l Lab. Rel. Comm'n, G.R. No. 185280, 663 SCRA 394, Jan. 18, 2012.

of DAOs and the limited liability of their members, the members may be considered as the persons who have directly transacted with the plaintiff to whom they may have incurred liability. Hence, a provision of law that limits the liability of the members could be a strong incentive for DAOs to have themselves regulated.

Aside from investor protection, protection against the acts of other members is also a valid reason to regulate DAOs. *The DAO* Hack is a relevant example of the need to protect the interest of DAO members from the acts of other members. If legal security measures were in place when *The DAO* Hack happened, the losses could have been minimized, or better yet, the amount stolen could have been recovered. Unfortunately, since no regulatory measures were in place, the members of *The DAO* had to perform a *hard fork*.[60] A *hard fork* involves creating a new blockchain that is essentially a copy of the old blockchain, but modifying the blocks as if the "hack" never happened.[61] The new blockchain will be akin to a parallel universe in which no money was stolen and no bug in the smart contract existed.[62] Thus, for a hard fork to work perfectly, all users of the old blockchain must approve. Since all their assets will be replicated in the new blockchain, they must agree that the new blockchain is the new real blockchain and that the old blockchain was worthless. Otherwise, some users deciding to remain in the old blockchain may lead to a sizable economic anomaly in which digital assets are simply duplicated yet still retain some value. It would amount to a creation of value out of thin air, which is tantamount to a scam.

The members of *The DAO* were still quite lucky because, back then, the old Ethereum blockchain (now called Ethereum Classic) did not see a lot of activity. Thus, obtaining a consensus to perform a hard fork was not impossible. By doing the hard fork, the members were able to recover 80% of the funds stolen.[63] Also, the number of those who decided to remain in the Ethereum Classic and their assets were not significant enough to make a negative impact on the economy of the new Ethereum blockchain.

However, resorting to a hard fork is not always a viable option. This is true especially when a blockchain is already populated with various DAOs that are functioning properly, and when the cryptocurrency already has strong value and is tied to some real-world assets. If a DAO is hacked again under these circumstances, it will be difficult to convince all the blockchain users to

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[60] Kraińska, *supra* note 41, at 26.
[61] *Id.*
[62] Morrison et. al., *supra* note 22.
[63] Kraińska, *supra* note 41.

participate in a hard fork. It will then leave the "hacked" DAO with no other option but to concede the damage caused by the hacker. Hence, another strong incentive to regulate DAOs is the security of members against prejudicial acts of other members that the law may provide.

The security that laws may provide when regulating DAOs is, of course, not limited to prejudicial acts of other members. It may also apply to economic damages caused by *bugs* in the code, or the unwanted and unintended consequences produced by certain codes inadvertently written into the smart contracts. After all, the writers of these codes are only humans who may also make mistakes. Once the mistake is perpetuated in the blockchain, its effects are not easily reversible, and the coding in the smart contracts may not have included a solution for those specific circumstances. Moreover, other people, whether members or otherwise, may exploit the bug to their advantage and to the detriment of the members and the DAO. These exploiters may then later argue that the loophole was a feature and not a bug, similar to the hacker's position in *The DAO* Hack. In such situations, laws may serve as *gap-fillers* to cover areas not contemplated by smart contracts. Similar to the role of the Revised Corporation Code as a gap-filler in corporate affairs,[64] laws regulating DAOs may provide for general principles and rules, using which the unforeseen and unintended circumstances may be solved.

Another aspect of DAO membership that must be regulated are the *secondary markets*. The existence of secondary markets such as the Philippine Stock Exchange (PSE) is among the features that makes traditional corporations attractive because it gives the corporation the ability to raise capital expeditiously and allows the participants thereof to be part of the distribution of profits.[65] However, trading and investing in the secondary markets is highly regulated by government institutions like the Security and Exchange Commission (SEC), as well as private institutions like the PSE. The government recognizes that secondary markets are prone to fraud and manipulations, and that is why laws regulating their activities are in place, such as the Securities Regulation Code ("SRC") and the National Internal Revenue Code ("NIRC"), among others. The strong secondary market support of traditional business organizations ensures, or at least offers a certain guarantee, that their capital raising mechanism is free from fraud and opportunism.

As DAOs mostly rely on the use of cryptographic tokens to convey ownership of and rights in DAOs, the trading of these tokens on secondary

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[64] HERBOSA & RECALDE, *supra* note 50, at 6.

[65] *Id.* at 34.

markets gives rise to a risk of fraud.[66] It is unfortunate that they do not have the same luxury of a strong secondary market support. DAOs merely rely on the rule of the code and the unfettered law of supply and demand. Although the secondary markets involving cryptocurrencies and cryptographic tokens were designed with extreme liberalism in mind and intended to be an unregulated marketplace, it did not take long for fraud and opportunism to sprout. In 2021 alone, it was found that crypto scammers worldwide amassed around 14 billion US dollars, which was a 1000% increase from the previous year.[67] Moreover, it was found that the rampancy of crypto scamming was due to the rise of DeFi or decentralized finance, which is an idea that financial or secondary markets must remove middlemen that regulate financial transactions.[68] Further, in January 2022, celebrities Kim Kardashian and Floyd Mayweather Jr. were sued for engaging in a pump-and-dump scheme—a scheme where famous personalities misleadingly promote cryptographic tokens or cryptocurrency to inflate their price then subsequently sell all of their holdings to gain quick profits.[69]

The widespread fraudulent transactions in the secondary markets are big deterrents to investing in and becoming members of DAOs through tokens. Potential members and investors, especially those who do not understand code, may assume that when a DAO issues tokens it may be another pump-and-dump scheme. This is especially true when the *modus operandi* of the scammers is merely to hype up a token. Such situations cannot be prevented by smart contracts alone; an external manner of regulation is necessary.

In 2017, the United States Securities and Exchange Commission ("US SEC") published a report analyzing the cryptographic tokens issued by a DAO called *Slock.it DAO*. The US SEC applied the test used by the US Supreme Court (SCOTUS) in the case of *SEC v. W.J. Howey Co.* to determine whether an investment contract exists.[70] In that case, the SCOTUS held that:

> 4. The test of whether there is an "investment contract" under the Securities Act is whether the scheme involves an investment of

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[66] Nielsen, *supra* note 5, at 1111–12.

[67] Tristan Bove, *Crypto scams are social media's latest crisis. Here's how bad the problem is, and how much worse it will get*, FORTUNE, Feb. 1, 2022, *available* at https://fortune.com/crypto/2022/01/31/crypto-investment-fraud-scams-social-media-crisis-federal-trade-commission/.

[68] *Id.*

[69] *Kim Kardashian sued in crypto 'pump and dump' case*, BBC, Jan. 12, 2022, *available at* https://www.bbc.com/news/technology-59964648.

[70] Nielsen, *supra* note 5, at 1111–12.

> money in a common enterprise with profits to come solely from the efforts of others; and, if that test be satisfied, it is immaterial whether the enterprise is speculative or nonspeculative, or whether there is a sale of property with or without intrinsic value.
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> In other words, an investment contract, for purposes of the Securities Act, means a contract, transaction or scheme whereby a person invests his money in a common enterprise and is led to expect profits solely from the efforts of the promoter or a third party, it being immaterial whether the shares in the enterprise are evidenced by formal certificates or by nominal interests in the physical assets employed in the enterprise. Such a definition necessarily underlies this Court's decision in *SEC v. Joiner Corp.* and has been enunciated and applied many times by lower federal courts. It permits the fulfillment of the statutory purpose of compelling full and fair disclosure relative to the issuance of "the many types of instruments that, in our commercial world, fall within the ordinary concept of a security." It embodies a flexible, rather than a static, principle, one that is capable of adaptation to meet the countless and variable schemes devised by those who seek the use of the money of others on the promise of profits.[71]

Stated differently, if a contract: (1) includes an investment of money; (2) in a common enterprise; (3) with an expectation of profit; and (4) derived from the efforts of a third-party; then the contract is an investment contract. This has been dubbed the "Howey Test."[72] Applying the Howey Test to the cryptographic tokens of *Slock.it DAO*, the US SEC concluded that said tokens were securities subject to its regulation.[73] Although this case shows that existing laws may be used to regulate by force some activities in the secondary markets, it is still not sufficient to be considered as a strong secondary market support due to the fact-specific nature of the SEC's analysis. Since a token can be programmed in various ways, it may be programmed in such a manner that avoids the prongs of the Howey test.[74] Hence, a special regulatory

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[71] Sec. & Exch. Comm'n v. W. J. Howey Co., 328 U.S. 293, 293, 298–99 (1946). (Emphasis supplied, citations omitted.)

[72] The court determines "whether the scheme involves an investment of money in a common enterprise with profits to come solely from the effort of others." *Id.* at 301; Sec. & Exch. Comm'n v. Edwards, 540 U.S. 389, 393 (2004). *See* Nielsen, *supra* note 5, at 1112; Michael Mendelson, *From Initial Coin Offerings to Security Tokens: A U.S. Federal Securities Law Analysis*, 22 STAN. TECH. L. REV. 52, 66 (2019).

[73] US Sec. & Exchange Comm'n, Release No. 81207, *Report of Investigation Pursuant To Section 21(A) Of The Securities Exchange Act Of 1934: THE DAO* 4, 16 (2017), *available at* https://www.sec.gov/files/litigation/investreport/34-81207.pdf.

[74] Nielsen, *supra* note 5, at 1111–12.

framework for the secondary markets of DAOs may give it its much-needed secondary market support that may bolster confidence in acquiring and investing on its tokens and other digital assets.

Finally, another aspect of DAO membership that must be regulated is the use of *curators*. Curators are those that "control the order and frequency of the proposals" and impose subjective criteria to determine whether a proposal should be whitelisted.[75] Their purpose is to filter the proposals submitted by the members and safeguard the DAO and its members from malicious proposals from other members. The use of curators was popularized by *The DAO*. The curators themselves even admitted that they possessed immense power because they have complete control over the whitelisting or blacklisting of proposals.[76] By employing a curator, the DAO limits its purely democratic operation by introducing a human element. In effect, a rough analogy can be made where the token-holders are shareholders while the curators are the board of directors.[77]

For traditional organizations like partnerships and corporations, the actions of people who possess a considerable amount of control over the operations of the organization are regulated by law. In corporations, for example, Section 30 of the Revised Corporation Code imposes fiduciary duties upon the board of directors, namely: the duty of obedience, of care, and of loyalty.[78] Breach of these fiduciary duties by the board of directors entitles the corporation to certain remedies such as the filing of a civil action, injunction, imposition of liability for loss of profits, and forfeiture of compensation.[79] They can also be held personally liable when they assent to patently unlawful acts of the corporation, act in bad faith or with gross negligence in directing the corporate affairs, engage in activities where there are conflicts of interests.[80] And when the board performs acts which constitute a wrong on the corporation itself, the other stockholders may file a derivative suit on behalf of the corporation against the board members.[81] As for partnerships, the Civil Code makes personally liable to the partnership the

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[75] Minn, *supra* note 18, at 153.

[76] *Id.*

[77] Nielsen, *supra* note 5, at 1121.

[78] REV. CORP. CODE, § 30; Total Office Products & Services, Inc. v. Chang, G.R. No. 200070, Dec. 7, 2021, *citing* Strategic Alliance Dev. Corp. v. Radstock Sec. Ltd., 54 Phil. 517 (1992); HERBOSA & RECALDE, *supra* note 50, at 150–54.

[79] Ient v. Tullett Prebon (Phil.), Inc., G.R. No. 189158, 814 SCRA 184, 231, Jan. 11, 2017.

[80] Malate Construction Dev. Corp. v. Extraordinary Realty Agents & Brokers Coop., G.R. No. 243765, Jan. 5, 2022.

[81] Legaspi Towers 300, Inc. v Muer, G.R. No. 170783, 673 SCRA 453, 465, June 18, 2012, *citing* Cua v. Tan, G.R. No. 181455, 607 SCRA 645, Dec. 4, 2009.

partner who is responsible for the damages that the partnership suffered through individual fault.[82]

It is obvious why laws are in place to regulate the acts of people with this power: to protect the organization, its stakeholders, and the public from those who would abuse it. The State recognizes that the internal rules of the organizations are not enough to completely prevent the commission of acts that prejudicial to the organizations' stakeholders. The solution to this problem offered by DAOs is to do away with a central management authority entirely, and instead shift to pure democracy to conduct operations. However, as stated previously, relying on curators compromises said pure democracy by introducing human elements capable of thinking independently from the business logic of the DAOs. The human element makes any written code ineffective in regulating the human exercise of judgment and discretion. The creators of *The DAO* admitted that the only check to the immense power of the curators that the smart contracts can implement is to allow investors to submit proposals for the replacement of the curator.[83] The smart contract is incapable of imposing and enforcing fiduciary duties to curators because determining whether there has been breach of such duties involve *off-chain* (i.e., outside the blockchain) information. Thus, a law that imposes fiduciary duties on the curators is another incentive for DAOs to allow themselves to be regulated.

B. Protection of the Public

The current state of DAOs and blockchain technology is still far from their full potential, but it will not take long for DAOs to evolve into entities that offer services and sell products to the public. An example of a DAO that offers services at its nascent stage is Raid Guild, which is a design and development agency that specializes in projects in the Web3 ecosystem.[84] Raid Guild's services may be availed of by anyone by submitting an application for consultation regarding a project and paying with cryptocurrency that will be converted to a cryptographic coin of the Guild's choice.[85] The application will

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[82] CIVIL CODE, art. 1794.

[83] Jentzsch, *supra* note 6, at 2–3.

[84] Web3 is thought of as the next wave of internet development that integrates "decentralization, blockchain technology[,] and token-based economies." It is a "decentralized online ecosystem based on blockchain." Chong Guan et al., *An ecosystem approach to Web3.0: a systematic review and research agenda,* 2 J. ELECTRONIC BUS. & DIGITAL ECON. 139, 139–40 (2023). (Citations omitted.)

[85] *Convert Client Submission Into a Raid,* Raid Guild, *available at* https://handbook.raidguild.org/docs/convert-client-submission (last accessed May 25, 2023).

be processed according to its protocols, and a consultation will be scheduled if approved. At the consultation, assigned Raid Guild members and the customer will determine how to proceed with the project.[86]

DAOs that operate like the Raid Guild do not simply use smart contracts in passively investing on a project where not much obligation is required of the DAO. Rather, smart contracts are already used to connect the members of the DAO and the customers, who then mutually bind themselves to perform reciprocal obligations. Such operations no longer affect just the members of the DAO, but also the public who sought to avail their services. In a future where machine learning and artificial intelligence are more advanced, it is possible that DAOs no longer provide merely simple and small services such as web development. They may even offer public services such as a decentralized ride-sharing application managed entirely by artificial intelligence with little to no human inputs. If these acts are not regulated, the public may be exposed to a situation in which a breach or wrong imputable to the DAO or its members has no corresponding remedy. Even if a remedy would exist, there still would be substantial difficulties in determining party liabilities and enforcement mechanisms. Thus, since some DAOs' operations affect the public, it is in the interest of the State to regulate DAOs.

Moreover, the public must also be protected from defective and illicit code. Due to the nature of blockchain and smart contracts, once deployed, such code will operate as originally intended, even if it contravenes the law or the intent of the DAO.[87] The effect will be similar to what happened in *The DAO* Hack, in which a defective code was perpetuated in the blockchain and abused by one of the members. In that case, however, the defective code only affected the members of *The DAO*. When the code is one that affects persons outside the organization such as users and customers, it will still be perpetuated in the blockchain and may be abused by other members to the prejudice of the public. Without any regulation or legal recourse for the effects of a defective code, the public may be exposed to great disadvantage. Consequently, the public may be discouraged to avail the services or products that DAOs may offer. Therefore, it is also in interest of the DAOs to have their public affairs be regulated to have a stable and reliable operation.

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[86] *Commission Process,* Raid Guild, *available at* https://handbook.raidguild.org/docs/commission-process (last accessed May 25, 2023).

[87] PRIMAVERA DE FILIPPI & AARON WRIGHT, BLOCKCHAIN AND THE LAW: THE RULE OF CODE 155 (2018).

IV. LEGAL PROBLEMS THAT DAOS MAY ENCOUNTER IN THEIR OPERATIONS IN THE PHILIPPINES

Part III explained why it is in the best interest of DAOs, their members, and the public for DAOs to be subject to regulation via legislation, even though it is contrary to how DAOs were conceived to be. However, as it stands, since DAOs are still in their embryonic stage, very few laws around the world have been enacted for the specific purpose of regulating their operations. In the Philippines, a law regulating DAOs is yet to be enacted, but a big step forward towards the recognition of this technology is House Bill No. 7864 known as "Blockchain Technology Development Act."[88] This house bill proposed to use blockchain technology for distribution of basic social services (such as the National ID System),[89] financial technology,[90] contractual relations,[91] and human development programs.[92] Nevertheless, the lack of any effective law specifically regulating DAOs leaves mainly the two most common, in-use and widespread business organizational laws—Corporation Law and Partnership Law—as the main methods to address the legal problems that DAOs may face in their operation in the Philippines. This Part of the paper identifies four main legal problems: (1) jurisdictional problems; (2) the legal status of DAOs; (3) the legal rights and obligations of its members; and (4) legal rights and obligations in relation to third parties. It also analyzes how a DAO fits within Corporation and Partnership Law to ascertain whether these problems are addressed.

A. Jurisdictional Problems

In the most general sense, jurisdiction is an aspect of sovereignty that refers to a State's power to regulate the activities of natural and juridical persons.[93] In international law, when analyzing jurisdiction distinctions are usually made between (a) prescriptive jurisdiction, and (b) enforcement or adjudicative jurisdiction.[94] The former refers to "the power to make laws, decisions[,] and rules" to govern persons whether natural or juridical, while the latter refers to the "the power to take executive or judicial action in pursuance of or consequent on the making of" said decisions or rules.[95] Both

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[88] H. No. 7864, 18th Cong., 2nd Sess. (2020).

[89] Explanatory Note, § 9.

[90] § 5.

[91] § 3.

[92] § 7.

[93] JAMES CRAWFORD, BROWNLIE'S PRINCIPLES OF PUBLIC INTERNATIONAL LAW 440 (2019 ed.)

[94] *Id.*

[95] *Id.*

types of jurisdiction have their own quandaries when applied to the concept of DAOs.

Out of the two, the more problematic type of jurisdiction when applied to the concept of DAOs is prescriptive jurisdiction. *Prescriptive jurisdiction* essentially answers the question: "To whom may a State extend its laws?"[96] Generally, the basis of prescriptive jurisdiction of a State is territorial because a State's territory is also the extent of where it can exercise its sovereignty. As such, a State may prescribe laws and compel anyone who lives or sojourns in its territory to obey such laws under the pain of penalty.[97]

The territorial nature of prescriptive jurisdiction appears to be inherently incompatible with the idea of DAOs, since DAOs by nature do not operate in any given territory.[98] Unlike traditional software applications located in a server under the control of its operator, DAOs exist only in cyberspace through the network of the participants of the blockchain on which it was built—"*it is both everywhere and nowhere.*"[99] Thus, it is impossible to pinpoint a territory in which a DAO is situated, and to determine which State may exercise prescriptive jurisdiction. This raises the preliminary question of whether Philippine laws would even apply to DAOs. Moreover, prescriptive jurisdiction over the members of the DAO is difficult to establish for two reasons. *First*, DAO members are generally pseudonymous, such that information about their identity and physical location may not be available. *Second*, DAO members may be situated in different territories which means that different States exercise prescriptive jurisdiction over them. Different laws may be applicable to different members.

The exercise of enforcement or adjudicative jurisdiction over DAOs is also problematic. In the Philippines, the bases of adjudicative jurisdiction are jurisdiction over the subject matter, over the person, and over the *res*. *Jurisdiction over the subject matter* is the power of the court to hear the type of case before it.[101] Since it is determined only by the allegations in the complaint and the law conferring jurisdiction to a court, this basis of adjudicative jurisdiction is on its face compatible with the nature of DAOs.

However, for a court of competent jurisdiction to fully dispose of a case, *jurisdiction over the person* is necessary. *Jurisdiction over the person* is the legal

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[96] MALCOLM EVANS, INTERNATIONAL LAW 340 (2006 ed.)
[97] *Id.* at 342.
[98] DE FILIPPI & WRIGHT, *supra* note 87, at 153.
[99] *Id.*
[101] Reyes v. Diaz, 73 Phil. 484 (1941).

power of the court to render personal judgment against a party to an action or proceeding. It can be acquired through voluntary appearance or through the service of summons.[102] Without jurisdiction over the person, the entire proceeding against said person, including the judgment, is null and void.[103] Considering that DAOs are both "everywhere and nowhere," it is impossible to acquire jurisdiction over its person through service of summons. But more importantly, and as will be further discussed in the next section, a DAO's possession of legal personality is questionable. Without legal personality, no court can acquire jurisdiction over its person simply because it does not exist in the eyes of law. Consequently, a DAO that lacks legal personality also cannot voluntarily appear before the courts and commence a suit. Additionally, jurisdiction over the person is also territorial.[104] Thus, acquiring jurisdiction over the person of the DAO members through summons is also hindered by the fact that some of them may be outside Philippine jurisdiction.

Finally, even assuming that a Philippine court was able to acquire adjudicative jurisdiction over a DAO, another roadblock would be the enforcement of the court's judgment. The assets of DAOs are mostly cryptocurrency and cryptographic tokens, both of which can be "difficult to retrieve."[105] Writs of execution issued by the courts to levy properties and assets or garnish bank accounts simply would not work for cryptocurrencies, because no institution can be compelled to release the cryptocurrencies and tokens, and the cryptocurrency "wallet" can only be opened using a private key.[106]

B. Legal Status of DAOs

Most modern societies are designed to be governed by the rule of law. As such, almost every activity must be legally recognizable so that the people know their rights and obligations in relation to their actions and the actions of other members of society. These rights and obligations may be possessed only by those who have legal personality. "Legal personality" or "juridical capacity" is defined in the Civil Code as the "fitness to be the subject of legal relations."[107] It is a prerequisite for "capacity to act," which is the ability to do acts which produce legal effect.[108] Philippine laws also recognize that not only

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[102] Midgely v. Ferandos, 159-A Phil. 314, 327 (1975).

[103] *See* Spouses Miranda v. Ct. of Appeals, G.R. No. 114243, 326 SCRA 278, 284, Feb. 23, 2000.

[104] Banco Español-Filipino v. Palanca, 37 Phil. 921 (1918).

[105] Minn, *supra* note 18, at 173.

[106] *Id.*

[107] CIVIL CODE, art. 37.

[108] Art. 37.

natural persons but also entities may be endowed with legal personality;[109] these entities are called *juridical persons*. They are "abstract being[s] [...] to which the law has granted capacity for rights and obligations" that are separate from the individuals comprising it.[110] However, the law recognizes only three classes of juridical persons: (1) the State and its political subdivisions; (2) juridical persons for public interest created by law; and (3) juridical persons for private interest created pursuant to law.[111] In addition to the first class, juridical persons are also organizations formed for the realization of collective purposes.[112]

Although DAOs are "organizations," in reality, they are simply lines of code stored in the blockchain. Unlike traditional organizations that pertain to the conglomeration or association of individuals, DAOs are essentially automatons with no physical form. Additionally, unlike traditional organizations which act through their authorized members, the participation of DAO members is limited to changing the protocol of the DAO or voting for a course action, if the DAO asks them to do so. They do not really act on behalf of the DAO. Such unique characteristics raise questions as to the legal status of DAOs, such as the existence of a DAO's separate juridical personality, and the legal effects of its acts.

Since the legal personality of juridical persons is created by legal fiction, the law that gives them their legal existence. For example, organizations for public interest possess legal personality because of the charter that created them, and private corporations and partnerships are bestowed with legal personality by the Corporation Code and the Civil Code, respectively. Unfortunately, there is currently no law that specifically recognizes the legal existence and personality of DAOs. This means that DAOs would have to organize as a corporation or a partnership and rely on the Corporation Code or the Civil Code to acquire legal personality, the viability of which will be discussed in Part V.

The operations of DAOs do not merely exist in a vacuum. DAOs were designed with the intention of interacting with real people, institutions, and entities, all of whom have recognized legal personalities. If DAOs were to operate in the Philippines, where there is no specific recognition of their legal personality, their legal status as well as the legal effects of their

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[109] Art. 44.

[110] I ARTURO TOLENTINO, CIVIL CODE OF THE PHILIPPINES: COMMENTARIES AND JURISPRUDENCE 179 (1990).

[111] *Id.* CIVIL CODE, art. 44.

[112] TOLENTINO, *supra* note 110.

interactions with individuals and juridical persons would be left undefined. As such, when a DAO enters contracts, there is ambiguity and uncertainty. In case of breach by the DAO, it is unclear whom to sue. In case of breach by the other party, It is also unclear who may bring the suit. The ambiguity of DAOs' legal status creates a very unstable commercial and contractual relationship. This makes the determination of the legal status of DAOs an essential legal problem to hurdle before it could properly operate in the Philippines.

C. The Legal Rights and Obligations of DAO Members

As previously emphasized, with the current technology that is available and the degree of autonomy that it can give DAOs, it is still inevitable for DAOs to have some human elements. Most of these human elements are propagated by the members who create the DAOs, make changes in the protocol, participate in the operation of their business, or exercise whatever right is included in their membership. Necessarily, the actions of the members have indirect effects on other members. To avoid a clash of rights, fraud, and other injurious acts, members may act only through smart contracts which limit how they act with mathematical precision. Nevertheless, *The DAO* Hack proved that it is still possible for fraudulent and malicious acts to penetrate the intricate system of DAOs. As previously stated, some experts posit that the complexity of the codes of DAOs is their very Achilles' heel, because such degree of complexity makes DAOs behave sporadically and in unintended ways.[113] In such cases, smart contracts are not enough to spell out the rights and obligations of the members because they can only provide and control those that were foreseen and written. When things go awry due to bugs in the code and other unforeseen circumstances, the rights and obligations of the members are unknown.

Thus, there are two situations in which the rights and obligations of the members may give rise to legal problems. *The first situation* contemplates the problem discussed above, i.e., the rights and obligations of the members vis-à-vis other members in cases of injurious acts committed by one or some of the members. In the traditional business structures, the law always provides some measure of accountability for the members when they act to the prejudice of the organization or other members. For corporation law, there is the duty of care, loyalty, and obedience for the directors and officers. Violation of said duties may result in their direct liability for loss of profits

[113] Morrison et. al., *supra* note 22.

and forfeiture of compensation.[114] For more specific situations, the Corporation Code also spells out the rights and obligations in case of self-dealing directors[115] and officers or contracts between corporations with interlocking directors.[116] For partnership law, a partner is liable to the partnership for damages incurred by the partnership through his fault.[117] For DAOs, however, it is difficult to include in smart contracts similar kinds of accountability provisions, because smart contracts only deal with very precise terms which are incompatible with subjective and loose concepts requiring interpretation and discretion, such as bad faith, fault, and negligence. Thus, smart contracts cannot execute a command that will effect accountability, when the conditions required are bad faith, fault, and negligence.

In the second situation, we have the rights and obligations of the members vis-à-vis the third parties. This problem is closely intertwined with the ambiguity of DAOs' legal status, since if DAOs were considered to have no juridical personality, there would be no other parties to point to than the members thereof for damages that the DAOs may have caused. Hence, for liabilities *ex contractu*, the challenge is in the identification of the counterparty, whether it is the DAO itself or its members. On the other hand, for liabilities arising from torts and quasi delicts, the challenge is in the identification of the proximate cause of the injury. The blurred legal status of DAOs also blurs the rights and obligations of the members with respect to third parties.

D. Legal Rights and Obligations of Third Parties

From the perspective of a DAO, third parties may mean any of the following: (1) the service providers of the DAO; (2) its customers, users and grantees; and (3) persons who commit tortious acts against it. As third parties, their rights and obligations vis-à-vis the DAOs will arise only when they interact with each other. There are two kinds of interactions that will give rise to a legal relationship between DAOs and third parties: contractual and tortious.[118]

Contractual relations apply to the first two classes of third parties, i.e., service providers and customers, users, or grantees. These classes of third

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[114] REV. CORP. CODE, § 33; Ient v. Tullett Prebon (Phil.), Inc., G.R. No. 189158, 814 SCRA 184, 231, Jan. 11, 2017.

[115] § 33.

[116] § 32.

[117] CIVIL CODE, art. 1794.

[118] *Tort*, as used in this paper, encompasses intentional torts, negligent torts including quasi-delicts, and strict liability tort. This is the framework that Justice Antonio Carpio used in his Article, "*Intentional Torts in Philippine Law*," 47 PHIL. L. J. 649 (1973).

parties interact with DAOs by contracting with them. Service providers render service to DAOs for a price, while the customers, users, or grantees avail the products or services offered by them. The contracts they enter must be legally enforceable contracts. As discussed in the previous sections, DAOs operate only through smart contracts, which must not be confused with legally enforceable contracts. Significantly, a DAO itself is a type of smart contract. It contains the code embodying the main protocol of the DAO which dictates how it operates.[119] The main smart contract must also be distinguished from the simpler smart contracts that may be concluded through the operations of the DAO. These simpler smart contracts are the ones used to obtain inputs from third parties and to execute the corresponding outputs. The simpler smart contracts must be further distinguished from legally enforceable contracts which legally bind the DAO or its members and third parties for whatever they may have agreed upon. Essentially, a DAO is the meta-contract that organizes the entire operation of the business and constitutes separate blocks in the blockchain.[120] Third parties interact with DAOs through websites or applications with user interfaces, and such interaction is coursed through smart contracts which will be stored in separate blocks in the blockchain. The terms and conditions in the application or website, or the agreement between the DAO or its members and third parties, is the legally enforceable contract that creates the legal relation.

Considering that the contractual relations between DAOs and third parties must be legally enforceable, the rights and obligations arising from said contract will also flow from another substantial problem: the legal status of the DAO. When the legal status of the DAO is unclear, the validity of the contract will also be unclear, because contractual relations may only be established between or among those with legal personality. Consequently, whether the contract can be a source of rights and obligations of third parties will likewise be unclear.

Another layer of the problem is the determination of the party who shall sue on behalf of the DAO in case of breach by third parties. Since the legal status of a DAO is unclear, its legal capacity to sue is dubious. Members must be real parties in interest to have legal standing to sue.[121] Thus, their capacity to sue will depend on their degree of participation in concluding the contract with third parties. However, considering that the nature of DAOs is precisely to limit human participation in the operation of the business and do

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[119] Wojdyło, *supra* note 4.

[120] *Id.*

[121] RULES OF COURT, Rule 3, § 2; Orbeta v. Sendiong, G.R. No. 155236, 463 SCRA 180, July 8, 2005.

it autonomously instead, it is highly unlikely that members may sue in their own name.

In the same vein, the legal problems for the obligation of third parties who are tortfeasors are (1) the juridical personality required to legally recognize an injury, and (2) the capacity to sue of the injured party, which in this case may be the DAO or the members. Generally, the legal remedy against tortfeasors is to sue them for damages. But for damages to be awarded there must be both "*a right of action for a legal wrong inflicted by the defendant, and damage resulting to the plaintiff therefrom.*"[122] The legal wrong causes the *injury*, which is the "illegal invasion of a legal right," while the *damage* is the harm "which results from the injury."[123] Thus, the award of damages contemplates the possession of a legal right and its breach resulting in an injury. The uncertainty in the legal status of DAOs again becomes a relevant problem. If a DAO does not have legal personality, it cannot have a legal right. Consequently, it is not capable of suffering an injury in the eyes of the law. It may be argued that it is the members that suffer the injuries, but the challenge is still to prove that the "injury" suffered by the DAO is actually its own.

V. HOW DAOS FIT WITHIN THE FRAMEWORK OF A CORPORATION OR A PARTNERSHIP

The legal problems identified above, hypothetically, may be addressed by applying the laws of business organizations in the Philippines—such as corporations and partnerships. By organizing as either corporation or partnership, the jurisdiction over the DAOs will be clear, their legal status will be determined, and the rights and obligations of its members and of the third parties will be identified. However, the nature of DAOs is completely different from that of a corporation or a partnership.

The Law on Partnerships has been specifically designed to cater the practice of combining capital, goods, talents, and credit of multiple individuals to conduct a trade or business,[124] while the Corporation Code has been designed to legitimize and regulate the practice of doing business through a separate entity where ownership through capital contribution and management of the business are bifurcated.[125] Essentially, these laws have

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[122] Custodio v. Ct. of Appeals, G.R. No. 116100, 253 SCRA 483, 490, Feb. 9, 1996. (Emphasis supplied.)

[123] *Id.*

[124] HECTOR DE LEON & HECTOR DE LEON, JR. COMMENTS AND CASES ON PARTNERSHIP, AGENCY, AND TRUSTS 1 (2019).

[125] HERBOSA & RECALDE, *supra* note 50, at 1–3.

been created for a specific purpose, i.e., to govern their respective business organizational frameworks. DAOs, on the other hand, have been ironically created to do away with these centralized structures in conducting business by using a technology that decentralizes the operations of the organization. Thus, it is expected that fitting DAOs into a partnership or a corporate structure will expose incompatibilities between the traditional business organizations and DAOs.

A. The DAO as a Corporation

Organizing as a corporation seems to be the best fit for DAOs because of the number of similarities they share, such as shares of stocks and tokens, limited rights of shareholders and token-holders, and tradability of their respective units of participation in a secondary market. Organizing as a corporation also has the benefit of limiting the liability of the participants, i.e., the member of the DAO. However, incompatibilities between DAOs and the corporate structure must be highlighted.

First, DAOs exist only in cyberspace through a decentralized network of participants where no centralized physical server is needed, while the Corporation Code requires a place where the principal office of the corporation is to be located within the Philippines.[126] Being a decentralized entity or running on every node of the blockchain is one of the main features of a DAO. Unlike traditional organizations, DAOs do not have to be pinned on a specific location nor does do they need a building or structure to operate. This feature makes DAOs enticing because it significantly lessens their operating cost. Hence, requiring DAOs to establish a principal place of business will negate said feature.

Second, DAOs are either *algorithmic* or *member-managed/participatory*.[127] While corporations are managed by a central authority or board of directors.[128] The idea of DAO being decentralized is to take away from a central authority or small group of people the power to manage and run the organization. To accomplish this goal, DAOs either entrust their operation entirely to a software ("Algorithmic DAOs") or use a purely democratic approach in operating the business ("Member-managed/participatory DAOs"). On the other hand, corporation law has the *doctrine of centralized management*, which states that the board of directors, consisting of few individuals, is the main

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[126] REV. CORP. CODE, § 13.

[127] Wright, *supra* note 29, at 5–6.

[128] REV. CORP. CODE, § 22.

decision-making authority who exercises the corporate powers.[129] Thus, in terms of management of the organization, the designs of a DAO and that of a corporation are diametrically opposite.

Third, the units of participation of DAOs are highly customizable, while the units of participation of corporations have definite classifications, uses, and corresponding rights. The units of participation of DAOs are usually in the form of cryptographic tokens which contain the rights that the owner may exercise in relation to the DAO that issued it. But there are also DAOs with share-based membership which require more than just tokens. They may also require a recommendation from a member, capital contribution, and expertise, other than mere ownership of a tradeable cryptographic token.[130] This means that for DAOs with share-based membership, the units of participation are not just a single asset that can be possessed. The variety of units of participation of DAOs simply cannot fit within the classifications of shares under Sections 6 to 9 of the Corporation Code.

Lastly, DAO members are generally pseudonymous while the corporations have some informational requirements regarding its directors, members, and shareholders. Pseudonymity is also one of the features of DAOs which encourages participation because it ensures that only very limited personal information is given. On the other hand, corporations require personal information of the shareholders in the stock certificate which they store in their books and records. SEC Memorandum Circular No. 6 s. 2016 requires the specific addresses and names of each incorporator, stockholder, director, or trustee.[131] If applied to DAOs, this would virtually eliminate pseudonymity for members, which would likely significantly detract prospective participants.

B. The DAO as a Partnership

The main problem for DAOs organizing as partnerships is the organizational purpose. For business dealings, a contract of partnership generally requires that the purpose of the partnership is for profit.[132] There must be a contribution of money, property, or industry with an intention to divide the profit among the members.[133] In contrast, not all DAOs are created

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[129] Ago Realty & Dev. Corp. v. Ago, G.R. No. 210906, Oct. 16, 2019.

[130] Sbhluxmi, *supra* note 35; Longchamp et al., *supra* note 36.

[131] Sec. & Exchange Comm'n Mem. Circ. No. 6 (2016), § 1.

[132] Partnerships may also be organized for the purpose of exercising a profession. CIVIL CODE, art. 1767.

[133] Heirs of Tan Eng Kee v. Ct. of Appeals, G.R. No. 126881, 341 SCRA 740, 751, Oct. 3, 2000.

for profit. For example, *The Big Green DAO* is a member-led philanthropic DAO that uses smart contracts to restructure the grant-making process.[134] Thus, the DAOs that may organize as partnerships are already limited to DAOs that organize for profit ("for-profit DAOs").

Another problem of organizing as a partnership, even for for-profit DAOs, is the tradability of interest in the organization. Most for-profit DAOs are permissionless and use token-based membership. Thus, tokens are easily tradable in a secondary exchange, and members of DAOs change in an instant. In contrast, partnership interest is different. It is not embodied in an asset that is easily tradable, and it is not easily and instantly acquired. In fact, adding an additional partner, whether limited or general requires an amendment in the certificate to bind third persons.[135] While most for-profit DAOs have permissionless membership, membership in a partnership is more permissioned. Ironically, most permissioned and share-based DAOs are not for profit such as social club DAOs.

The non-tradability of partnership interest in a secondary market also means that partnerships have weak secondary market support. Having tradable assets in the secondary market is one of the main features of DAOs for the purpose of raising capital. While partnerships only rely on the capital contribution of the partners, most DAOs use secondary markets to raise capital and entice membership.

Finally, mutual agency among partners is a feature with which any type of DAO will be incompatible. All of the DAOs' activities are coursed through voting or algorithmic management, sometimes also with the aid of curators. This means that no members act on behalf of the DAO or another agent. On the other hand, the default configuration for partnerships is that each partner shall be an agent such that any of their acts will bind the partnership.[136] Although the partners may limit the degree of agency by agreeing on the manner of management, nevertheless a partner will remain an agent despite such agreement if the act is for the purpose of the business of partnership.[137]

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[134] *Big Green DAO: Home*, Big Green DAO, *available at* https://dao.biggreen.org (last accessed May 25, 2023).

[135] CIVIL CODE, art. 1864.

[136] Art. 1803.

[137] Art. 1818.

VI. CONCLUSION

DAOs are poised to be the next major type of organization. They utilize the distributed ledger technology, known as the blockchain, to have an organization that is decentralized, trustless, cost-efficient, and which operates with mathematical precision. Although they were conceived to operate without the need of any aid from laws and regulatory bodies, there are good reasons why DAOs should be regulated, both from their perspective and from the perspective of the public.

The Philippines, however, is not yet ready to be a home for DAOs. DAOs will encounter serious legal problems in their operation in this country, and the laws governing business organizations in the Philippines, i.e., partnership law and corporation law, cannot address such problems without significantly altering the nature and characteristics of DAOs. Organizing DAOs as partnerships or corporations is similar to forcing circular pegs into square holes.

Given the broad implications of this new organizational model, as well as past incidents revealing the magnitude of property interests involved, it is crucial that the Philippine legislature should recognize the rise of DAOs, and begin developing an adequate regulatory framework. The new law must endeavor to respond to the risks of decentralization, smart contracts, and trustless transactions, and to encourage further innovation and development in these areas. Doing so would not only secure public interest, but also unleash the potential of DAOs in the Philippine landscape.

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