MASTER THESIS

Titel der Master Thesis / Title of the Master‘s Thesis

“Legal Recognition of Decentralized Autonomous Organizations (DAOs) in the U.S. and the UAE: A Comparative Analysis of Applicability and Challenges”

verfasst von / submitted by

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angestrebter akademischer Grad / in partial fulfilment of the requirements for the degree of

Master of Laws (LL.M.)

Wien, 2023 / Vienna 2023

Studienkennzahl lt. Studienblatt / Postgraduate programme code as it appears on the student record sheet:	UA 992 548
Universitätslehrgang lt. Studienblatt / Postgraduate programme as it appears on the student record sheet:	Europäisches und Internationales Wirtschaftsrecht / European and International Business Law
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Abstract

Decentralized Autonomous Organizations (DAOs) have gained popularity in recent years, particularly as a profit-generation tool that utilizes blockchain technology to distribute power and operate without centralized authority. However, their increased use as a business entity has raised legal concerns. Although DAOs operate, issue shares and distribute profit similarly to traditional organizations, they have the possibility to operate without lawful registration or compliance with necessary regulations. This puts members at risk of personal liability, even if they are unaware of any illegal activities. The thesis aims to analyze the differences in regulations and challenges facing recognizing DAOs as legal entities in different jurisdictions by comparing the legal landscape of the U.S., where some regulations are already in place to recognize DAOs, and the UAE, where their legal system may not yet embrace the novel characteristics of DAOs. The thesis argues that DAOs are incompatible with current organizational structures and their regulatory requirements, neither in the U.S., nor in the UAE. Providing DAOs with legal recognition would necessitate both a compromise on the decentralization aspect from the DAO's side as well as compromises from the legislature's side. A hybrid model may be a more appropriate solution for a well-functioning DAO at this stage. Finally, the thesis suggests that a well thought out regulatory framework is necessary to address the challenges presented by DAOs.

Keywords: Decentralized Autonomous Organizations (DAO), UAE, U.S., legal recognition, blockchain-technology, blockchain organizations

Zusammenfassung

Dezentrale Autonome Organisationen (DAOs) haben in den letzten Jahren an Popularität gewonnen, insbesondere als Profit-Generierungstool, das die Blockchain-Technologie nutzt, um Macht zu verteilen und ohne zentrale Autorität zu operieren. Ihre zunehmende Nutzung als Geschäftseinheit hat jedoch rechtliche Bedenken aufgeworfen. Obwohl DAOs ähnlich wie traditionelle Organisationen operieren, Aktien ausgeben und Gewinne verteilen, besteht die Möglichkeit, dass sie ohne rechtmäßige Registrierung oder Einhaltung notwendiger Vorschriften arbeiten. Dies setzt Mitglieder einem persönlichen Haftungsrisiko aus, auch wenn sie sich keiner illegalen Aktivität bewusst waren. Die These zielt darauf ab, die Unterschiede in Vorschriften und Herausforderungen zu analysieren, mit denen DAOs bei der Anerkennung als juristische Personen in verschiedenen Rechtsordnungen konfrontiert sind, indem sie die rechtliche Landschaft der U.S., wo bereits einige Vorschriften zur Anerkennung von DAOs bestehen, und der Vereinigten Arabischen Emirate vergleichen, wo ihr Rechtssystem möglicherweise die neuen Merkmale von DAOs noch nicht umfasst. Die These argumentiert, dass DAOs mit den aktuellen Organisationsstrukturen und ihren regulatorischen Anforderungen weder in den U.S. noch in den VAE kompatibel sind. Die Gewährung rechtlicher Anerkennung für DAOs würde sowohl einen Kompromiss auf Seiten der DAO bezüglich der Dezentralisierung als auch Kompromisse seitens des Gesetzgebers erfordern. Ein Hybridmodell könnte zu diesem Zeitpunkt eine angemessenere Lösung für eine gut funktionierende DAO darstellen. Schließlich schlägt die These vor, dass ein durchdachtes regulatorisches Rahmenwerk notwendig ist, um den von DAOs aufgeworfenen Herausforderungen zu begegnen.

Schlagwörter: Dezentrale Autonome Organisationen (DAO), UAE, U.S.A, rechtliche Anerkennung, Blockchain-Technology

Table of Contents

List of Abbreviations

AI	Artificial Intelligence
AML	Anti-money Laundry
BBLLC	Vermont Blockchain-Based Limited Liability Companies
bZx	bZeroX
CFTC	U.S. Commodity Futures Trading Commission
CID	UAE Crime Investigation Department
CIP	Customer Identification Program
CryptoFed	CryptoFed DAO LLC
CTF	Counter-Terrorism Financing
DAC	Decentralized Autonomous Corporation
DAO	Decentralized Autonomous Organization
DAO LLC	DAO Limited Liability Company
Dapp	Decentralized Digital Application
DCM	Designated Contract Market
DeFi	Decentralized Finance
DFSA	Dubai Financial Services Authority
DIFC	Dubai International Financial Centre
DMCC	Dubai Multi Commodities Center free zone
FCM	Futures Commission Merchant
KYC	Know Your Customer
LCA	Colorado Limited Cooperative Association
LLC	Limited Liability Company
MDIA	The Maltese Digital Innovation Authority
NFT	Non-Fungible Token
OoKi	Ooki DAO

PJSC	Public joint stock companies
PoS	Proof of Stake
PoW	Proof of Work
RegLab	The UAE Regulations Lab
SCA	The UAE Securities and Commodities Authority
SEC	The US Securities and Exchange Commission
UAE	United Arab Emirates
UPA	Uniform Partnership Act
U.S.	United States of America
U.S. DAO Laws	Wyoming and Tennessee DAO Law
UUNA	Uniform Unincorporated Nonprofit Association
VAL	Dubai Virtual Assets law
VARA	Dubai Virtual Assets Regulation Authority

Introduction

As the world becomes increasingly digitized and decentralized, the role of traditional intermediaries such as governments, corporations and banks is being called into question. In 2022, Jack Dorsey, co-founder and former CEO of Twitter, shared his belief that a company being 'founder-led' is severely limiting and a single point of failure. Dorsey further stated that he "[worked] hard to ensure this company (Twitter) can break away from its founding and founders".[1] This sentiment echoes the growing popularity of digital decentralized organizations, and their potential to disrupt traditional business and organizational models.

Over the past few years, blockchain technology has undergone a rapid evolution, extending its potential applications beyond the exchange of digital financial products. Today, it also serves as a foundation for novel systems that can structure social and corporate interactions in an autonomous manner, without the need for intermediaries.[2] This has given rise to a new form of blockchain organizations that are governed by code, and have come to be known as decentralized autonomous organizations (DAOs). DAOs represent a paradigm shift in the way we think about traditional organizations, enabling the deployment of entirely new forms of organizations that can be managed and governed using blockchain technology and smart contracts, without the need for traditional intermediaries and centralized governance.

Despite the promises of transparency, efficiency, and resistance to censorship that DAOs offer, they raise a number of legal questions that are yet to be fully resolved. One of the most pressing concerns is the recognition of DAOs as legal entities, which has important implications for their rights and liabilities, as well as for the legal status of their members. If not properly regulated, these emerging entities could be exploited for illegal activities. Due to their decentralized nature, DAOs can easily circumvent laws and regulations, making them difficult to monitor and control.[3] This creates a regulatory challenge for governments and other regulatory bodies who must balance the need to protect the public interest and the rights of investors with the need to foster innovation and economic growth.

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[1] Also in 2022, Dorsey tweeted, "The biggest issue and my biggest regret is that it became a company," and went on to say, "[I] don't believe any individual or institutions should own social media, or more generally media companies. It should be an open and verifiable protocol. Everything is a step toward that"< https://techcrunch.com/2022/08/26/jack-dorsey-biggest-regret/>.

[2] Primavera De Filippi and Aaron Wright *Blockchain and the Law: The Rule of Code* (Harvard University Press, 2018) 3.

[3] ibid 4.

This thesis aims to contribute to the ongoing conversation about DAOs and their legal recognition by conducting a comprehensive analysis of DAOs in two important legal systems, the United States (U.S.) and the United Arab Emirates (UAE) focusing in particular on the Emirate of Dubai. The analysis will touch on the technical design of DAOs, their governance mechanisms, and the legal and regulatory implications of their operation, but the key focus will be to compare the legal treatment of DAOs in both jurisdictions, with a particular emphasis on their recognition as legal entities.

The focus is set on both jurisdictions as both are working towards creating a regulatory environment that is friendly towards blockchain technology.[4] However, the U.S. is currently further ahead in recognizing DAOs as legal entities with several states, such as Wyoming and Tennessee permitting a DAOs to be registered as a DAO LLC. On the other hand, the UAE will be facing several challenges in creating a DAO-friendly environment, due to several factors such as restrictions on ownership, as well as stringent Know Your Customer (KYC) and anti-money laundering (AML) regulations. Furthermore, DAOs might be subject to securities laws and regulations and fall under heavy scrutiny by security authorities in both jurisdictions.

In order to achieve the aim of the thesis, several questions will be addressed in the course of the thesis. The first question is about the challenges behind recognizing DAOs as legal entities and the difficulties that arise when trying to apply traditional legal frameworks to this new form of organization, highlighting the potential risks and uncertainties that come with DAOs operating in a rigid decentralized and autonomous manner, relying heavily on the “code is law” principle. The second question is about the potential risks and challenges associated with unregistered DAOs, and the measures that can be taken by both DAO founders and regulators to mitigate these risks. The third area that will be explored is the limitations of the initiatives taken by some U.S. states to provide DAOs with a legal structure, and the challenges that still need to be addressed. The final study analyses if the legal landscape in the UAE allows it to follow steps in recognizing DAOs as legal entities by examining the regulatory environment in the UAE and whether it is conducive to recognizing DAOs as legal entities.

[4] Selva Ozelli ‘Why the US is one of the most crypto-friendly countries in the world’ (8 October 2022) <https://cointelegraph.com/news/why-the-us-is-one-of-the-most-crypto-friendly-countries-in-the-world> accessed 16 February 2023.

The thesis is structured as follows: Chapter 1 provides an overview of DAOs along with a brief on their technical underpinnings, and their principles and functions. The ideologies that drive DAO, namely "decentralized governance" and "code is law" will be explored in Chapter 2 highlighting the limitations of relying on rigid decentralization and coded governance and their consequences in legally recognizing DAOs and regulating them. Chapter 3 analyzes how the U.S. and UAE will treat an unregistered DAO in the absence of an extensive, directly applicable legal framework. Chapter 4 examines the novel regulations issued in the U.S. states of Wyoming and Tennessee to grant DAOs a legal personality and explores the potential and challenges behind similar DAO-friendly regulations in the UAE. Chapter 5 explores legal wrapper structures, both inside and outside the U.S., including potential options in the Emirate of Dubai, examining the benefits and drawbacks of these arrangements. The final chapter concludes by highlighting the key takeaways and emphasizing the need for any potential law to accommodate the unique features of DAOs while also ensuring their compliance with existing laws and regulations, and the role of DAO founders to embrace compliance with regulations.

Chapter 1: Introduction to DAOs

1.1 The Technical Underpinnings of DAOs: A Study of Blockchain and Smart Contract Technology

A DAO is a digital organization of like-minded people, that is run on a blockchain network, and governed, at least partially, by rules encoded in smart contracts.[5] DAOs are, therefore, the creation of technology, so the notion of DAO and the ideologies driving it would not be comprehensible without first understating the key components of its technical background. DAOs represent a new form of organization made possible by the combination of "blockchain technology" and "smart contracts" as their primary or sole source of governance. The following section will clarify both principles to the extent necessary to understand the idea of blockchain-based organizations.

1.1.1 Blockchain Technology

Any financial transaction relies on two key elements, the first is maintaining an account record or a ledger, and the second is validating or clearing the transaction. Up until the creation of Bitcoin, a trusted central institution such as a bank or a clearing authority has been indispensable to guarantee accurate financial transfers, whether digital or not, and to register all transactions on a central ledger.[6]

Blockchain technology is a controversial technology introduced in 2008 by an alleged pseudonymous person, who wanted to be known as Satoshi Nakamoto. Nakamoto's stated objective was to circumvent central clearing authorities or middleman payment processors in the maintenance and operations of Bitcoin digital currency.[7]

In basic terms, a blockchain is a novel chronological digital public data storage system (or ledger) consisting of lists of blocks of digital transactions.[8] Copies of the ledger are saved in synchronized copies spread out among a network of computers without any single location, each

[5] Laila Metjahic 'Deconstructing the DAO: The Need for Legal Recognition and the Application of Securities Laws to Decentralized Organizations' (2018) 39 (4) Cordozo Law Review < http://cardozolawreview.com/deconstructing-the-dao-the-need-for-legal-recognition-and-the-application-of-securities-laws-to-decentralized-organizations/> accessed 6 November 2022, 1542.
[6] De Fillip and Wright (n 2) 3.
[7] ibid 20.
[8] Andreas Antonopoulos, *Mastering Bitcoin: Unlocking Digital Cryptocurrencies* (2nd edn, O'Reilly Media, 2017) 211.

resembling a “node” in a blockchain network. Hence, a blockchain is commonly viewed as a global public ledger. The original Bitcoin blockchain structure is a list of transactions linked back together to create a block through a “hash”.[9] Once a new transaction is initiated, everyone on the network can see it, but it will not be transmitted to the network as a new block unless it is cleared and approved by the majority of nodes through consensus first, then linked back to refer to the previous block in the chain by a hash generated using the already existing “cryptography” technology.[10] Cryptography, coupled with other technologies like “peer-to-peer” and “consensus mechanism”, are essential for a well-functioning blockchain that is trusted by everyone on its network as an authentic record of ownership.

The most prominent consensus mechanism up to date is the Proof of Work (PoW) mining mechanism adopted initially by Bitcoin. PoW is a mechanism for creating consensus among people without knowing anything about them.[11] By virtue of PoW, nodes and miners validate new transactions and record them on the ledger through collective efforts to replace a central clearing house.[12]

First, each node verifies every transaction against a long checklist of strict criteria. Thereafter, some of the nodes, specialized miners, start compiling those transactions into new blocks by mining nodes.[13] Mining has been deliberately made extremely difficult to complete to ensure the integrity of the data by the miners’ cumulative computing power. In the simplest terms, mining is the process of hashing the new block to link it back to the previous one, thus creating a new block.[14] To generate a hash, miners engage in a game of guessing numbers by trying different calculations over and over again until one of them matches. Once a miner succeeds, other nodes in the network verify that the resulting hash meets the criteria. If valid, the block is then added to the blockchain and stored on the local hard drives of the active nodes.[15] Once a transaction is verified and processed, a new bitcoin is generated (mined), and because of the huge effort and resources needed in mining, the minor who reached a hash is awarded bitcoins as an incentive.[16]

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[9] ibid 211.
[10] ibid 211. Cryptography is the science that allows information n to be kept secret (encryption) and is also used for everyday actions such as online texting or online monetary transactions.
[11] Matt Levine “The Crypto Story: Where it came from, what it all means, and why it still matters” (25 October 2022) Bloomberg Businessweek < https://www.bloomberg.com/features/2022-the-crypto-story/?leadSource=uverify%20wall#trust-money-community> accessed 15 November 2022.
[12] De Filippi and Wright (n 2) 229.
[13] ibid 234-235.
[14] ibid 244.
[15] ibid.
[16] Levine (n 11).

All of this is enormously costly: Miners need a large amount of computing power to do all of these repeated calculations which consequently uses as much electricity as various medium-sized countries.[17] This excessive energy wastage is the main criticism of Bitcoin as it is deemed unnecessary during a time when natural energy resources are declining. It is especially concerning as it contradicts the purpose of decentralization as a move towards a more positive future. To address this environmental issue and other limitations of Bitcoin blockchain, alternative consensus methods have been developed and incorporated by newer blockchain-based projects such as Ethereum newly transitioning to Proof of Stake (PoS) mechanism as a substitute to PoW. The basic idea behind consensus in PoS is more or less the same, minus the repeated trial game, so PoS uses fractions of the energy needed by PoW.[18]

1.1.2 Exploring the Expansive Applications of Blockchain Technology in DAOs

In the beginning, Nakamoto applied this technology to create a resilient and secure record for information related to digital currency transactions that does not rely on a central clearinghouse or any central authority to validate financial transactions.[19]

This was thereafter followed by the emergence of hundreds of blockchains and digital currencies due to the success of blockchain technology.[20] At that point, the distributed peer-to-peer system was mainly used as a decentralized electronic cash system. However, the idea of using this technology on a scale that goes beyond a decentralized digital currency system was fermenting as developers started to perceive the unique features of blockchains and their potential in providing distributed governance solutions.[21]

Blockchain enables people to securely send, receive, and record information of endless things through its network.[22] The information can relate to any document, such as a medical record,

[17] ibid.
[18] ibid.
[19] Antonopoulos (n 8) 4. See also Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System* (2008).
[20] De Filippi and Wright (n 2) 27.
[21] Vincent Mignon, *Blockchains, Smart Contracts, Decentralised Autonomous Organisations and the Law* (2019) Edward Elgar Publishing, 1.
[22] Nicolette Kost De Sevres, Bart Chilton & Bradley Cohen, "The Blockchain Revolution, Smart Contracts and Financial Transactions" 21 Cyberspace Law 3 (26 April 2016) <https://www.dlapiper.com/en/us/insights/publications/2016/04/the-blockchain-revolution/> accessed 15 November 2022.

court case records, or even to title to a property, whether land, intellectual property or other tangible or non-tangible assets. Rights over these assets could be converted to tokens (tokenized) and recorded on a blockchain.[23] Indeed, governments in different countries are experimenting with blockchain to secure, certify and manage access to sensitive information such as public records and deeds to property.[24]

Above all, blockchain facilitates the creation and management of a digital set of instructions in the shape of computer programs that comply with pre-existing codes set in what is called in the blockchain universe a "smart contract".[25] Coupled with smart contracts, blockchain can therefore facilitate the coordination of the activities of groupings of anonymous individuals with a common objective.

This extended usage of blockchain has been made feasible principally by Ethereum, in particular the Ethereum Virtual Machine. Ethereum is a peer-to-peer network that takes its basic design from Bitcoin and to a great extent works a lot like it. It has its own digital currency which can be transferred.[26] The Ethereum Virtual Machine is a decentralized virtual computer, distributed among thousands of nodes and responsible for processing smart contracts. In other words, in addition to sending digital currency to people, computer instructions can be sent to the blockchain, and the blockchain will execute them.[27]

1.1.3 Smart Contracts

Smart contracts are computer programs that automatically execute the terms of the contract, and that can be deployed and run on a blockchain, most dominantly the Ethereum blockchain. Like other blockchain-based technologies, smart contracts are designed to function with no need for a central authority.[28]

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23 Alexandra Sims 'Blockchain and Decentralised Autonomous Organisations (DAOs): the evolution of companies?'(2019) 28 (3) New Zealand Universities Law Review 423 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3524674 > accessed 15 November 2022, 6 and 12.

24 De Filippi and Wright (n 2) 111.

25 Karen E. C. Levy, 'Book-Smart, Not Street-Smart: Blockchain-Based Smart Contracts and The Social Workings of Law' (2017) 3, Engaging Science, Technology, and Society <https://estsjournal.org/index.php/ests/article/view/107> accessed 14 November 2022, 2

26 Levine (n 11).

27 ibid.

28 Levy (n 25) 2.

Contrary to its name, a smart contract may not necessarily be smart or a contract, but it can have elements of both.[29] To develop a smart contract, the terms of the smart contract are translated into code and uploaded to a blockchain.[30] Unlike legal contracts, smart contracts are publicly available for everyone to view.[31] Nevertheless, not everyone has the proficiency for auditing the code, especially in the case of more complex instructions. Another key difference is that once the terms of the contract are met, the smart contract will be automatically set in motion and execute its obligations without interference, interruption or breach by any party,[32] and without the need for a court judgment in case of non-compliance. An example would be a sale of goods agreement that is concluded in a smart contract with a condition that the payment would not be released to the seller unless the goods reach an agreed place within an agreed specific time.[33] Needless to say, the transaction from beginning to end would not be self-executed without reliance on particular synchronized technologies coupled with digital appliances that are linked with the smart contract, such as a location-tracking device, a dispatching device, and also an escrow account in which the payment is held until the execution is completed.[34] This highlights the role of smart contracts in decreasing human involvement.

Another example would be sports betting. The smart contract would be designed to autonomously transfer funds to the parties who betted on the winner once the game is over and the smart contract receives information verifying the winner through external sources.[35] It is notable then that the main criterium for the set of conditions is that they are readable by a computer. There is no consideration of the legality of the term, or if its execution is in conformity with any laws or regulations besides the ones set in the code.

1.2 An Overview of the Creation of DAOs

The formation of organizations can be traced back to the gathering of like-minded people with a shared purpose who come together and collaborate in a structured manner to achieve their goals.

[29] Sims (n 23)7.
[30] Metjahic (n 5) 1539.
[31] De Filippi and Wright (n 2) 141.
[32] Sims (n 23) 7.
[33] Levy (n 25) 3.
[34] Sims (n 23)7.
[35] Metjahic (n 5) 1539.

An organization is generally defined by theorists as "collectivities oriented to the pursuit of relatively specific goals and exhibiting relatively highly formalized social structures" [36]

Throughout history, the development of organizations has been shaped by the changing needs of society and the evolution of their goals. As a result, nuances started to develop, and dimensions emerged. Organizations cannot achieve their goals arbitrarily. A structured system and management are essential, so governance methods were created and hierarchies were constructed. Intended projects demand financial means, so members started pooling resources to fund the organizations. Organizations started to be legally classified and categorized based on various criteria, and many business models were created.

With the invention of the internet, online and social-media platforms enabled like-minded individuals to come together and discuss their ideas, carry out projects, and raise funds. The combination of online banking and the ability to conclude contracts virtually added further capabilities to these groups.

Blockchain technology has taken this evolution of organizations to the next level. By offering a secure and transparent platform for transactions and the deployment of assets, blockchain has enabled the creation of new forms of organizations that operate without central management.[37] These organizations, known as decentralized autonomous organizations (DAOs), are built around immutable governance rules and operate through code on the blockchain.[38]

As central governance may arguably reach its limits, blockchain technology offers the possibility of token-based, distributed governance solutions for a new generation of social and corporate organizations. [39]

The concept of decentralized and autonomous computer-based businesses, that exist in the blockchain space and operate through transactions carried out on blockchain network,[40] is

[36] W.R. Scott and G.F. Davis 'Organizations and Organizing. Rational, Natural, and Open System Perspectives'(2007). 9th Edition, Prentice-Hall, Englewood Cliffs, 35-39, 24.
[37] Samer Hassan and Primavera De Filippi, 'Decentralized Autonomous Organization' (2021) 10 (2) Internet Policy Review, 2; David Gogel, Bianca Kremer, Aiden Slavin and others, 'Decentralized Autonomous Organizations: Beyond the Hype' (June 2022) White Paper, World Economic Forum, 5.
[38] Mignon (n 21) 5.
[39] ibid.

attributed to the blockchain entrepreneur Daniel and Stan Larimer.[41] The Larimers introduced the notion of decentralized autonomous corporations ("DACs") in 2013 and compared digital currency in a DAC to conventional shares which can be used to pay for operational services.[42]

A year later, the Ethereum visionary and the innovator of decentralized governance, Vitalik Buterin, perceived the huge potential of blockchain technology in deploying smart contracts and envisioned an extension that deploys this technology on a scale that is wider than Bitcoin's exchange of digital currency.[43] To realize this potential, Buterin founded Ethereum as a point of supply for smart contracts and everything decentralized, starting from decentralized applications, and ending in decentralized autonomous organizations, which he defines as a "virtual entity that has a certain set of members or shareholders which [...] have the right to spend the entity's funds and modify its code".[44] The Ethereum also created a smart contract that allowed token issuers to connect with members, creating the basis of DAO's token-based governance that will be elaborated on in Chapter 2. [45]

With the launch of Ethereum and the associated comprehensive Terminology Guide by Buterin, DAO awareness rose rapidly among the blockchain community. Ethereum started to be excessively used for deploying smart contracts and creating platforms for coordinated activities among like-minded people.[46]

1.3 Understanding the Concept of DAOs

The definition of the term "decentralized autonomous organization" or "DAO" is still subject to misinterpretations and debates among various stakeholders.[47] Nevertheless, DAOs share standard

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[40]'DACs vs DAOs: A Comprehensive Guide to Understanding Blockchain Organizations' (July 5 2022) Crypto Atlas < https://cryptoatlas.net/37-dac-vs-dao-crypto.html> 'accessed 2 November 2022.
[41] Wulf Kaal 'Decentralized Autonomous Organizations – Internal Governance and External Legal Design' (2020) Annals of Corporate Governance, U of St. Thomas (Minnesota) Legal Studies, Research Paper No. 20-14 <https://ssrn.com/abstract=3652481>, 7.
[42] Daniel Larimer 'The Hidden Costs of Bitcoin' (2013) LTB NETWORK <https://letstalkbitcoin.com/is-bitcoin-overpaying-for-false-security> accessed 2 November 2022.
[43] Vitalik Buterin *Ethereum white paper* (2014) <https://ethereum.org/669c9e2e2027310b6b3cdce6e1c52962/Ethereum_Whitepaper_-_Buterin_2014.pdf> accessed 28 October 2022, 23.
[44]ibid.
[45] Kaal (n 41) 8.
[46] Ethereum White Paper (n 43) 1-32.
[47] Hassan and De Filippi (n 37) 6.

fundamental elements that can be consolidated to get a perspective of what one implies when referring to a specific business or cooperation as a DAO.

A DAO is an organization of members that operates on a blockchain, using smart contracts to automate decision-making and governance processes.[48] DAO members share a common goal, which can be for-profit or non-profit, social, corporate or philanthropic, and can be as basic and general as profit gain, or as particular as buying a specific valuable object.[49] Persons become members of a DAO by acquiring its tokens, which is a cryptocurrency, either through purchase, or other means. Tokens can be of different kinds, the most important of which in the case of DAOs is the governance tokens which allow members to take part in the governance by voting on proposals proportional to the amount they hold, with no need for centralized management to assume this role.[50] Hence, why a DAO is also described as a self-governing entity.

Anything that happens within a DAO is in a form of a transaction recorded on a blockchain. For a transaction to be legitimately completed, it should adhere to a pre-existing code. So DAOs rely on smart contracts to lay down the set of principles by which a DAO will be governed, similar to articles of association in a traditional organization.[51] The DAO itself has also been defined as a "long-term smart contract that contains the assets and encodes the bylaws of an entire organization".[52]

Because DAOs are run on a blockchain network, they have several key advantages over traditional organizations. Transactions within a DAO are recorded on the blockchain, making them transparent and easily auditable. People from around the world can exchange and verify the integrity of information received from each other and stored on the blockchain without needing to rely on trust in each other or in intermediaries .[53] DAO's records of transactions are widely replicated, so if a copy is corrupted or a node fails, past records could be retrieved as long as one

[48] Metjahic (n 5) 1542.
[49] For example, Constitutional DAO was formed for the sole purpose of purchasing an original copy of the United States Constitution < https://www.constitutiondao.com/>.
[50] Marcel Deer 'What are governance tokens, and how do they work?' (24 October 2022) Coin Telegraph, <https://cointelegraph.com/news/what-are-governance-tokens-and-how-do-they-work> accessed 6 November 2022.
[51] Sims (n 23) 8.
[52] Ethereum White Paper (n 43) 1.
[53] Sven Riva, 'Decentralized Autonomous Organizations (DAOs) as subjects of law' (Master Thesis, University of Neuchatel 2019) 3 .

peer holds a copy of the record.[54] The rules encoded in a DAO's smart contracts cannot be changed without consensus from the members, making them resilient and resistant to censorship or tampering.[55]

1.4 The Infamous 2016 DAO Hack

The DAO, launched in 2016 on the Ethereum portal, was a decentralized, partially autonomous, automated venture capital fund used to create value for members by funding innovative blockchain-based projects.[56] The 2016 DAO was run on the same basic principles and blockchain technology like Bitcoin.[57] By all means, the 2016 DAO provided a hub for investors who desired no conventional corporate structure.[58]

The 2016 DAOs operating model can be summarized as follows: After funds were raised, potential projects were to be proposed by the token holders. Thereafter, token holders voted on which project would be approved for funding.[59]

The 2016 DAO's crowdfunding campaign unexpectedly managed to raise $168 million[60]. Alas, just before the proposals were submitted, a hacker succeeded in manipulating the code and almost stole one-third of the funds by transferring it to a subsidiary account.[61] To dodge the heist, Ethereum and blockchain entrepreneurs had to embrace the fact that the code was not immutable and had to be revised to restore the funds.[62] The Ethereum blockchain had to be split into two blockchains at the point in time just before the hacker withdrew the first batch of tokens (hard fork).[63] Interestingly, the attacker claimed that the action was not against the code and

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[54] De Filippi and Wright (n 2) 35.
[55] Riva (n 53) 3.
[56] Metjahic (n 5) 12.
[57] Cade Metz, 'The Biggest Crowdfunding Project Ever—the DAO—Is Kind of a Mess' (June 6 2016) <https://www.wired.com/2016/06/biggest-crowdfunding-project-ever-dao-mess> accessed 6 November 2022.
[58] Kaal (n 41) 10.
[59] Metz (n 57).
[60] ibid.
[61] Metjahic (n 5) 1535.
[62] Quinn DuPont, *Bitcoin and Beyond: Cryptocurrencies, Blockchains, and Global Governance - Experiments in Algorithmic Governance: A history and Ethnography of "The DAO," A Failed Decentralized Autonomous Organization'* (RIPE Series in Global Political Economy, Routledge 2017) 165.
[63] The technical term for splitting a blockchain to two parts is called (hard forking).

should not be stopped. While the majority agreed with the fork and implemented it, a minority refused this approach due to a strong belief that ‘code is law’.[64]

The 2016 DAO incident did not stifle the expansion of DAOs. Instead, it served as a learning opportunity for blockchain developers who then focused on enhancing the coding and developing more advanced DAOs with similar ideologies.[65]

Chapter 2: Principles of DAO Governance: The Ideologies driving DAOs

Governance generally refers to the method by which any organization is controlled and managed and the framework of its operations covering all its concerns, including coordination between members, risk management, administration, and most importantly plans for change and development. Governance is the substance of any organization; it can make it or break it. The significance of DAOs in the business world is derived from their unique governance principles, which are also the subject of jurisdictional concerns.

This chapter will first investigate the two main principles that drive a DAO: “decentralized governance” and “code is law”, then highlight the limitations of relying on rigid decentralization and coded governance and their consequences in legally recognizing DAOs and regulating them.

2.1 Decentralization (Distributed and Egalitarian Governance vs Traditional Hierarchy)

It has been argued that the expansion of decentralization is a logical continuation of the societal structure and human effort of the present society. Decentralized elements and structures in business and society gradually prevail over centralized ones once their natural limitations are reached.[66]

Many centralized businesses are increasingly introducing decentralized features and trying to flatten hierarchies in the hopes of elevating productivity and creativity. This is especially noticed in internet-based companies and platforms.[67] With this in mind, DAO explorers envision

[64] DuPont (n 62) 165.The legal consequences surrounding the DAO cases will be elaborated on in the thesis in given places.
[65] Riva (n 53) 43.
[66] Kaal (n 41) 12.
[67] ibid. See also Craig Calcaterra and Wulf Kaal *Decentralization - Technology’s Impact on Organizational and Societal Structure* (1st edn, De Gruyter 2021) 19.

utilizing blockchain technology to achieve ideal decentralization through an innovative democratic form of organizing business and society and regulating human behavior.[68]

To understand decentralization, it is important to draw an analogy between centralized and decentralized governance first.

2.1.1 Traditional Centralized Governance

The structure of a simple conventional entity is generally divided into three classes:[69]

(1) the owners of the entity such as members of a limited liability company (LLC) and corporate shareholders in public and private joint stock companies (PJSC). Unlike members of an LLC who can participate in the management of the company, corporate shareholders cannot be elected as directors, but they do sometimes have voting rights. Some corporations offer different classes of stock to their investors, only one of which grant voting rights.[70]

(2) individuals responsible for the management of the entity, and who can be members or not, depending on the type of the entity. While members of an LLC can also participate in its management, directors of a PJSC are elected by the shareholders but are legally independent of both, the corporation and the shareholders.

(3) other members involved in its operations such as employees, and who are usually appointed by other directors, or higher employees in the hierarchy.

Power is concentrated at the top of the organization pyramid, putting the board of directors at the center of the decision-making core to increase share value and steer the corporation in the best interest of the shareholders. Therefore, members of the board are subject to governmental regulations on top of internal provisions. These regulations lay down their obligations and organize other aspects such as the code of conduct and voting procedures. For example, in the U.S., managers and directors of companies are subject to state and federal securities laws and owe fiduciary duties of care and loyalty to the company and its shareholders.[71] Similarly in the UAE, the Governance Code sets the minimum corporate governance standards and directors'

[68] ibid 19.
[69] Metjahic (n 5) 1542.
[70] Adam Hayes 'Voting Shares: Definition, Types, and Examples' (18 April 2022) <https://www.investopedia.com/terms/v/votingshares.asp> accessed 1 February 2023
[71] Holly J Gregory, Rebecca Grapsas and Claire H Holland, 'Corporate Governance and Directors' Duties in the United States: Overview' (2021) <https://uk.practicallaw.thomsonreuters.com/w-011-8693?transitionType=Default&contextData=(sc.Default)#co_anchor_a596917> accessed 20 November 2022.

obligations towards shareholders.[72] The rationale behind this regulatory governance is not only to safeguard the interests of shareholders; but also to build and maintain investors' confidence.

Nonetheless, even with these rules, traditional centralized governance regularly proves its deficiencies on several fronts. When the personal interests of a minority significantly outweigh the benefit of the larger group, corruption and self-preference begin to arise. Throughout history, managers used resources of the organization for their own career advancement or compensation at the greater expense of the whole organization.[73] Cases of corruption and fraud in major global enterprises are unfortunately the head of daily news. As a result, investors started to deviate from traditional centralized hierarchies while business structures realized the need for a more democratic approach to uplift responsibility among all members.

2.1.2 Decentralized Governance

Decentralization in a general sense means eliminating central control to attain horizontal governance.[74] For example, Decentralized Finance or (DeFi),[75] and digital currency transactions are not controlled by a single body like a central bank.[76] Likewise, in a hypothetical decentralized society, people are not controlled by a single authority or group of people, like governments.

Although blockchain technology made decentralization realizable, the idea of a decentralized organization itself is not new in theory. Already in the sixties, academics were exploring the effect of decentralization on business organizations. For example, in 1966, the organizational theorist, Richard Beckhard, presented a program for improving organizational effectiveness in a medium-sized decentralized organization.[77] Moreover, the renowned economist Martin Shubik has contributed to the literature with his work on an optimal decentralized management system in organizations.[78]

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[72] Chairman of SCA Board Decision No. 03 R.M. of 2020.
[73] Calcaterra and Kaal (n 67) 149.
[74] ibid.
[75] DeFis are apps that create a digital simulation to various banking features, including ways to borrow funds or exchange tokens <https://www.lynalden.com/ethereum-analysis/>.
[76] Calcaterra and Kaal (n 67) 19.
[77] Richard Bekhard 'An Organization Improvement Program in a Decentralized Organization' (1966) 2(1)The Journal of Applied Behavioral Science, 25, 3.
[78] Martin Shubik, 'Incentives, Decentralized Control, the Assignment of Joint Costs and Internal Pricing' (1962) 8(3) Management Science Volume, 325, 329.

Blockchain technology enables digital organizations to compete with traditional corporate entities by proposing alternative forms of organizational governance that give members equal power to propose ideas for change and have a say in the operations of the entity.[79] In contrast to traditional corporations, decentralized organizations need no board of directors or hierarchy structure. Rather, decision-making power is distributed among the community of token holders who can put forward a proposal and collectively cast votes through their tokens.[80]

Unlike central governance where governance rules are set in constitutional documents, members interact with each other and make decisions according to protocol encoded in smart contracts, which also execute settled decisions anonymously without the need for a central executive team.[81]

It is important to mention that DAOs are not only decentralized in terms of governance. Equally significant and equally legally challenging is that DAOs could really be decentralized in any aspect such as geographically,[82] technically,[83] or economically[84] without jeopardizing the common interest. Most importantly, DAOs funding is also decentralized.[85] Any interested person in the world can invest at any time by purchasing tokens, and only what each token holder has invested gets returned to them.

2.1.3 Drawbacks of Absolute Decentralized Governance

Even though the benefits of decentralization in a DAO are one thing that seems to be agreed upon among all involved, DAOs are struggling to live up to their promise of being a community-led organization. Digging deep behind the surface of decentralization, one can realize that

[79]Nathan Reif 'Decentralized Autonomous Organization (DAO): Definition, Purpose, and Example' (23 September 2022_ <https://www.investopedia.com/tech/what-dao/> accessed 28 October 2022.
[80] ibid
[81] Metjahic (n 5)10.
[82] Beyond the Hype (n 37) 15: Such as DAO members operating in different countries and jurisdictions.
[83] ibid, such as the kind of blockchain used and the number of nodes on the network to validate transactions.
[84] ibid, such as distribution of resources across the community.
[85] Kevin Christopher 'Decentralized Autonomous Organizations (DAO): What They Are and How They Work'(May 2022) <https://rockridgelaw.com/2022/05/11/decentralized-autonomous-organizations-dao-what-they-are-and-how-they-work/> accessed on 25 October 2022.

centralized governance is still leveraged to some extent, at least in a DAOs primary stages.[86] Concealed centralization can take a shape of gatekeeping where proposals go through multiple layers before being accepted, or reserving crucial matters to founders.

In a basic voting structure, each token holder has the ability to present a proposal and each token represents voting power. Hence, the holder of more tokens has a larger say in governance than the holder of fewer tokens.[87] This is quite logical because members who have a bigger stake in the system act in good faith in favor of the organization's benefit which reduces cases of self-preference. However, this practice re-centralizes power from the hands of managers to the hands of venture capitalists recreating the common corporate form where the rich have significantly more power than the poor,[88] which goes against the essence of decentralization.

All things considered, many issues arise when attempting to implement a decentralized governance structure that fulfills the idea of a democratic system where all members can have a role in the decision-making without compromising effectiveness and efficiency. Overall, governing a decentralized organization is not as straightforward as governing a centralized hierarchy, and definitely not easier.

As a start, blockchain-based organizations do not operate on one level. Researchers have identified three levels of governance with varying degrees of centralization: the "blockchain level" where devoted miners validate transactions; the "protocol level" where the rules of the organization are encoded in smart contracts and can be altered by core developers; and "organizational level" where control should, ideally, be distributed among token holders.[89] While the research detected that decentralization at the lower levels in the organization (i.e., blockchain) may have positive effect on profit, decentralization at higher levels in the

[86] Kevin Tai 'DAOs are meant to be completely autonomous and decentralized, but are they?' (2022) <https://cointelegraph.com/news/daos-are-meant-to-be-completely-autonomous-and-decentralized-but-are-they> accessed 27 October 2022.
[87] Kaal (n 41) 38.
[88] Rachel-Rose O'Leary, 'Experimental Voting Effort Aims to Break Ethereum Governance Gridlock'(23 May 2018) <https://www.coindesk.com/markets/2018/05/23/experimental-voting-effort-aims-to-break-ethereum-governance-gridlock/> accessed 23 November 2022.
[89] Ying-Ying Hsieh, JP Vergne, and Sha Wang, *Bitcoin and Beyond: Cryptocurrencies, Blockchains, and Global Governance -Experiments in Algorithmic Governance: The internal and external governance of blockchain-based organizations* (RIPE Series in Global Political Economy, Routledge 2017) 53-54.

organization (i.e., the protocol and organizational levels) may affect profits negatively, as it may lead to slower decision-making and coordination.[90]

Accordingly, investors in revenue-generating for-profit DAOs have yet to trust the adequacy of decentralized token-based governance, and prefer more centralization at higher organizational level.[91] Their skepticism is, in fact, on reasonable grounds because this system is not without its fair share of drawbacks. Extremely decentralized organizations cannot possibly operate with the same level of efficiency as centralized ones. First of all, distributing decision-making among a vast number of members slows down strategic decision-making, as opposed to decisions carried out quickly and effectively by a central leader. Second, not all members will have the full capacity, knowledge or interest to engage completely in an organization's governance which leads to a lack of engagement and attentiveness to the DAO's activities.[92] Some DAOs remunerate voting to incentivize voters' engagement which leads to arbitrary votes, especially from those with small stakes involved.[93] Third, the outburst of proposals, many of which are not worth any consideration, could eventually frustrate the optimal development of the organization.

Therefore, DAOs at present are still experimenting with different forms of representation and adopting different grades of decentralization to overcome the shortcomings of token-based governance. Fortunately, the exchangeable nature of tokens allows the governance method and voting process to be dynamic and evolve gradually based on the objective.[94] For instance, some DAOs only give proposing and voting rights to certain token holders, such as Dash DAO. Dash DAO is one of the earliest DAOs to be established, with its primary objective of creating and maintaining a cryptocurrency (Dash, previously Darkcoin).[95] In Dash DAO, only dedicated "masternodes" who are able to vote on proposals and decisions affecting the network.[96] Some DAOs are also using a differential weighting of tokens whereby some member's votes are worth

[90] ibid 50.
[91] ibid 65.
[92] De Fillip and Wright (n 2) 139-140.
[93] Sims (n 23) 22.
[94] Andrew Gilbert 'Decentralized Autonomous Organizations: The New LLCs?' (2 August 2022) Bloomberg Law < https://news.bloomberglaw.com/securities-law/decentralized-autonomous-organizations-the-new-llcs> accessed 23 November 2022.
[95] Joël Valenzuela "Dash: The first DAO" (14 December 2017) www.dashforcenews.com/dash-first-dao/ accessed 7 March 2023.
[96] Master nodes are dedicated operators who act as stewards of Dash's core protocol development and promotion. See also: Dash 'Understanding Dash Governance' < https://docs.dash.org/en/stable/docs/user/governance/understanding.html>.

more than others or a reputation-based governance design whereby loyal members who fulfill a set of criteria, such as active participation and contributing a certain amount of work, are granted non-transferrable reputation which carry more weight.[97]

These approaches, while intended to generate engagement and reduce passivity, are leading to an uneven distribution of powers and regenerating centralization in a different shape by facilitating control to be in the hands of specific members. The unequal distribution of power is often seen in traditional corporations in the form of reserving a class of shares with voting rights for specific shareholders, such as the founders and higher management.[98] In a similar manner, a DAO with a reputation-based governance structure or differential weighting of tokens can lead to a similar outcome, where specific members have more influence in decision-making due to their reputation or token holdings. It's important for DAOs to carefully consider their governance structures and weigh the trade-offs between promoting engagement and avoiding centralization.

A number of DAOs are also incorporating sophisticated voting mechanisms to refine the overflow of proposals. A relevant example is the Ethereum-based decentralized talent network Braintrust. Proposals in Braintrust are processed through a number of phases of formal and informal voting and inspection before they are finally all set for execution. [99]

Notably, in most of the present DAOs, including Braintrust, not all topics are open for community proposals.[100] Vital areas are reserved for founders or major investors who are yet to trust the contemporary system completely.[101]

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[97]Ethereum 'Decentralized autonomous organizations (DAOs) <https://ethereum.org/en/dao/#:~:text=Reputation%20represents%20proof%20of%20participation,must%20earn%20reputation%20through%20participation.> See also 'How Snapshot and Orange are making crypto more democratic with reputation-based voting 'Press Release (22 November 2021) < https://cointelegraph.com/press-releases/how-snapshot-and-orange-are-making-crypto-more-democratic-with-reputation-based-voting> accessed 2 February 2023.

[98] For instance, Google offer multiple classes of shares, some with voting rights, and some without. See also: Hayes (n 68)

[99] Braintrust governance includes 4 phases: In the first phase, members can discuss and share ideas for change together via a networking platform. In the second phase, a successful idea can be proposed for off-chain voting, relying on a third-party tool, namely Snapshot, for the polling process. Each proposal goes through two steps, starting with a simple poll to determine the community's interest, and ending with a consensus check. In the third phase, proposals that pass the off-chain voting, moves to on-chain voting which occurs on Brainstorm governance site and is used to determine outcomes that require change in the smart contract. In the last phase, approved proposals go through a final technical review before they are finally executed. <https://www.usebraintrust.com/governance> accessed 23 November 2022.

[100] ibid, In Braintrust, feature requests are still not supported through governance.

[101] Beyond the Hype (n 37) 8.

There are also unresolved technical deficiencies that require some DAOs to rely on centralized third-party service providers for part of their operations. For instance, Ethereum, which albeit being described as a “community-run technology” that is “open to everyone, wherever they are in the world”,[102] the reality can be otherwise. Given the complexity of running a node on Ethereum and the difficulty to use it, and the fact that those who do are not part of it such as specialized node operators, digital applications (dapps) running on Ethereum rely on third-party tools to create a simpler user-friendly method.[103] However, such operators, such as Infura being the tool mainly used,[104] are not completely decentralized because they are operated by a single provider.[105]

In simpler words, Ethereum relies on centralized clusters in the shape of third-party services to operate.[106] This raises questions about the decentralization of the Ethereum, and highlights the trade-offs that exist between functionality and decentralization.

Overall, distributive governance has yet to reach full perfection. Trust in unknown members from the core founders is not yet absolute. Not to mention that technical and structural obstacles need to be resolved, namely setting up an ideal governance architecture that can actualize the decentralization vision.

It is important for decentralized governance to have the flexibility to gradually evolve toward a structure that isn’t fully reliant on a core team by introducing dimensions of decentralization in stages, rather than impulsively holding on to idealistic principles that will doom the organization to failure. In the early stages, a hybrid of centralization and decentralization that maximizes the strength of both is recommended over theoretical decentralization that hides within its surface centralization in disguise.[107]

[102] <https://ethereum.org/en/>
[103] See also: Lyn Alden ‘An Economic Analysis of Ethereum’ (January 2021) < https://www.lynalden.com/ethereum-analysis/> arguing decentralized applications attempt to go around KYC rules.
[104] Up to September 2022, more than 50% of transactions on the Ethereum network ran through Infura according to Bloomberg. <https://www.bloomberg.com/news/articles/2022-09-16/ethereum-infrastructure-firm-infura-plans-decentralized-service> accessed 26 October 2022.
[105] See Leary (n 88).
[106] Alden (n 103).
[107] Calcaterra and Kaal (n 67) 31.

Many DAOs indeed leverage a mix of both systems and are open about the current limitations of extreme decentralization, promising a gradual involvement of the community. However, these DAOs are constantly faced with sharp criticism from extremists who advocate for fully decentralized systems. For example, the popular Maker DAO was heavily criticized by community members for involving a team of skilled developers to oversee its development in its early stages, although this decision was to ensure the stability and security of the platform, which was considered a priority by the founders. [108]

2.2. Code is Law:

2.2.1 Minimum Human Intervention and Autonomy

Blockchain technology facilitates the creation of code-based systems that can gradually decrease any human intervention in its management and operations.[109] Through smart contracts, the technology can be leveraged to create programmed self-governance systems for DAOs,[110] allowing them to become independent from any other central entity or any legal or natural person after their deployment. This independence, in turn, allows DAOs to operate more transparently and in a manner that is less susceptible to censorship or control by external entities, which is believed to reduce corruption and opportunist behavior, and increase efficiency.[111]

In the highest level of autonomy, a DAO is self-governed and operated algorithmically by rules of code enshrined in a set of smart contracts, in other words, by artificial intelligence or “AI”.[112] The world is still far behind in creating an organization that is completely devoid of human intervention due to the technical and pragmatic limitations of developing an AI system that is sophisticated enough to replace human competence.[113]

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[108] Gustav Arentoft, representative at MakerDAO was open about the limitations of decentralization in their early stages, stating that if projects are decentralized from day one, they open themselves up to a lot of attack vectors in the system. <https://cointelegraph.com/news/back-from-the-crypt-makerdao-toes-the-line-between-life-and-death> accessed on 24 November 2022. MakerDAO became fully decentralized in July 2021. < https://blog.makerdao.com/makerdao-has-come-full-circle/>.

[109] De Fillipi and Wright (n 2) 147.

[110] Calcaterra and Kaal (n 67) XLVI.

[111] De Fillipi and Wright (n 2) 151.

[112] ibid 146-147; W. Reijers ,I. Wuisman, M. Mannan M., P. De Filippi ‘Now The Code Run Itself’(2018) 37(17), TOPOI: International Review of Philosophy, 10.

[113] Vitalik Buterin ‘DAOs, DACs, DAs and More: An Incomplete Terminology Guide’ (6 May 2014) < https://blog.ethereum.org/2014/05/06/daos-dacs-das-and-more-an-incomplete-terminology-guide> .

Therefore, there is a clear inconsistency in the level of human intervention in present DAOs. While present organizations that are self-described as DAOs can be completely decentralized, as in governed by each and every member, they are not really autonomous, and human involvement is still required at each end of transactions.[114] The majority, if not all DAOs, grant participation powers to the members at different levels.

For example, the 2016 DAO, despite its name, was not completely autonomous. The DAO not only has set up a system of curators and contractors, which maintains and alters its code, but also operates by members submitting proposals for raising funds and voting on which one will be approved for investment.[115] In other words, the human involvement in the DAO extended to managing its operations.

Autonomy in organizations creates obstacles in terms of regulation and control.[116] Organizations with the utmost reliance on coded governance raise many legal concerns that need to be resolved for DAOs to be legally recognized.

2.2.2 Legal Implications of Rigorous Coded Governance

In the corporate organizational world, a key role of the law is to fill in the inevitable gaps in contractual agreements.[117] Contractual agreements and organizational bylaws are incomplete as they can never cover all contingencies or anticipate every single potential eventuality that might occur in order to provide an adequate fair resolution.[118] Very rarely does a partnership proceed precisely as planned, therefore, a major role of law is to create default rules and set minimum boundaries that apply when conflicts or issues that were not covered by prior arrangements appear.[119]

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[114] De Fillipi and Wright (n 2) 146-148.

[115] David Harrison ‘Decentralized Autonomous Organizations: The toughest job on Wall St this morning is the guy who has to explain #TheDAO to Lloyd Blankfein.”(2016) ALLEN & OVERY LLP, 3: A curator is a participant tasked with maintaining the code and proposing changes. Id. A contractor is an actor in the physical world who can make proposals to a DAO to utilize some or all of its funds for the development of a product or service.

[116] De Fillipi and Wright (n 2) 146.

[117] Usha R. Rodrigues ‘Law and the Blockchain’ (February 2018) University of Georgia School of Law, Research Paper Series, Paper No. 2018-07 <https://ssrn.com/abstract=3127782> accessed on 16 November 2022, 6.

[118] Ian Ayres & Robert Gertner, Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules, 99 YALE L.J. 87, 92 (1989).

[119] Rodrigues (n 117).

This gap-filling role of law creates assurance in the parties involved that a fair resolution will occur in case of any issues, particularly those parties who lack the time or cost to get a sophisticated set of agreements formulated to their advantage. In short, laws and regulations complement the shortfalls in human-generated contracts and protect the rights of all involved by establishing a margin of duties and obligations that the parties may not negate via a contractual arrangement.

DAOs organized purely on blockchain fall outside this traditional gap-filling role of organizational and contract laws. By coding the laws to which they are subject by virtue of smart contracts, DAOs leave no voids for default law to complete.[120] Moreover, the immutable and self-enforceable nature of smart contracts creates a profound challenge to organizational and contract law as they allow no leeway for the law to fill any gaps and no intervention from courts to execute against their terms.[121] A DAO can make a certain action only if it has been approved according to the DAO's governance rules.[122] Any changes in the code will be rejected unless the code itself explicitly provides for this alteration.[123]

Furthermore, the rapid development of technology and its unpredictable progression requires a relatively more liberalized approach to regulating it. Following this ideology, regulations tend to be less explicit and open to interpretation. General lines are drawn with some areas kept to the assessment of people in charge, based on the circumstances of the situation at hand. Algorithmic governance, on the contrary, still lacks humans' sense of judgment and is still not perfectly unable to draw a distinction between the "word of law", and the "essence of law", leaving no room for realizing the code in a way that serves its purpose.

To add to that, code is unquestionably not foolproof and is disposed to manipulation and breach.[124] At the end of the day, it is humans who code smart contracts and humans are susceptible to faults and are incapable of anticipating each and every potentiality. As a result, an organization based solely on immutable and self-executing code would be vulnerable to different sorts of errors.

[120] ibid 8.
[121] ibid 64.
[122] Riva (n 53) 29.
[123] ibid 7.
[124] De Filippi and Wright (n 2) 140-141.

Last but not least, the “code is law” principle behind coded governance of DAOs means that when a smart contract follows the logical steps of its program, that result is legal, regardless of the intent of the author of the smart contract.[125] On that account, idealistic proponents of blockchain are of the view that DAOs don’t need regulation, and that they, in all cases, cannot be regulated.[126]

Believing in the conception of “code is law” means that attaching DAOs to any legal corporate form would be disclaimed as it runs counter to the ethos of self-governed organizations. In reality, there's a huge gap between what advocates of a free internet are preaching; and the fact that actually a big number of DAOs are profit-gain mediums, backed by identifiable venture capitalists.

The case of the failed 2016 DAO was the first experimental proof that the ‘code is law’ principle is narrow-sighted.[127] The 2016 DAO was purely organized on blockchain, and its governance structure relied entirely on code and smart contract. The exploiter used a coded feature in the smart contract to (rightfully)[128] drain one-third of the entire funds and the algorithm provided no mechanism for the members to vote to change the code to address the exploit.[129] The 2016 DAO exploit taught idealistic proponents of blockchain that “code is not law”.[130] As long as the code is not perfect, code cannot replace law and the ‘code is law’ principle would be deemed illogical and far from the reality of how the law functions.
More recently, a hacker attacked Mango Markets’ decentralized exchange and stole $112 Million from it. Oddly enough, the hacker voted for their preferred solution to resolve the hack and return the stolen funds, using the same governance tokens stolen in the hack.[131]

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[125] Calcaterra and Kaal (n 67) 114.
[126] According to S. Larimer “ DACs don’t need regulation” because “you don’t want to regulate them, and happily you can’t” ‘Bitcoin and the Three Laws of Robotics. Lets Talk Bitcoin’ (2013) <https://letstalkbitcoin.com/blog/post/bitcoin-and-the-three-laws-of-robotics.>
[127] Rodrigues (n 117) 24.
[128] The attacker actually wrote a letter to the community, arguing that he or she “rightfully” made use of the explicitly coded feature as per the smart contract terms. “The Attacker,” 2016) <https://pastebin.com/CcGUBgDG> accessed on 15 November 2022.
[129] Rodrigues (n 117) 51.
[130] Kaal (n 41) 10.
[131] Alys Key ‘Mango Hacker Uses Stolen Funds to Pit Community Against Developers’ (12 October 2022) < https://decrypt.co/111774/mango-hacker-uses-stolen-funds-pit-community-against-developers> accessed 20 January 2023.

Overall, it is important to acknowledge that the relationship between technology, regulation, and governance is a complex and evolving area that requires a nuanced and multi-disciplinary approach.

2.3. DAO Founders Dynamic Role in the Regulation and Legal Recognition of DAOs

Even if the smart contract was at its highest level of sophistication, DAOs cannot be completely devoid of human intervention, and they will also need to interact with the real corporeal world. In the end, it is humans who dictate the initial code of the smart contract and the objective of the DAO. As long as there are identifiable organizers behind a DAO, and as long as there is any kind of intersection with the real world outside of the blockchain, there will always be leeway for the intervention of laws and regulations.[132]

Given the shortcomings of algorithmic governance and the risk of liability exposure, idealistic DAO founders should reevaluate their stance on resisting compliance and refrain from operating with no legal recognition. To build trust in DAOs and attract investors, DAO founders shall rather embrace falling under regulation and pave the way for authorities to intervene. Proper regulation creates clarity and safety and provides for some degree of accountability. DAO founders and members will have increased assurance as well regarding liability risk and will be encouraged to comply with the necessary regulations to confidently enter into contractual agreements and interact with the real world.

As observed, the immutable nature of blockchain ledgers obstructs the intervention of conventional law,[133] and coded self-governance adds a level of complexity to any DAO recognition dialogue. Moreover, DAO's pseudonymity hinders identifying members or accessing their personal assets in practice. Therefore, it is important for DAO founders to play a proactive role in in the regulation of DAOs, and work with law makers to establish a proper legal framework that recognizes the unique nature of their operations.

Because blockchains and smart contracts provide minimal means for the law to step in, [134] DAO founders need to link their DAOs to a recognizable real-world corporate form that has clear

[132] Rodrigues (n 117) 55.
[133] ibid 7 and 41.
[134] ibid 6.

points of responsibilities. By doing so, the DAO would then fall under the jurisdiction of existing laws and regulations by default. This can help to provide a clearer legal framework for the DAO and reduce the risk of liability exposure.

Moreover, given the challenges that extreme decentralization and autonomy imposes on regulating DAOs, introducing these concepts in stages and adopting a hybrid method would be crucial for legislators on duty for regulating DAOs. Distinguishing between different levels of decentralization and, most importantly, highlighting the points of power in an organization, are key points that need to be analyzed for architecting a well-suited regulation and licensing system. A considerable risk resides in false categorization. A regulation directed toward organizations that are categorized as entirely decentralized or self-managed by code will not consider issues of accountability, fraud and mismanagement due to the presumed lack of human interference.

Finally, investors or any person interested in participating in a for-profit DAO should also be well-informed about its accurate governance status and not be deluded by promises of a community-led profit-making organization. The role of DAOs at this stage is to be clear-cut about both, their present and anticipated level of decentralization and autonomy, and further identify any responsibility holders or points of power to build trust in the community and facilitate regulatory work.

As a concluding observation, while this chapter advocates for the importance of compliance with regulations, it does not imply that DAOs in their current state are ready to compete with traditional businesses and lack only a proper regulatory framework. Instead, the aim of this chapter is to emphasize that if, in any case, DAOs have a future, it is critical for DAOs to establish a foundation and determine the appropriate level of decentralization and autonomy so that they can be regulated in a manner that protects the rights of all parties involved, particularly investors who may not have a full understanding of the legal risks involved in their participation, no matter how minimal.

Chapter 3: Unincorporated DAOs: The Challenges and Implications of a Lack of Legal Attachment

The blockchain industry has been a subject of legal debate since its inception. Some original actors and social justice idealists see blockchain technology as a censorship-resistant tool to avoid regime control and corruption. They believe that the blockchain industry should not be regulated at all and that technology should be liberated from jurisdictional rules and regulations.[135] On the other hand, some individuals who are interested in the business and investment opportunities offered by blockchain are conscious of the exposure to liability and legal risks involved.[136] They seek to bring the government back in by advocating for clear-cut regulations applicable to these solutions, hoping for corporate privileges similar to those available to traditional corporations.

In fact, the profit derived from the cryptocurrency industry introduced a third group that lobbies their way into regulations from blockchain-friendly countries to create false safety for both, investors and governments,[137] which should be a major source of concern for all other less-influential stakeholders. For example, according to Reuters, the cryptocurrency exchange, FTX, was engaged in several activities to appear in full compliance with regulations, such as gaining influence through significant donations to political campaigns and acquiring smaller exchanges that were already licensed in the U.S.[138] FTX were also the first to secure approval from Dubai's Virtual Asset Regulatory Authority (VARA) for a Minimum Viable Product (MVP)[139] in the UAE directly after the regulators signed off the virtual assets law and established VARA.[140] Binance also secured a MVP soon after signing a Memorandum of Understanding (MOU) with the Dubai World Trade Center Authority (DWCTA) for a collaboration in establishing an international virtual asset ecosystem in the UAE.[141]

The new-found blockchain-based organizations with their unfamiliar way of operating have lately been subject to a whole new level of legal concerns from all stakeholders. On top of the long list of challenges facing DAOs to date, lack of legal recognition maintains the top position,

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135 Jeffrey Tucker 'FTX cryptocurrency scandal is just the beginning.' Podcast audio. The Will Cain Podcast < https://www.youtube.com/watch?v=C0_pV7KfvmE&ab_channel=FoxNews> accessed on 28 November 2022.
136 ibid.
137 ibid.
138 Chris Prentise, Angus Berwick and Hannah Lang "EXCLUSIVE How FTX bought its way to become the 'most regulated' crypto exchange" Reuters (18 November 2022) accessed 8 March 2023.
139 MVP is a transitional phase allowing crypto exchanges to provide approved range of virtual asset-related services, until they are granted the Full Market Product [FMP] license.
140 Diana Aguilar 'Dubai permits full operation to FTX subsidiary FZE via first MVP license" (30 July 2022) https://cointelegraph.com/news/dubai-permits-full-operation-to-ftx-subsidiary-fze-via-first-mvp-license> accessed 8 March 2023.
141 'Binance Signs Agreement with Dubai World Trade Centre Authority to Establish an Industry Hub for Global Virtual Assets' (21 December 2022) Binance <https://www.binance.com/en/support/announcement/binance-signs-agreement-with-dubai-world-trade-centre-authority-to-establish-an-industry-hub-for-global-virtual-assets-46d81eb19a224cba807e078dc95aa886.> accessed 8 March 2023.

and the division in viewpoints continues to exist. Consequently, DAOs started with no regulation, and at the moment most of DAOs continue to function without official registration, although there are several options available now**.**

The absence of particular rules addressing DAOs does not mean that they can bypass laws of a particular jurisdiction, although their autonomy aids a certain degree of *alegality*.[142] If DAO members do not formalize a structure for their organization, it is very likely that a legal form will be constructively imposed on it,[143] and it will still be subject to existing general rules and regulations. In fact, DAOs have been under increasing scrutiny from authorities,[144] and they are starting to be subject to legal action from various sides.

This chapter will analyze how the U.S. and the UAE will treat an unregistered DAO in the absence of an extensive, directly applicable legal framework.

3.1 Risk of Liability Exposure

As far as the U.S. is concerned, it can be argued that an unregistered for-profit DAO will be treated as a general partnership.[145] A general partnership is governed by the Uniform Partnership Act (U.P.A) and arises when an "association of two or more persons carry on as co-owners a business for profit_whether or not the persons intended to form a partnership" U.P.A. §102 (11) (amended 2013). The court will look to determine the existence of a partnership if persons place their money into a business and share in the profits and losses and if the facts show that the parties intended to perform acts that in law constitute a partnership.[146] Since a DAO fulfills these criteria, including the members' intention to share in anticipated earnings as a return on their investment in DAO token, it would most likely be considered a general partnership under the U.P.A.[147]

[142] De Fillipi and Wright (n 2) 44. See also: this essay "2.3Legal Implications of Rigorous Coded Governance".
[143] Stephen Palley, 'How to Sue a DAO' LinkedIn (Mar. 14, 2016) < https://www.linkedin.com/pulse/howsue- dao-stephen-palley> accessed 15 November 2022.
[144] Brown Rudnick, Jane Colston, Stephen Palley et al. 'Beware of the DAO: what "breed" is it and when might liability bite? Legal 500 <https://www.legal500.com/guides/hot-topic/beware-of-the-dao-what-breed-is-it-and-when-might-liability-bite/> accessed 15 November 2022.
[145] Metjahic (n 5) 1553.
[146] *Brown v. 1401 New York Ave., Inc.,* [2011] District of Columbia Court of Appeals25 A.3d 912, 913 (2011) ("In general, a partnership is formed when two or more competent persons [contract] to place their money, effects, labor, and skill or some or all of them, in lawful commerce or business, and to divide profit and bear the loss in certain proportions" citing Beckman v. Farmer, 579 A.2d 618, 627 [1990].
[147] Metjahic (n 5) 1557.

In UAE, the law system is based on a civil law framework, which is different from the common law system used in the U.S. Under civil law, there is typically less reliance on legal precedent, and legal decisions are often based on the specific provisions of the law. Nonetheless, the legal treatment of an unregistered for-profit DAO in the UAE may be similar.

According to both Article 654 of the Civil Transactions Law No. (5) of 1985 and Article 8 of the UAE Commercial Companies Law No. (23) of 2021, a partnership is conformed when two or more persons undertake to contribute jointly in a profit-making project by contributing property or services and sharing any profit or loss resulting therefrom.

A partnership may take one of the several forms provided for by the UAE Companies Law,[148] but each form has its own set of local registration requirements such as proper licensing and publication, the lack of which exposes the parties involved to very serious legal risks. If a company is operating in UAE as if it were a corporation but has not completed the required legal procedures to become incorporated, its members will be deemed to have formed a company *de facto*,[149] and the persons who concluded contracts or transactions in its name shall be held severally and jointly liable for the obligations arising therefrom.[150]

Similar to the U.S., the UAE courts will look into the common intention of the parties by establishing the objects of the partnership and its terms in light of the circumstances surrounding its formation to determine if a *de facto* partnership exists, even if there is no specific agreement that determines so.[151]

By participating in a for-profit DOA, members show an intention to be members in a profit-making business by offering a contribution with the purpose of sharing profit and loss. Therefore, it is possible that a DAO will be legally construed as *de facto* partnership by the UAE legal system.

[148] Article 9 (1) of the UAE Companies Law "A company shall take one of the following forms: Joint Liability Company; Simple Commandite Company Limited Liability Company; Public Joint – Stock Company; Private Joint – Stock Company.

[149] Ammar Haykal and Adnan Erqsousi citing Dubai Court of Cassation decision Property Appeal 454 of 2015 'The Dubai Court's Approach when Dealing with De Facto Companies' (2016) AL Tamimi Law Update< https://www.tamimi.com/law-update-articles/the-dubai-courts-approach-when-dealing-with-de-facto-companies/>

[150] Article 9 (2) of the UAE Companies Law "Any company that does not take on any of the forms provided for in the preceding clause shall be considered null and void, and the persons who concluded contracts or transactions in its name shall be held severally and jointly liable for the obligations arising therefrom."

[151] Dubai Court of Cassation decision Property Appeal 454 of 2015.

Under the UAE Civil Code, as a general or *de facto* partnership, the DOA members will be able to enforce the terms of the DOA against each other (to the extent applicable by law), however, the DOA will not enjoy a legal personality of its own in relation to third parties resulting in the members being jointly and personally liable to all claims raised by non- DOA members. [152]

This lack of protection against claims by third parties in both jurisdictions is not in the best interest of any potential investor or creator. In case a DAO is faced with debt, insolvency, tort liability or any legal claim, stakeholders will lack the ability to shield their personal assets.[153] In fact, there would probably be no option for the authorities but to seize personal assets if the members were identified because there is no possibility to compulsorily seize assets of the DAO itself unless this collection by a third party is permitted by the DAO protocol, which is unlikely.[154]

Depending on the circumstances and facts, DAO members could be held liable under a variety of legal grounds when they start interacting with the real-world. Top of the legal grounds on which DOA members can be held liable are:

3.1.1 Contractual Liability:

Contractual liability is the responsibility of any party to a contract for the claims, obligations, or debts arising from a contract. For instance, if a DAO provides services to third parties through a contract, and the DAO fails to adhere to the terms of the contract, the claimant could initiate legal action and seek damage compensation based on contract law in any country with a jurisdiction to hear such a case. In both the U.S. and the UAE, compensation can be sought for direct and indirect damages. [155]

[152] Article 655 of the UAE Federal Law (5) of 1985 on the Civil Transaction Law "1.A partnership is deemed by the fact of its constitution, to be a juristic person.2. Such juristic personality shall not be opposed to third parties until completion of the formalities of registration and publication required by law.3. Third parties may, however, if the partnership has not completed the formalities referred to above, avail themselves of this juristic personality".
[153] De Fillipi and Wright (n 2)142.
[154] ibid,154.
[155] In the U.S. the law of contracts varies from state to state; but most of the principles of the law of contracts are outlined in the Restatement of Law, Second Contracts published by the American Law Institute.[155] The Uniform

Notably in the UAE, if a contracting party lacks the legal capacity to enter into a contract, such as if the entity is not properly registered or licensed, the contract may be considered invalid or unenforceable. [156] Consequently, third parties who enter a contract with an unregistered for-profit DOA have the option to recognize the DOA as a legal personality of its own separate from its creators and to enforce the contract in cases where the terms of the contract are favorable to them. However, if the terms are not, then they may exercise their right to invalidate the contract citing lack of legal personality of the DOA, and resort to non-contractual claims like tort.

The invalidity of a contracting entity is typically a matter that would be addressed between the contracting parties or in court. UAE courts have on several occasions voided companies as well as agreements between members of such companies for lack of full compliance with the incorporating and licensing requirements as prescribed by law i.e.; observing the minimum national shareholding contribution to share capital or lack of proper registration in the commercial register of such agreements.[157] This is despite the fact that nominee shareholding arrangements, where parties conclude unofficial side agreements the terms of which contradict those in the official registered ones, have been an accepted common practice in the country.

By the same token, even if by time DAOs gained popularity enough for them to be deemed a common practice, it is not necessary that any contract with the DAO or between the DAO members will not be contested to be null and void if the DAO is not officially incorporated according to the requirements of the UAE Companies Law.

Finally, liability arising from contractual obligations could be capped in the contract. However, under tort law this is not permissible.[158] Therefore, pure contractual liability is not a huge threat to the personal assets of members, unlike liability arising from non-contractual actions and tort.

Commercial Code, whose original articles have been adopted in nearly every state, represents a contractual framework that governs important categories of commercial agreements such as sale of goods.

[156] Article 655 of the UAE Federal Law (5) of 1985 on the Civil Transaction Law.

[157] Nour El-Ameir and Zane Anani, Al Tamimi Law Update (June 2013) Citing the Union Supreme Court "the Supreme Court concluded that as the side agreement was not notarized or registered in the Companies Commercial Register, it is therefore null and void" < https://www.tamimi.com/law-update-articles/supreme-court-judgment-new-approach-on-the-issue-of-side-agreements> See also: Abu Dhabi Court of Cassation, Civil appeal 30 of 2015: declaring a sale agreement null and void for violating UAE Companies Law and public policy <https://www.tamimi.com/law-update-articles/important-abu-dhabi-judgment-on-distribution-of-profits-in-an-llc-and-public-policy/>.

[158] Dr. Ibrahim Al Sharqawi *The Sources of Unvoluntary Obligations in the UAE Civil Transactions Law* , 21.

3.1.2 Tortious Liability:

A "tort" is "[a] private or civil wrong or injury, including action for bad faith breach of contract, for which the court will provide a remedy in the form of an action for damages." [159]
In the U.S. and the UAE, tort includes three main categories; intentional tort harm, unintentional harm, and negligence. [160] Moreover, the U.S. has implemented specific rules covering product liability and vicarious liability.[161]

Laws of both countries provide for compensation for both pecuniary and nonpecuniary damages. However, while the U.S. adopts the concept of punitive and exemplary damages, which aims to punish or restrain the offender from committing a similar act, the UAE does not. Instead, UAE courts award compensation in an amount equal to the damage caused and profit lost. This generally makes the damages awarded by UAE courts significantly less when compared with damages awarded in the U.S.[162]

In fact, even when parties to a contract agree on limiting their liability in a contract or a subsequent agreement, the judge may in all cases upon the request of either of the party vary such agreement so as to make the compensation equal to the loss, and any agreement to the contrary shall be void.[163] Given that the scope of tort-based liability is broader than contractual liability in the sense that, unlike contractual liability, tort-based liability may give rise to both foreseeable and unforeseeable damages, claimants of a DAO may exercise their right to invalidate the contract with the DAO, if any, citing its lack of legal personality.[164]

All in all, the more a DAO interacts with the real-world, the greater the likelihood that it will, intentionally or unintentionally, perform an unlawful act that would harm another person or

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159 Black's Law Dictionary 1036 (Abridged 6th ed. 1991).
160 Tort law in the UAE is outlined under the Civil Transactions Law, Federal Law No. 5 of 1985. The key articles include 124, 282, 283, and 286-298.
161 Michael R. McCurdy and Jason B. Robinson 'Tort Law In The United States' (2010) <https://www.fwlaw.com/insights/tort-law-united-states#:~:text=Tort%20law%20in%20the%20United%20States%20exists%20to%20redress%20damages,defined%20by%20the%20civil%20courts>. accessed 1 December 2022.
162 Karim Salem 'How Local UAE Courts Determine Compensation For Breach Of Contract' (2018) <https://www.linkedin.com/pulse/how-local-uae-courts-determine-compensation-breach-contract-salem/.> accessed 1 December 2022.
163 Article 390 of the UAE Federal Law (5) of 1985 on the Civil Transaction Law.
164 ibid, article 655.

violate their rights. Consequently, as long as DOAs are not legally recognized and do not enjoy a legal personality of their own, members of the DOAs are at a great disadvantage for they are open to personal liability, and tort would be a powerful basis for initiating legal proceedings against the members themselves for claiming compensation.

3.2 Conducting Heavily Regulated Activities

One of the most important reasons why many DAOs prefer to remain unregistered is to avoid tokens being classified as securities and having therefore to abide by securities requirements such as the complex registration process and disclosing information including business, management, and financial reports, among others.[165] Due to the autonomous nature of DAOs and how they operate, complying with such requirements is not only undesirable, but also not feasible.

A security ("investment contract") is defined in the U.S. as "an investment of money in a common enterprise with a reasonable expectation of profits to be derived from the entrepreneurial or managerial efforts of others."[166]

In the U.S., the authority responsible for regulating securities is the Securities and Exchange Commission (SEC). DAOs have been under scrutiny by the SEC from day one. Following the 2016 DAO hack, the SEC issued an Investigative Report concluding that DAO tokens are securities that must be registered with the SEC unless a valid exemption applies.[167] Moreover, a DAO as a platform that trades DAO tokens is considered a security exchange that must register as a national securities exchange and comply with the necessary requirements. [168] Failure to register could lead to a private remedy of rescission or to enforcement action by the Securities and Exchange Commission (SEC) of criminal or civil penalties.[169]

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[165] Metjahic (n 5) 1563.
[166] *SEC v. W.J. Howey Co.*, 328 U.S. 293, 301 (1946).
[167] SEC 'Report of Investigation Pursuant to Section 22(a) of the Securities Exchange Act of 1934: The DAO' (25 July 2017) 11. To determine of tokens are securities, The SEC applied the "Howey Test" whereby an investment contract is a "contract, transaction, or scheme whereby a person invests his money in a common enterprise and is led to expect profits solely246 from the efforts of a third party." Metjahic (n 5)1564. he DAO's investors had relied on the managerial efforts of The DAO's founders to manage The DAO and to put forth project proposals that could generate profits for The DAO's investors; and, therefore, that The DAO's tokens were securities that should have been registered.
[168] SEC 'Report of Investigation Pursuant to Section 22(a) of the Securities Exchange Act of 1934: The DAO' (25 July 2017) 17.
[169] Metjahic (n 5) 1542.

Most recently in November 2022, the SEC initiated proceedings against American CryptoFed DAO LLC (CryptoFed), a Wyoming-based organization,[170] alleging that CryptoFed failed to comply with the registration requirements and did not provide the required information about their business, management, and financial condition, and further failed to cooperate with the SEC for the necessary examinations. [171]

Notably, the SEC statements concentrate on the financial aspects of tokens and their qualification as securities, as well as the regulation of DAOs as security exchanges. However, the SEC did not regulate DAOs as new form of blockchain-based businesses, or address their legal recognition.[172] The SEC gave little to no regard as to whether the issuing entity is a traditional company or a DAO, and whether it is registered as a recognized business entity or not.

In the UAE, DAO tokens have not been addressed specifically like they were by the SEC in the U.S. However, after the 2016 DAO hack and after DAOs started to emerge and gain popularity, the Securities and Commodities Authority (SCA), the federal authority that oversees securities and capital markets in UAE,[173] issued a notice advising companies that are engaged in investment services without a proper license, highlighting the liability behind this illegal action.[174]

Since then, the UAE has introduced several initiatives to regulate blockchain and digital currency businesses. The SCA issued a decision concerning the regulation of crypto asset activities in the UAE and demanded security token exchanges to be incorporated with a proper business license in the country but did not address decentralized exchanges in particular. [175] The SCA also sets out the regulatory requirements that must be met, including strict Anti-Money

[170] DAOs can now register in the state of Wyoming as will be elaborated on next.
[171] SEC vs. CryptoFed, in the matter of 'The Registration Statement of American CryptoFed DAO LLC' Release No. 11134, File No. 3-21243 (18 November 2022).
[172] Riva (n 53) 21.
[173] The UAE Securities and Commodities Authority ("SCA" or sometimes referred to as "ESCA") is tasked with monitoring and regulating the UAE's financial markets including the Dubai Financial Market ("DFM"), the Abu Dhabi Securities Exchange ("ADX") and the Dubai Gold & Commodities Exchange ("DGCX").
[174] Notification from SCA (December 2016) https://www.dfm.ae/docs/default-source/DFM-Library/sca-notification-oct16.pdf?sfvrsn=6.
[175] Article 7 of The Chairman of the Authority's Board of Directors' Decision No. (23/ Chairman) of 2020 Concerning Crypto Assets Activities Regulation.

Laundering (AML) and Counter-Terrorism Financing (CTF), consumer protection, and market integrity.

Moreover, the Dubai Financial Services Authority (DFSA), which is the regulator overseeing financial matters of the Dubai International Financial Centre (DIFC) market, also issued a consultation paper on the regulation of Security Tokens in the DIFC followed by a regulatory framework.[176] The paper defines a security token as "a token that confers rights and obligations that are: *(i) the same as those conferred by a share, debenture or futures contract (Investments); or (ii) substantially similar in nature, purpose or effect, to those conferred by Investments."*

The paper further categorizes trading tokens platforms into three models, centralized, hybrid and fully decentralized exchange (solely based on smart contracts)[177]. The DFSA clearly expresses its concerns about the unique characteristics of completely decentralized exchange in its proposal, such as inefficiency, governance and accountability issues, and security vulnerabilities.[178] The consultation paper highlights in particular the risks of AML and CTF in a "[completely] automated, direct access environment with no central operator responsible for its operations, where the identity (including the ultimate beneficial ownership) of the buyers and sellers, and the source and flow of funds resulting from trading transactions, may become non-transparent" and that these risks [can] be mitigated by prohibiting completely decentralized platforms with no central operator accountable for its operations."[179] It further objected to the operation in or from the DIFC market of "trading facilities that allow anonymous trading"[180]

We see that both the SEC and DFSA have acknowledged the challenges of decentralized and automated exchanges face in complying with their respective regulatory requirements.[181] However, unlike the UAE, the SEC in the U.S. has already taken enforcement action against several DAOs for violating securities laws.

Overall, scrutiny from security regulating authorities will continue and therefore DAOs offering investment tokens face an agonizing choice between either compromising autonomy and abiding

176 Dubai Financial Service Authority 'CONSULTATION PAPER NO.138: Regulation of Security Tokens' (29 March 2021).
177 ibid, para. 50 – 53.
178 ibid.
179 ibid, para 74.
180 ibid, para 109.
181 Commissioner Caroline A. Crenshaw 'Statement on DeFi Risks, Regulations, and Opportunities' <https://www.sec.gov/news/statement/crenshaw-defi-20211109> (9 November 2021) accessed 10 March 2023.

by SEC regulations, or facing harsh consequences of illegal operations in countries that do not welcome DAO tokens as legitimate securities for the time being like the UAE.

The idea that DAOs are not immune to a country's laws and regulations, and that they cannot simply operate without being duly registered has been further backed recently by the claims against bZeroX (bZx), a blockchain-based exchange that allows its users to take leveraged and margin positions on different cryptos, its founders, and its affiliate, Ooki DAO (Ooki). On the 22nd of September 2022, the U.S. Commodity Futures Trading Commission (CFTC),[182] issued a settlement order imposing a $250,000 civil penalty against bZx, building their claim on the basis that bZx was an "unincorporated association" that "unlawfully engaged in activities that could only lawfully be performed by a registered designated contract market ('DCM') and other activities that could only lawfully be performed by a registered futures commission merchant ('FCM')", and that they "did not conduct know-your-customer ('KYC') diligence on their customers as part of a customer identification program ('CIP'), as required of FCMs." [183]

The CFTC was further of the opinion that bZx founders were wrong by thinking that they could avoid regulation; and that DAOs are not immune from enforcement and may not violate the law with impunity.[184]

The CFTC's order stated that unincorporated DAOs leave its members and founders open to personal liability on various grounds, and highlighted the need for defining a legal structure for the DAO at the outset.

News runs fast within the blockchain universe, and by now potential investors are getting more and more familiar with the risk of personal legal liability and the authorities' open eyes. Consequently, they are getting more reluctant to participate in or creating DAOs and conduct regulated activities with no due registration and licensing, looking for other options such as registering in countries that recognize DAOs or resorting to alternative setup options.

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[182] The CFTC is the federal agency responsible for the oversight of digital assets including cryptocurrencies such as Ethereum, Solana, Polygon and many more.
[183] CFTC vs. bZeroX, LLC; Tom Bean; and Kyle Kistner, Docket No. 22-31, (22 September 2022).
[184] ibid.

3.3 Unregistered DAOs Frustrate Legal Proceedings

While the grounds on which DAO members can be held liable may be outlined, in practice it is not straightforward to sue a DAO or its members, especially one that is not registered under any jurisdiction, as many hurdles stand in the way and a number of questions remain unanswered.

To begin with, there is a matter of relevant jurisdiction and conflict of laws. DAOs operate transnationally and without borders, therefore, it's not as simple or straightforward to identify the court of which country has the power to exercise its power to hear and make a decision, and which country's laws apply to the case at hand. In fact, determining jurisdiction has never been a smooth process even without adding to its complexity a defendant that is not physically present. As a rule of thumb, the jurisdiction which applies to entities is largely based on the place of incorporation of the entity, or the place of its operations. However, an unregistered DAO is not really an entity, and the members are personally liable so it makes more sense to base jurisdiction on the location of members, but having a potentially large number of members present all over the world will not make the task any easier. Of course, other aspects have influence as well, such as whether civil or criminal laws are at issue or where the dispute arises.[185] The uncertainty of jurisdiction might encourage forum shopping from both parties. For example, the claimant could file first in a blockchain-unfriendly jurisdiction like Russia, while the DAO could race to court in a more blockchain-friendly jurisdiction like Malta or Switzerland.

Another area of ambiguity is whom to sue.[186] On one hand, a DAO is mostly comprised of anonymous members who could be thousands of people located all over the world. The pseudonymity of members is not only the biggest stumbling block in the way of starting any legal action against them, serving them,[187] or executing against them, but also makes compliance with KYC requirements very challenging and paves the way for unlawful conduct such as fraud or money-laundering activities, to name a few. On the other hand, the decentralized nature of

[185] Stephen Palley 'Determining Jurisdiction When a DAO is Sued' (22 May 2016), <https://www.coindesk.com/markets/2016/05/22/determining-jurisdiction-when-a-dao-is-sued/> accessed 6 December 2022.

[186] Inram Yuzek Gainen 'How do you sue a DAO?'< https://www.jdsupra.com/legalnews/how-do-you-sue-a-dao-these-recent-2954091/> (17 May 2022) accessed 3 December 2022.

[187] ibid. For example, in the U.S. to serve a corporation, the summons must be served (among others) on its officer, director, managing agent, or on the State's Secretary of State. A DAO has none of these things, and service through the Secretary of State is not possible unless the DAO is registered with the State.

DAOs makes it challenging to identify points of responsibility. Unlawful decisions that led to misconduct could be attributed to the creators of that DAO, those who invested in it, those who put forward a proposal, or to those who approved it by voting.

In its complaint against Ooki, the CFTC included in its claim specifically Ooki token holders who had participated in governance votes.[188]CFTC approach sets precedence for holding voting members liable for the claimed violations, though it is not necessarily the best approach. In many DAOs, token holders only vote to avail themselves of promised incentives and might not have a complete insight on the proposal substance. It would be more appropriate to analyze governance strategies and anonymity level for the subject DAO on a case-by-case basis to uncover real decision contributors.

As discussed before, as the level of autonomy increases, the regulatory challenges increase. In the highest level of autonomy where there is no human involvement at all, if hypothetically that is achievable, the code will automatically keep on operating for what it was designed to do regardless of its legality, and no one would have control over it.[189] The only solution left for the court then is to trace the core founders or the developers who designed the DAOs initial software and protocol.

Finally, in case of a verdict against a DAO, assets controlled by DAOs would not be easily tracked or seized by traditional law enforcement mechanisms. [190]

3.4 Concluding Thoughts

All things considered, means of regulation will always exist but should be creative and adaptable to the situation at hand. Applying the existing legal framework might not be the most adequate approach to regulate something as resilient and versatile as a technology-backed organization.

Until legal enforcement concerns are resolved, governments should consider alternative methods to mitigate the risks of illegitimate utilization of DAOs.[191] One such method could be to educate citizens and raise awareness about the uncertainties around DAOs and the dangers of

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[188] CFTC vs. Ooki DAO, Case 3:22-cv-05416 (22 September 2022), 5.
[189] De Fillip and Wright (n 2) 144.
[190]ibid.
[191] Lawrence Lessig suggested that in addition to law, actions of individuals could be regulated by social norms, the market, and architecture (technical infrastructure). *Code and Other Laws of Cyberspace* (1999).

establishing, participating in, or dealing with an unregistered DAO, highlighting the risk of personal liability exposure and fraudulent actions to protect small investors with limited legal knowledge and who participate in a DAO to gain some profit from their savings, not knowing that their minimal participation might put them under risk of personal liability, jeopardizing seizure of their personal assets.

Chapter 4: Granting Legal Personality to DAOs

Once DAOs started to emerge, along with an outburst and rapid expansion of business structures identifying themselves as DAOs, jurisdictions around the world began to explore how to address this novel construct, including whether to legally recognize a DAO as a separate legal business entity.[192] Needless to say, innovation precedes law, and both individuals and companies were already investing millions of dollars in DAOs before any legal framework was adopted.

It is understood, on the one hand, that adopting a new regulation for this unprecedented form of organization that can withstand the test of time requires a great deal of delicacy and must pass through multiple phases of review and analysis before it can be adopted. On the other hand, turning a blind eye is not an option because the pseudonymous nature of DAOs allows for the creation of tools which can be used for illegal financial activities, such as money laundering, digital black markets and financing of terrorism.[193] The ramifications are unbearable.

Many challenges in designing an adequate legal framework that preserves the decentralized essence of DAOs but provides them with a recognized judicial personality still lie ahead. First of all, DAOs are multijurisdictional and can perform activities and provide services globally in comparison with businesses that are usually licensed and incorporated under the jurisdictions in which they operate. Second, legal entities need legal representation in the required jurisdiction, and any representation will be a threat to decentralization.[194] To add to the complexity, the DAO concept itself is still at an early stage of development, and its governance design will pass through stages of trial and error before reaching an ultimate shape that could be suitable for a

[192] Giorgo Platias 'Decentralised Autonomous Organisations: Regulating the Company of the Future?' (8 March 2022) https://addisons.com/knowledge/insights/decentralised-autonomous-organisations-regulating-the-company-of-the-future/ accessed on 23 December 2022.
[193] Kai Jia and Falin Zhang, *Bitcoin and Beyond: Cryptocurrencies, Blockchains, and Global Governance - Experiments in Algorithmic Governance: Between liberalization and prohibition'* (RIPE Series in Global Political Economy, Routledge 2017) 95.
[194] Kaal (39) 30.

legal form. As mentioned, many of the structures identified as DAOs at present are not really DAOs in terms of their state of decentralization but are aiming to develop into full decentralization gradually.

Despite these challenges, several innovation-friendly countries who already embraced blockchain technology and its various applications are also showing enthusiasm for DAOs and are eager to become a haven for DAOs and attract them, and the associated investments into their jurisdiction. To no one’s surprise, several countries are choosing to jump headfirst into developing legislations that are attractive for DAO creators, promising legal certainty, limited liability, and international recognition, irrespective of the underlying impediments.

This chapter will look into the novel regulations that have been issued in an attempt to grant DAOs a legal personality, focusing on those of the U.S. states of Wyoming and Tennessee, and finally explores if there is a potential for similar DAO-friendly regulations in the UAE.

4.1. Overview of Existing Legal Framework

Many jurisdictions, like Liechtenstein, Switzerland and the Marshall Islands, started offering some solutions to blockchain businesses such as legal structure for projects to incorporate under their jurisdiction. Although most of the initiatives do provide limited liability and favorable tax regimes, they don’t necessarily grant DAO legal personality in particular. These structures are more relevant in placing a DAO under a corporate veil as further addressed in Chapter 5.

In 2018, Malta was the first jurisdiction to lay the legal groundwork specifically for DAOs by passing the Technology Arrangement Bill defining DAOs as “Technology Arrangements”.[195] The Digital Innovation Authority (MDIA) was also formed to be in charge of auditing the code of smart contracts of DAOs, evaluating whether a DAO is eligible to obtain a license or not based on its code, and granting it the title of a "Technology Arrangement" if it qualifies.[196]

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[195] Maltese Bill No. 43 ‘Innovative Technology Arrangements and Services Bill’ (2018).
[196] Marlene Ronstedt and Andre Eggerthttps ‘Among Blockchain-Friendly Jurisdictions, Malta Stands Out’ (4 July 2018) <//www.coindesk.com/markets/2018/07/04/among-blockchain-friendly-jurisdictions-malta-stands-out/> accessed 24 December 2022.

Whilst the Maltese Technology Arrangement does not grant DAOs legal personality, it was the first approach towards providing DAOs with some degree of assurance and recognition. [197]

Lately, in February 2022, the Republic of the Marshall Islands amended its Non-Profit LLC Statute to officially recognize DAOs. Under the amendment, token holders of DAOs can be LLC members and the LLC's bylaws can be encoded into the blockchain. The initiative will provide these decentralized blockchain-based organizations with an internationally recognized LLC structure as long as they identify as DAO LLC.[198]

4.2. Experimenting with DAO Legal Designs in the U.S.

It is fair to say that the U.S. is one of the most innovative economies globally and has positioned itself well at the forefront of technology and digital asset businesses.[199] With the rise of blockchain-based entities and DAOs, several U.S. states showed particular interest in acknowledging these new concepts as part of their innovation promotion strategies.

The first step in this direction of recognizing DAOs was taken in 2018 by the state of Vermont which enacted a law allowing the establishment of a wider range of Blockchain-Based Limited Liability Companies (BBLLC). This regime has been used to provide DAOs with a legal status,[200] and it paved the way to introducing DAOs as LLC. Undoubtedly, the Vermont Law helped lay a foundation for other U.S. states to recognize DAOs.

The blockchain-friendly state of Wyoming was the first to enact legislation recognizing DAOs in particular and permitting them to be incorporated as LLCs by issuing the Wyoming Decentralized Autonomous Organization Supplement to the Limited Liability Company Act in 2021 (Wyoming Law).[201] Later in 2022, the State of Tennessee followed and included

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[197] Platias (n 192).

[198] Sam Bourgi 'Marshall Islands officially recognizes DAOs as legal entities' (15 February 2022) <https://cointelegraph.com/news/marshall-islands-officially-recognizes-daos-as-legal-entities/> accessed 24 December 2022.

[199] Lara Williams 'Top five global cryptocurrency investment hubs' (1 July 2022) <https://www.investmentmonitor.ai/crypto/top-five-global-cryptocurrency-investment-hubs-us-uk/> accessed 24 December 2022.

[200] Biyant Mienert 'How can a decentralized autonomous organization (DAO) be legally structured?' (24 Novemeber 2021) <https://lrz.legal/de/lrz/how-can-a-decentralized-autonomous-organization-dao-be-legally-structured > accessed 23 December 2022.

[201] Limited Liability Company Act, Wy. Stat. § 17-31-101 through 17-31-115(2021) and amended (2022).

decentralized organizations in its company law with rules similar to those of the Wyoming Law to some extent (Tennessee Law).[202]

The controversial Wyoming Law and Tennessee Law (to be referred to collectively here as the "U.S. DAO Laws") were heavily criticized by blockchain experts as not reflecting the essence of DAOs, and further placing additional burdens on them.[203] This section will highlight areas of challenges in giving DAOs a legal dress and how the U.S. DAOs addressed those challenges, particularly investigating aspects that were subject to criticism.

4.2.1 Autonomous Governance

DAOs can be of different levels of autonomy, ranging from completely member-managed to a greater dependency on algorithmic governance. DAOs that are in their early stages are promising a gradual decrease in human intervention and increased adoption of algorithmic solutions. States deciding to adopt regulations in this interim phase should take this into consideration, and the regulations should ideally distinguish between different levels of automation of DAOs and be able to cater for DAOs flexibility in choosing governance solutions without compromising the limited liability of the members, which is not an easy task.

The U.S. DAO Laws embrace different levels of autonomy by allowing DAOs to be "member-managed" or "smart-contract managed". However, they did not facilitate the flexibility to gradually evolve because their initial language states that the articles of organization of a DAO may define the DAO as either member-managed or algorithmically managed, and, if the articles are silent, the DAO defaults to a member-managed organization. [204] This has been criticized for showing lack of understanding of how DAO governance works and ignoring the dynamic nature of DAO governance and the need for gradual evolvement by categorizing autonomy in governance into two categories.[205] As mentioned, most DAOs adopt hybrid solutions which rely on members to propose changes and vote on them, and smart contracts to execute the decisions. Taking this negative evaluation into account, the Wyoming Law Amendment later revised the

[202] The Tennessee Law embraced the fact that autonomy is not present in DAOs and therefore referred to the subject entity as "decentralized organization" or "DO", rather than DAO.
[203]Jana S. Farmar and John Cahill 'DAOs: A game changer in need of new rules' (7 October 2022) <https://www.reuters.com/legal/legalindustry/daos-game-changer-need-new-rules-2022-10-07/ >.
[204] Limited Liability Company Act Wy. Stat. § 17-31-104(e).
[205] Jordan Teague 'Starting a DAO in the USA? Steer Clear of DAO Legislation' (7 June 2022) accessed 23 December 2022. See this thesis 2.1 explaining different phases of voting.

language by eliminating the two categories and obliging a DAO LLC to establish in its "articles of organization" how the DAO will be managed by the members, including to what extent the management will be conducted algorithmically. While this amendment distinguishes different levels of autonomy, it still puts a burden on DAO establishers to prematurely decide their corporate governance structure at the outset,[206] leaving no room for experimentation and flexibility, driving away newcomers who may not yet have thought through their long-term governance methods.

Another governance aspect that legislators need to cope with is the token-based voting method. While DAOs are still experimenting with different forms of representation and voting mechanisms that are yet to be implemented, legislators are still contending with the issue of providing limited liability to an unlimited number of members who happen to also be in charge of managing the affairs of the DAO in a complex unconventional way.

Both U.S. DAO Laws default to voting clauses that share a similar language reflecting the basic DAO voting structure whereby each member receives tokens as a representation of their interest in the DAO and each token has a voting power. Membership interests in a DAO shall by default be calculated by dividing a member's contribution of digital assets to the organization by the total amount of digital assets contributed to the organization at the time of a vote; or in case members have not contributed digital assets to the DAO as a prerequisite to becoming a member, each member shall possess one (1) membership interest and be entitled to one (1) vote.[207] As could be the case with LLCs in the U.S., it is possible to structure a DAO so that different tokens have different classes with different associated rights, which is especially beneficial for DAOs who use differential weighting of tokens.

In addition to defining membership interests, the Tennessee Law provides, by default, for a quorum of no less than the majority of interests to vote for a vote to be valid.[208] The fact that the Tennessee Law provides a default quorum requirement of the majority of interests to vote for a vote to be valid shows that legislators are still grappling with the unique decentralized nature of

[206]Michael Dill 'Crypto, DAOs, and the Wyoming Frontier' (20 July 2021) Holland & Hart LLP <https://www.jdsupra.com/legalnews/crypto-daos-and-the-wyoming-frontier-9251606/> accessed 23 December 2022.
[207] Wy. Stat. § 17-31-111 and Tenn. Stat. 48-250-110.
[208] Tenn. Stat. 48-250-110.

DAOs and their voting mechanisms, which often involve an additional layer of off-chain consensus.[209]

4.2.2 Legal Representation

As mentioned earlier, associating the legal presence of a DAO with any form of legal and jurisdictional framework results in the need for a representative in the chosen jurisdiction, which, in turn, centralizes the DAO and goes against its core concept of decentralization.[210] At the same time, not having any sort of representation for regulated DAOs is unrealistic because, in practice, at least one person needs to be designated to contact the authorities, file paperwork, receive service of process, etc.

In the U.S., all formal business entities, such as an LLC or Corporation, must have a registered agent to receive documents and service of process,[211] and the two U.S. DAO Laws did not waive this requirement for DAOs. This means that a DAO that wants to register in any of these two states must assign an individual or a company that provides registered agent services to take on this task. According to some views, a jurisdiction would not be truly favorable for the DAO concept if it gives a DAO limited liability as an entity but doesn't accept its independent status without the need for representation.[212] Therefore, on the negative side, such a requirement might dissuade extremists who would like to remain unidentified and want to keep any communication with the authorities to a minimum. On the positive side, maintaining a registered agent creates a state of reassurance in people who want to deal with a DAO knowing that an address is identified for serving process in case of any legal claim.

Notably, to maintain a high level of decentralization, DAOs may prefer to resort to a third-party service provider rather than designating one of its members for this purpose. In fact, if DAO members prefer to stay anonymous, service providers in the case of DAO will have a strategic role with responsibilities that may very well go beyond merely being a recipient of a communication. In case their role is extended later, companies providing registered agency services will have to start arming themselves with enough DAO knowledge, and even coding

[209] Teague (n 205). See this thesis 2.1 explaining different phases of voting.
[210] Wulf A. Kaal, "The Dao of DAOs" [2018] 7(2) Hastings Sci & Tech LJ 221, 4.
[211] Jane Haskins 'Why do I need a registered agent?' <https://www.legalzoom.com/articles/why-do-i-need-a-registered-agent.> accessed 18 December 2022.
[212] Wulf Kaal 'DevDAO-Concept & Features' (22 June 2020) Medium <https://wulfkaal.medium.com/devdao-concept-features-ccd60d22485f.> accessed 18 December 2022.

knowledge, to be able to adequately represent DAOs. Likewise, lawyers who are aspiring to work in the DAO field and personnel in offices registering DAOs should, without a doubt, add to their legal knowledge some blockchain wisdom, and in particular, the ability to read and draft smart contracts.

4.2.3 Rules and Articles of Association

A novel feature of DAOs is that their bylaws are saved on a blockchain and executed through smart contracts, rather than in articles of association or other written constitutional documents signed by the members and provided to the authorities as the common case for LLCs is.[213] Another key difference is that smart contracts are written and audited by coders who know the smart contract language and cannot be modified once they are set in place. In other words, if any amendments are desired, the entire codified contract needs to be canceled and redrawn, unlike conventional constitutional documents which can be amended by an addendum attached to the original.

Therefore, in a DAO LLC, a smart contract cannot simply be considered a replacement for an official constitutional document and the latter will still be needed for the DAO to be officially recognized. In both the DAO U.S. Laws, a DAO shall file a signed exact or conformed copy of the articles of organization as a prerequisite of its formation.[214] The articles of organization could be supplemented by an operating agreement which can be a smart contract., and either should, *inter alia*, contain:

- a statement that the company is a DAO;
- the street address of the DAO's initial registered office and the name of its initial registered agent at that office;
- a statement establishing how the DAO shall be managed by the members, including to what extent the management will be conducted algorithmically; and
- a publicly available identifier of any smart contract directly used to manage, facilitate, or operate the DAO. Failure to include this information in the articles is grounds for dissolution of a DAO LLC.

[213] Metjahic (n 5)7.
[214] Wy. Stat.17-31-105 and Tenn.Stat.48-250-104.

For the most part, the articles of organization and smart contracts under the U.S. DAO Laws are interrelated but not interchangeable. Notably, smart contracts supersede any written document due to their self-executing power and the U.S. legislator seemingly recognizes this point as both U.S. DAO Laws give a DAO's smart contract precedence in cases when the articles of organization and smart contract are in conflict.[215] At the same time, the U.S. DAO laws require that all smart contracts utilized by a DAO shall be capable of being updated, modified or otherwise upgraded, and the articles of organization shall be amended when the smart contracts have been updated or changed. As much as this condition could be a reasonable requirement if DAO members pursue protection under a legal entity, in reality it is not possible due to the immutable nature of smart contracts.[216] Therefore, it is no surprise that requiring a DAO's smart contract to be capable of amendment has been criticized as being a design flaw stemming from a misunderstanding of the technology.[217] The legislator, presumably, did not overlook the immutable feature of smart contracts but nonetheless, wants DAO developers to figure out a way to address "code is law" for cases where the code accommodates undesirable or unlawful conduct.

4.2.4 Fiduciary Duties

In the U.S., the directors and managers of a corporation, as well as an LLC, owe fiduciary duties such as a duty of loyalty and duty of care to both the entity, and its members. These duties apply to anyone who has responsibilities for managing or running the entity, regardless of whether they are a member of the corporation or not.[218] The rationale behind such duties is to address governance problems associated with the separation of ownership and control,[219] which could lead to personal gain taking precedence over the entity's overall benefit.

However, because DAO is governed in a decentralized manner by each member, such duties are less relevant.[220] Taking this into consideration, we see that both U.S. DAO Laws waive fiduciary duty requirement for DAO LLC members except that the members shall be subject to the implied

[215] Wy. Stat. 17-31-115 and Tenn. Stat. 48-250-114.
[216] Teague (n 205).
[217] Samuel Haig 'Ether Short Liquidations Spike To All-Time High' (7 June 2022) < https://thedefiant.io/eth-shortselling-liquidations> accessed 20 November 2022.
[218] Holly J Gregory, Rebecca Grapsas and Claire H Holland, 'Corporate Governance and Directors' Duties in the United States: Overview' (2021) <https://uk.practicallaw.thomsonreuters.com/w-011-8693?transitionType=Default&contextData=(sc.Default)#co_anchor_a596917> accessed 20 November 2022.
[219] Dao of DAOs (n 210) 15.
[220] ibid.

contractual covenant of good faith and fair dealing.[221] Moreover, the articles of organization or operating agreement shall include a disclaimer stating that a DAO may define, reduce, or eliminate fiduciary duties.[222] Elimination of fiduciary duty is again a default arrangement and the members may decide to keep it.

Since DAOs' decentralized governance is far from optimal, DAOs should consider requiring fiduciary duties in their early stages, especially the duty of care that requires minority members with small stakes involved to act in good faith and exercise reasonable care while voting to protect the overall benefit of the DAO and not cast any arbitrary vote.

4.2.5 Dormancy Period

One of the heavily criticized rules in the U.S. DAO Laws is the rule that dissolves a DAO LLC if it fails to approve any proposals or take any actions within a period of one year.[223] This requirement, which does not apply to a traditional LLC, is criticized for putting an unnecessary burden on DAOs to take actions, whether it's needed or not, particularly in DAOs with a higher autonomy level where proposing and voting might be secondary.[224] Legislations aiming to encourage DAOs to legally register as LLCs under their jurisdiction would need to understand the liberal mindset of DAO enthusiasts and may need to avoid any such restriction on DAO flexibility. Furthermore, the meaning of "taking action" is vague and generic and does not give any indication as to what action would break the dormancy period.

4.2.6 Concluding Observations

All things considered, witnessing forward-thinking countries responding fast to the emergence of an unconventional form of blockchain organizing is a positive indicator that regulators are trying to get up to speed with technology, which in return gives DAO enthusiasts an aspiration that the DAO concept will be accommodated, rather than just being spelled out of the system without giving chance to its potential uses.

[221] Wy. Stat. 17-31-110. and Tenn. Stat. 48-250-109.
[222] Wy. Stat. 17-31-104 (c) and Tenn. Stat. 48-250-103 (c).
[223] Wy. Stat. 17-31-114 (4) and Tenn. Stat. 48-250-113 (4).
[224] Teague (n 205).

At the same time, the shortcomings in the DAO U.S. Laws demonstrate that creating an adequate legal framework for DAOs cannot be achieved overnight. Regulating harshly and too soon could be unpropitious and could hold back potential benefits of DAOs.[225] Most importantly, a difference shall be drawn between welcoming innovation and imprudently passing shortsighted legislation that is unmindful of the unique characteristics of DAOs and the associated challenges in integrating them into the legal system. The legal framework doesn't have to be able to convey the subtle nuances of DAOs, but it has to respond well to DAOs needs. Most significantly, any early regulatory framework should be able to accommodate experimenting with DAOs as part of pro-innovative policies.[226] Finally, the regulation better leave behind existing forms of companies like LLCs. Rather than amending existing company laws to include DAOs, legislators should consider creating a new fit-for-purpose legislation laying out new criteria tailored to this novel concept, similar to what Malta did.

4.3 Uncertainty of DAOs Legal Status in the UAE

At the moment, the UAE does not have any legislation that recognizes DAOs or organizations that are exclusively blockchain-based. Albeit the absence of official recognition, there are a number of organizations in the UAE that market themselves as DAOs. One of those is Arts DAO, who proclaims to be "one of the biggest NFT-based investment projects in the world". According to its official website, Arts DAO adopts decentralized governance and is defined by its creators as a DAO.[227] However, given that it is registered with the local authorities as a typical LLC,[228] it is not clear how the main features of a DOA like autonomy and decentralization can be implemented. This could be either leniency by the local regulators towards enthusiastic investors who wish to capitalize on the use of the trendy DOA word in their names, or that there is still a case of unfamiliarity with the concept.

The regulatory framework in the UAE uses a mix of liberal and prohibitory measures, which may create uncertainty for blockchain-based businesses and their potential for recognition as DAOs.

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[225] De Fillipi & Wright (n 2) 57.
[226] ibid.
[227] Arts DAO <https://artsdao.xyz/>.
[228] Arts DAO has an entity registered in DMCC under the name ADNFT DMCC 'Who Let The DAOs Out' Capital Club Dubai <https://capitalclubdubai.com/content_library/insights-who-let-the-daos-out/> accessed 14 January 2023.

4.3.1 UAE as a Hub for Blockchain-Based Business

The UAE, through the emirate of Dubai in particular, is known to be forward-looking and has successfully positioned itself at the front and center of investment and technology. Smart economy has long been a top goal on the UAE's national agenda driven by a continuous collaboration between the public and private sectors to deploy technologies to solve all sorts of problems. [229]

For one thing, Dubai has shown interest in blockchain technology and recognized its potential applications for the benefit of the country. The emirate has been witnessing regulatory advances in this direction demonstrated in particular by launching the Dubai Blockchain Strategy back in 2016. The strategy aims to deploy blockchain technology to replace paper transactions with digital ones, and to make Dubai the first city fully powered by Blockchain.[230]

Moreover, the Emirate's approach towards virtual assets only demonstrates further its effort to be a hub for blockchain-based business. For example, as a primary part of its innovation vision, Dubai announced a bespoke regulatory framework for businesses linked to virtual assets in early 2022. The framework consists of a regulation of Virtual Assets law (VAL),[231] and a new regulatory body, Dubai's Virtual Assets Regulation Authority (VARA) which is responsible for overseeing virtual asset activities in Dubai, and licensing entities that offer any virtual assets services.[232] That is in addition to the framework published by DFSA[233] for regulating digital currency activities in DIFC, a financial free zone operating within a common law framework independently from the UAE civil law judicial system.

Another major player in these initiatives is the Dubai Multi Commodities Center free zone (DMCC). DMCC is a party of yet another regulatory framework designed for digital assets.[234] Under this regime, blockchain and digital assets businesses and startups developing blockchain-

[229] UAE 'Digital Economy' < https://u.ae/en/about-the-uae/economy/digital-economy> accessed 28 December 2022.
[230] 'Dubai Blockchain Strategy' Digital Dubai <https://www.digitaldubai.ae/initiatives/blockchain> accessed 28 December 2022.
[231] Law No. 4 of 2022 Concerning the Regulation of Virtual Assets in the Emirate of Dubai.
[232] Excluding DIFC area.
[233] The DFSA is the independent regulator of financial services conducted in or from the DIFC.
[234] 'MoU signed between SCA and DMCC' (29 March 2021) SCA <https://www.sca.gov.ae/en/media-center/news/29/3/2021/mou-between-dmcc-and-sca.aspx> accessed 28 December 2022.

enabled platforms, offering NFTs environments, or trading in crypto-commodities can register their companies in the DMCC Crypto Center and even avail themselves of a number of incentives and benefits.[235]

These projects reaped their benefits instantly with the world's largest digital assets companies moving their centers to Dubai, such as Binance, Crypto.com and Bybit.. [236]

4.3.2 Challenges to Recognizing DAOs in the UAE

If we take into consideration that validating blockchain and crypto assets is an integral component of any DAO recognition dialogue, the UAE could be seen as one of the most promising jurisdictions for blockchain-based organizations.

However, despite the many attempts by the UAE various authorities to regulate crypto-related businesses in the country, the recognition of the DOA as an alternative business vehicle has not gained any momentum, not even within the legal framework of an LLC, the most popular corporate vehicle in the UAE.

To understand this lack of enthusiasm towards the concept of the DOA specifically, we must first have an overview of the country's LLC corporate and company laws and the unique and complex legal framework within which such companies operate.

4.3.2.1 Ownership Restrictions and Security Concerns

First, it should be pointed out that up until 2020, the UAE Commercial Companies Law did not allow for a non-Emirati person to own more than 49% of the shares of an LLC in Dubai mainland.[237] And while a much-anticipated new law was issued granting foreigners full ownership in UAE mainland, some company ownership in strategic sectors such as gas, manpower supply and nurseries are still reserved to UAE nationals.[238] Moreover, due to political tensions in the region, individuals from certain nationalities are carefully screened for purposes related to national security risks associated with ownership and investment. Also, the UAE has introduced multiple laws and policies on the federal and local levels requiring businesses and

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[235] DMCC <https://landing.dmcc.ae/cryptocentre>.

[236] Lisa Barrington 'UAE crypto push sees Bybit, Crypto.com announce Dubai offices' (28 March 2023) Reuters <https://www.reuters.com/business/finance/uae-crypto-push-sees-bybit-cryptocom-announce-dubai-offices-2022-03-28/> accessed 2 April 2023.

[237] Mainland is the area outside the free zones where foreigners have always enjoyed a 100% ownership option in an LLC. However, Free Zone companies can only operate within their Free Zone, with other Free Zones or internationally, but not in the mainland.

[238] Federal Decree-Law No. 26 of 2020 amending the provisions of Federal Law No. 2 of 2015 on Commercial Companies allows foreigners to establish companies with 100 percent full ownership.

organizations to disclose their ultimate beneficial owners in compliance with international standards.[239]

These national policies are at the heart of any DAO recognition dialogue in the UAE and unless and until the country's security concerns are properly addressed, the chances that the UAE will anytime soon recognize borderless organizations with pseudonymous membership are slim.

4.3.2.2 Commitment to Compliance

Free zone authorities in the UAE are more flexible and liberal than mainland ones in terms of their national ownership requirements and regulations. However, DOAs or any other blockchain-based businesses that deal with crypto assets or NFTs will still be subject to strict regulations. Most of the innovation and crypto promotion projects in Dubai, for example, are concentrated in two Free Zones, namely DIFC and DMCC. DIFC in particular with its advanced financial regulations is a good candidate for venture and investment DAOs, whereas DMCC could be the ideal UAE free zone for collector DAOs, such as NFT communities.

As previously mentioned, the DFSA which regulates investment in security tokens in DIFC has excluded autonomous and decentralized exchanges from its framework. If, arguably, they are to be included in the future, they will be subject, similar to securities in the U.S., to a complex registration process and will be obliged to disclose a long list of information.

Other types of tokens that are not strictly securities, such as NFTs, were also considered financial products by the SCA[240]. Therefore, even DAOs that do not offer exchange in crypto assets services will still need to comply with all the requirements set out by SCA, regardless of the type of tokens they issue as long as such tokens are instruments for raising profit.[241]

It is also worth mentioning that in the UAE, such regulated activities must secure the necessary approval from the financial authorities at the outset as part of the process of applying for a business license. All relevant authorities are involved in the initial phases through a mutual understanding between them. This is different from the U.S. where, for example, a DAO LLC

[239] The UAE has always been cautious as to who will organize any activity over its land, unlike some states of the U.S. (for example, Delaware) where LLC members could remain anonymous.
[240] The Chairman of the Authority's Board of Directors' Decision No. (23/ Chairman) of 2020 Concerning Crypto Assets Activities Regulation.
[241] ibid.

license can be granted by the state of Wyoming only by submitting Articles of Incorporation with no need of approval from any independent agency such as the SEC.

Moreover, businesses incorporated in a free zone, including DIFC and DMCC, must adhere to strict KYC and Anti-Money Laundry regulations, submit a business plan, and disclose any information to the authorities when requested. For example, DMCC have not waived any of its KYC and anti-money laundry requirements for crypto businesses,[242] and as things stand now, DAOs will not be relieved from compliance with such requirements as well.

As a result, any potential legal framework in the UAE will be subject to criticism for not respecting the true nature of DAOs. DAO founders and members have to answer the crucial question of whether they will be able, or want to, comply with these requirements. Arguably speaking, DAOs have become popular because of their ability to get around KYC rules.[243] Therefore, a large number of DAOs will not consider complying with stringent information requirements in exchange for recognition under the UAE jurisdiction.

As a last remark, it should be noted that welcoming of the regulatory authorities of proposals for regulatory frameworks from big players and influencers in the blockchain industry should continue to be balanced with a top-level monitoring of such players and influencers compliance with the local regulations to ensure protection of the interests of other stakeholders and to increase trust in the local legal system and its regulations.

4.3.2.3 Challenges in Comprehending Token-Based Governance in UAE

Another challenge standing in the way of recognizing DAOs in the UAE is the idea of token-based governance with no identified point of control. This new concept of governance will take time to be digested, especially in the UAE business community where everyone is accustomed to having managers of companies being public records.

As background information, constitutional documents of business entities in the UAE usually have a customary shape and content and most often a form is provided by the registrar. In Free

[242] Empire Global 'How To Obtain a Crypto Licence in DMCC' (32 June 2021) Medium < https://empire-global.medium.com/how-to-obtain-a-crypto-license-in-dmcc-uae-58a724daa4b9> accessed 18 January 2023.
[243] Alden (n 104).

Zones, any unfamiliar articles, a complex matrix of powers for example, is subject to the approval of the relevant registrar, who has the authority to demand amendment of such terms or remove altogether.[244]

DAOs are representing a whole new mode of documenting organizational bylaws and governance that is anything but open to assessment and adjustment. In the UAE, at least at this stage, a smart contract better not completely replace articles of incorporation.

By contrast, the U.S. DAO Laws show a level of understanding of the idea of smart contracts and their prevailing and self-executing power by giving smart contract precedence in cases when the articles of organization and smart contract are in contrast. Furthermore, it can be argued that by requesting the articles of organization to include a publicly available identifier of any smart contract directly used to manage, facilitate, or operate the DAO, the U.S. authorities are capable of interpreting the coding of a smart contract, when needed.

Comparatively, both the UAE regulator and the Free Zone authorities still fall far short of such competence. To be fair, the UAE has certainly attracted and continues to attract talented individuals, especially in the coding and blockchain domains. However, unless and until reliance on smart contracts in the context of DOAs is introduced and applied in a practical way, little data is available on the efficiency of the system. In any case, the authorities will have to equip legal officers with complementary coding knowledge to be able to review DAO smart contracts for the purposes of official registration. And in case they opt to require that articles of association be registered the conventional way in addition to a smart contract, the authorities have either to trust that the content of the smart contract does not contradict the articles that will be officially signed and submitted, which is far from ideal, or invest in qualified personal who are capable of doing so.

4.3.2.4 Representation:

In the UAE, any entity operating in the country should have a registered office, even if a virtual one, and a minimum of one director. For companies operating within the UAE, the office should be under the name of the entity itself, unlike in the U.S. where an LLC operating in the country can be contacted under the address of a registered agent. One exception is offshore companies

[244] Notably, in mainland UAE, the notary public has also the authority to review the Memorandum of Association that will be signed under his presence and have full capacity to ask for a change or to deny some of its content.

registered in one of the free zones that offer such type of setups, such as Jebel Ali Free Zone in Dubai. To set up an offshore company, an operational office is not required since this particular kind of company does not have a license to operate like other conventional companies and it is most likely setup to hold assets. However, there is a regulatory requirement to appoint an officially recognized registered agent.[245] The registered agent acts as the company's point of contact with the local government, similar to the U.S., and receives service of documents on behalf of the offshore company. Additionally, the agent ensures that the company complies with all the legal requirements and regulations. In addition, a director and a secretary shall also be appointed in an offshore company.[246] Each of these requirements is sensible and serves a purpose. Therefore, DAOs wishing to incorporate in the UAE would need to accept that an absolute decentralization is highly unlikely, and they would most likely be obliged to appoint a representative at the very minimum.

4.3.3 Moving Forward in the UAE

As can be seen, recognizing DAOs in the UAE and putting together a regulation similar to those in the U.S. would be a challenging endeavor. So, does UAE offer the best jurisdiction for DAO protection? The short answer is no. However, the UAE is a country of contrasts and surprises. As the DAO concept matures enough and gains more and more popularity and different countries start to recognize it, the UAE will, at some point, need to reach a decision about it and a prohibitory one would not be in favor of its announced relaxed blockchain regulatory approach.

The UAE would need to step away from its current LLC context and formulate a progressive framework that is nonrestrictive to the DAO concept and reserves its essence on one hand, while not compromising the values and foundation on which the country’s national legislation is built, on the other hand.

To emphasize, any regulation passed at this early stage will be ahead of its time. The legislators better take their time and pay attention to each detail, rather than prematurely copying regulations of more liberal countries whose legal infrastructure is different from the UAE.

[245] Jebel Ali Free Zone Authority Offshore Companies Regulations 2018.
[246] ibid.

In fact, the UAE shows an understanding that "*Regulations passed too early may stifle new innovations, while those that come too late may have already allowed negative impact on people and markets*." [247]

For this purpose, The UAE launched RegLab in 2019 to facilitate the testing and vetting of innovations that use future technologies, including AI. The RegLab enables legislators and law makers to collaborate with the private sector to develop regulations that are suitable for advanced technological products and applications. This process ensures that regulations are appropriately tested before they are passed, which is particularly relevant in the case of DAO regulation.[248] By leveraging the RegLab, the UAE can offer a hub for experimenting with the principles of DAOs in a controlled and regulated manner, and ensure that any proposed DAO regulations are thoroughly tested and reviewed before they are passed, minimizing the risk of unintended consequences and allowing the government to establish appropriate guidelines for the development of DAOs.

The UAE may consider starting with small steps such as familiarizing the legislator and the Free Zones with the concept; and recruiting expertise in the coding and blockchain fields.

Finally, the UAE needs to be ready to effectively monitor commitment to any regulation if it decides to recognize DAOs. While welcoming innovation is important, it is not the sole objective and certainly should not come at the expense of a clear regulatory framework that promotes transparency, accountability, and consumer protection.

4.4 Gradual steps for integrating DAO Principles into existing organizational frameworks

All things considered, we have established that the unprecedented principles of DAOs make them incompatible with the current organizational structures and their regulatory requirements. While a number of jurisdictions introduced laws that give DAO a legal dress and allow them to be incorporated, none of the regulations is refined enough to capture their core substances. This suggests that at this early stage, no specific law that recognizes DAOs as separate legal entities is better than an imprudent one that presents no more than a stamp of approval.

[247] RegLab <https://reglab.gov.ae/en/about> accessed 3 April 2023.
[248] UAE 'RegLab - Legislation governing the use and application of technologies' < https://u.ae/en/about-the-uae/digital-uae/reglab> (24 May 2022) accessed 3 April 2023.

However, the thesis does not imply that the ethos of DAOs is to be disregarded. On the contrary, each characteristic of a DAO has proven to be an improvement of the current imperfections of conventional centralized organizations. But instead of going headfirst into ratifying this new speculative principle as a whole and to sponsor the alluring idea of blockchain-based organizations, jurisdictions may consider steadily introducing some of the components of autonomy and decentralized governance into the existing corporate and organizational frameworks. In the UAE, RegLab can also provide a valuable testing ground for such progressive steps.

One example would be by permitting algorithmic governance to take part in and support corporate governance, such as allowing one director or more to be an AI with no legal personality.

Up until now, laws and regulations governing board membership in different countries, including both the U.S. and the UAE, generally require that board members be human individuals, rather than AI systems or other non-human entities.[249] This is because board members are typically expected to exercise judgment, make decisions, and fulfill fiduciary duties to act in the best interests of the company and its stakeholders. These responsibilities generally require a level of judgment and discretion that are difficult for AI systems to replicate, at least in their current state of development.

Nonetheless, the world is increasingly witnessing the adaptation of AI in decision-making processes across many sectors. For instance, Deep Knowledge Ventures, a Hong Kong-based venture capital has assigned Vital, a machine learning program capable of making investment recommendations, as a member of its board.[250] Adapting current governance laws to accommodate the use AI in corporate governance can be a good place to experiment with the principle of coded governance without giving in completely to the “code is law” principle.

[249] Muzaffer Eroğl and Meltem Karatepe Kaya ‘Impact of Artificial Intelligence on Corporate Board Diversity Policies and Regulations’ (2022) Eur Bus Org Law Rev 23, 541–572 <https://doi.org/10.1007/s40804-022-00251-5> accessed 18 January 2023.

[250] Charles Groome ‘Deep Knowledge Venture’s Appoints Intelligent Investment Analysis Software VITAL as Board Member’ (13 May 2014) <https://www.prweb.com/releases/2014/05/prweb11847458.htm> accessed 18 January 2023.

Legislators could also gradually experiment with the concept of decentralization by gradually increasing the maximum number of managers in an LLC and relaxing the rigid administrative procedures for every change in membership or administration. For example, finding an alternative to the requirement of officially submitting an amendment to the articles of association for every change of management and membership, subject to some conditions such as listing the changes on a publicly accessible blockchain and that the new members are not anonymous.

Chapter 5: DAO Legal Wrappers: Structures and Implications

As the concept of DAOs started to gain popularity, many realized the risk of liability that came with their decentralized and autonomous nature. To address this concern, DAO founders started to explore ways to link their organizations to a recognizable real-world corporate form that would fall under existing laws and regulations. In response, legal professionals began to get creative and design legal arrangements that would protect DAO members and limit their exposure to liability.[251]

However, the absence of regulations that grant DAOs themselves legal personality makes it necessary to attach DAOs to one or more legal entities, introducing the concept of "DAO legal wrappers".[252] A DAO legal wrapper is a legal structure that is used to provide a legal base for DAO activities and allow them to securely interact with third parties, enter contractual agreements, and accessed traditional services.[253] The choice of an appropriate legal wrapper will depend on factors such as the jurisdiction in which the DAO operates and the nature of its activities. This chapter will explore existing legal wrapper structures, both inside and outside the U.S., including potential ones in the UAE, in addition to examining the benefits and drawbacks of these novel arrangements.

5.1 Alternative DAO set up in the U.S.

In addition to the U.S. Laws of Vermont, Tennessee and Delaware that were custom-designed for DAOs, several other alternatives exist to provide DAOs with a corporate veil, such as:

[251] Sims (n 23) 26.
[252] Along with this notion business such as “OpenLaw” emerged for the purpose of providing the blockchain-based tools to rapidly build legal templates to deploy “limited liability wrappers” for DAOs: OpenLaw <https://medium.com/@OpenLawOfficial/the-era-of-legally-compliant-daos-491edf88fed0>
[253] DAO of DAOs (n 210)13.

Delaware LLC or Corporation

The U.S. state of Delaware is popular for being business-friendly due to its well-developed legal system, established corporate laws, and specialized courts that have a reputation for expertise in business litigation.[254] Therefore, DAOs started experimenting in Delaware for structuring a DAO legal wrapper. In Delaware, an LLC or a Corporation can be set up relatively easily and used as an additional layer of liability protection that is recognized on a federal level.[255] While both forms provides for separate legal personality and limited liability of member, an LLC allows a more flexible governance framework by allowing members to be directors.[256] However, the articles of organization will need to be updated every time a member is added or changed, which is not practical taking into consideration the fluid nature of DAOs. [257]

Delaware is a favorable option for investment and venture DAOs who prefer strong protection coupled with flexibility, speed, and familiar regulations over the new unfamiliar U.S. DAO Laws.[258] It also worth mentioning that Delaware passed amendments to its corporation law to permit companies to use blockchain technology in corporate record-keeping.[259]

Colorado Limited Cooperative Association (LCA)

A cooperative organization is generally defined as an organization of people forming a business owned and controlled by those people using it, and who share in the financial benefits of the organization in accordance with their respective use.[260] Taking into consideration the resemblance between the values of cooperatives and DAOs, together with common principles such as self-governance and open membership, a cooperative has been argued to be the most ideologically suitable corporate structure for a DAO.[261]

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[254] Delaware 'Why Businesses Choose Delaware' < https://corplaw.delaware.gov/why-businesses-choose-delaware/> accessed 13 January 2023.
[255] Unlike Wyoming and Tennessee Laws that provide no federal recognition.
[256] Christopher J. Brummer and Rodrigo Seira '*White paper: Legal Wrappers and DAOs'* (May 30, 2022) <https://ssrn.com/abstract=4123737 > 22.
[257] ibid 10.
[258] ibid 22.
[259] Senate Bill 69, 149th General Assembly (2017-2018) < https://legis.delaware.gov/BillDetail?legislationId=25730>.
[260] James B. Dean 'The Colorado Uniform Limited Cooperative Association Act (ULCAA)' < https://www.sos.state.co.us/pubs/business/news/2012/20120402_ULCAA_Dean.html> accessed 13 January 2023.
[261] Jacqueline Radebaugh and Yev Muchnik 'Solving the Riddle of the DAO with Colorado's Cooperative Laws' The Defiant, (16 December 2021) <https://thedefiant.io/solving-the-riddle-of-the-dao-with-colorados-cooperative-laws/> accessed 13 January 2023.

One major difference though is that, unlike DAOs, traditional cooperatives are managed by people using them only and not by investors as they do not permit outside investment from persons who would have a vote in the governance of the cooperative. However, the U.S. state of Colorado has recently updated its cooperative model introducing a key improvement, which is allowing outside investors to be admitted as members of the organization by introducing the unique form of limited cooperative association (LCA).[262]

While an LCA offers limited liability protection to members like an LLC, it also allows including distributed governance elements into their governance documents, which makes it an optimal legal form that naturally corresponds with how DAOs operate.[263]
An LCA would be a suitable choice for collector DAOs such as NFT communities.

Unincorporated Nonprofit Association (UUNA)
An Unincorporated Nonprofit Association (UNA) in the U.S. is a non-profit unincorporated general partnership with at least one common, nonprofit purpose that can be made verbally or in writing, without the need for official filing.[264] Several U.S. states have adopted a UUNA Act that recognizes this form of organizing as a separate legal entity and grants their members limited liability. [265]
Although a UNA in some states may participate in profit-gain activities, it is still a weak and uncertain option for DAOs with investment and venture due to lack of recognition and protection on a federal level, not to mention the lack of case law and uncertainty of potential outcomes.[266] Therefore, this structure is more appropriate for philanthropic or social DAOs that have no profit-gain objectives.

5.2 Alternative DAO set up outside the U.S.

Despite the several possibilities available in the U.S. to bestow DAOs with legal recognition, starting from wrapping them with alternative forms, and ending in regulations adopted specifically for DAOs, many DAOs are opting out of U.S. regulations for more than one reason.

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[262] Dean (n 260).
[263] ibid.
[264] Brummer and Seira (n 256) 16.
[265] ibid.
[266] ibid.

First of all, it is not to the advantage of DAO members and creators to be subject to U.S. securities laws and regulations and to fall under heavy scrutiny by SEC, including complying with demanding disclosure requirements and the possibility of costly fines. Moreover, the fragmentation and inconsistencies of the respective regulations among U.S. states makes them unappealing in comparison with other competing international regulations.

Therefore, many DAOs prefer to organize offshore in blockchain and tax-friendly jurisdictions in order to take advantage of better-suited forms and more flexible legal frameworks.

The most common and increasingly used structure for DAOs worldwide is an ownerless foundation. A foundation with legal capacity is generally defined as an organization set up by one or more founders to permanently fulfill a purpose defined by the founder with the aid of funds dedicated to the foundation.[267] This corporate structuring method is not new, and a number of tax-friendly countries are well-known for offering attractive foundation models, such as the Cayman Islands, Liechtenstein and Switzerland.

The Cayman Islands gained popularity within the DAO community due to the enhanced Foundation Company Law issued in 2017.[268] The law gives DAOs the possibility to be organized as a Foundation Company with an independent legal personality and limited liability protection to its members. The Foundation Company can be constructed without shareholders and can designate beneficiaries without maintaining a register for them with their legal names. Beneficiaries can also be registered by class of persons, such as “token holders" which is in line with how DAOs operate.[269]

Liechtenstein and Switzerland are popular for having a regulatory framework that is generally friendly to blockchain and cryptocurrency technology, providing a flexible and supportive regulatory environment for emerging blockchain businesses. Although none of the countries at this moment have a regulation that explicitly recognize DAOs as legal entities like the U.S. states of Wyoming and Tennessee, legislators in both countries are clearly attentive to the needs of blockchain-based businesses, including DAOs. Liechtenstein, for instance, has become a center

[267] Mienert (n 200).
[268] The Foundation Companies Law 2017, 25th April 2017, Cayman Islands.
[269] ibid.

for open dialogue between authorities, legal professionals, and blockchain experts, with the goal of building a thriving blockchain ecosystem that benefits all.[270]

Among several legal structures designed to be aligned with different blockchain-based businesses,[271] both countries also offer foundation structures somehow similar to that of the Cayman Islands, though Swiss and Liechtenstein foundations did not gain the same popularity partially due to perceived administrative challenges and high costs. [272]

That said, all the above-mentioned foundations require compliance with heavy KYC policies and do not support a genuinely decentralized governance because a foundation requires at least one director (in addition to a secretary and a supervisor in the Cayman Islands) which can ultimately have control over the DAO.[273]

These legal boundaries exemplify that as adequate as a legal structure might appear, and as accommodating a legislator would be to the principles of DAOs, creating a flawless framework for DAOs with a stringent level of decentralization and autonomy might simply not be within the realms of possibility at this stage.

5.3 Alternative DAO set up in the UAE

Beyond the UAE advanced cryptocurrency legal ecosystem we touched upon, the UAE remains one of the most tax-friendly countries in the world even after the implementation of the new corporate income tax law.[274] Moreover, the Emirate of Dubai is a home for many blockchain-based projects and NFT communities and a number of DAOs actually operate on its ground, which makes it a necessity to have a corporate entity duly registered in the country at some point.

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[270] Felix Bekemeier and Phillip Sandner 'Liechtenstein's use of blockchain may upend the finance industry' (12 March 2021) < https://www.gisreportsonline.com/r/liechtenstein-blockchain/> accessed 13 January 2023.
[271] Such as Decentralized Autonomous Associations (DAAs) in Switzerland and a Private Trust Company in Liechtenstein.
[272] Brummer and Seira (n 256) 18
[273] Max Dilendorf and Laina Dowd 'Offshoring DAO Foundations: Top Legal Considerations' (22 April 2022) https://dilendorf.com/resources/offshoring-dao-foundations-top-legal-considerations.html accessed 13 January 2023.
[274] Federal Decree-Law No. 47 of 2022 on the Taxation of Corporations and Businesses which will apply for fiscal years starting on or after 1 June 2023.

This section will briefly outline potential DAO legal wrapper possibilities in the UAE, particularly the Emirate of Dubai, for both DAOs operating on its grounds as well as offshore.

5.3.1 An LLC in DMCC Free Zone

Although the DMCC Free Zone does not have a regulation that addresses DAOs specifically, the DMCC and the SCA signed an MoU in 2021 establishing a regulatory framework that offers the possibility for crypto businesses to operate as an LLC in DMCC.[275] Accordingly, blockchain and crypto businesses have the possibility to operate as a DMCC LLC and get a license that allows them to trade in crypto commodities such NFTs, or offer other blockchain services.[276]

DAOs operating in the UAE have the possibility to link their DAO to a DMCC entity if they seek more protection for their members and avoid ramifications of trading without being duly licensed in the UAE. For instance, Arts DAO, one of the biggest NFT-based investment projects in the world with wide operations in Dubai, is registered in DMCC as an LLC.[277]

Nonetheless, drawbacks of wrapping a DAO with an LLC such as the need for appointing managers and the administrative constraints to adding or changing members also apply in DMCC as they do in Delaware or any other jurisdiction, in addition to the strong KYC regulations all around UAE. Arts DAO is aware of these limitations and, according to its founding partner, Danosch Zahedi, plans to incorporate an offshore foundation which will run the DAO at a later stage.[278]

5.3.2 Foundation in DIFC

Since 2018, the DIFC offers the option of setting up a self-owned foundation with principals generally similar to those of the Cayman Islands and Switzerland, such as a fluid governance structure and high degree of autonomy.[279] Furthermore, to the benefit of venture DAOs, DIFC

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[275] 'MoU signed between SCA and DMCC' (29 March 2021) SCA <https://www.sca.gov.ae/en/media-center/news/29/3/2021/mou-between-dmcc-and-sca.aspx> accessed 28 December 2022.

[276] DMCC https://landing.dmcc.ae/cryptocentre.

[277] Arts DAO <https://artsdao.xyz/>.

[278] Danosch Zahedi 'Who Let The DAOs Out' Capital Club Dubai <https://capitalclubdubai.com/content_library/insights-who-let-the-daos-out/> accessed 14 January 2023. ADNFT DMCC.

[279] DIFC Law No. 3 of 2018.

foundations may also own property in Dubai. [280] Given the above-noted parallels between the principles of foundations and DAOs, linking a DAO to a DIFC foundation is worth mentioning as an option for DAOs in Dubai, although it might not desirable. For one, the DIFC foundations require the appointment of at least two council members to administer the property of the foundation and to carry out its objects and who owe fiduciary duties of loyalty and care.[281] Therefore, similar to other foundations, DAOs will have to give up full decentralization.

Moreover, the DIFC Foundation framework was primarily designed to provide a mechanism for family business succession planning, wealth management and asset protection in the UAE.[282] As far as we know, this structure is not tested yet for blockchain businesses or DAOs, therefore offering less certainty in comparison to foundation setups in other jurisdictions. It is also not to DAO's advantage to have their presence within the jurisdiction of DFSA and fall under DIFC security regulations.

5.3.3 Offshore in Jebel Ali Free Zone

A number of Free Zones in the UAE, like Jebel Ali in Dubai, offer businesses the possibility to incorporate an offshore entity, which may not be operational, but can own property and act as a holding company for other subsidiaries inside or outside the UAE. A Jebel Ali offshore company is relatively easy to set up and doesn't require an official address like other UAE entities, but should appoint a registered agent.[283] Furthermore, offshore companies in UAE are tax-exempt and can offer limited liability with a high level of confidentiality. However, a Jebel Ali offshore again requires the appointment of at least one director and one secretary, in addition to screening potential shareholders by the Crime Investigation Department (CID),[284] which doesn't give it any advantage over the other DAO wrapper possibilities.

[280] The Dubai Land Department (DLD) and the Dubai International Financial Centre (DIFC) entered into a Memorandum of Understanding (MOU) allowing DIFC-based entities to own property registered with the DLD.
[281] DIFC Law No. 3 of 2018, Part 3,22.
[282] Izabella Szadkowska 'The Ownership of Real Estate Assets in Dubai by a DIFC Foundation' (May 2019) <https://www.tamimi.com/law-update-articles/the-ownership-of-real-estate-assets-in-dubai-by-a-difc-foundation/#:~:text=A%20DIFC%20Foundation%20is%20normally,is%20'self%2Downed'.> accessed 15 January 2023.
[283] Jebel Ali Free Zone Authority Offshore Companies Regulations of 2018.
[284] ibid.

As can be seen, although some options exist in the UAE, none of them is to DAOs convenience in their current shape, unless they were subject to some modifications in the future to give room for more flexible governance and fewer KYC requirements.

5.4 Concluding Observations

All considered, we note that different DAO legal wrappers impose different regulatory terms and call for varying degrees of centralization, creating fractions with the core values of DAOs. Up to date, no corporate structure could accommodate fully decentralized ecosystems built on a trustless, pseudonymous infrastructure. For some founders, such formality runs counter the objective of DAOs, which are meant to be democratic, non-hierarchical, and have a fluid membership base.[285] Others who believe there is no need to regulate DAOs, aspiring to escape State's interference, will disapprove of any attempt of being subject to authority control.

Nonetheless, in the absence of an adequate legal framework, establishing a legal presence in the shape of a legal wrapper is vital for fostering the potential of righteous DAOs. On top of the most-desired protection from liability exposure, a recognized legal entity with a vivid structure and recognizable points of control provides means for the intervention of laws and regulations, thus creating legal assurances to investors, governments, and third parties making DAOs safer to deal with or invest in. Moreover, connecting a DAO with a legal entity is essential on the practical side as it can create a medium for DAOs to enter into contractual agreements, pay taxes, buy property or lawfully deal in any other way with the real-world.[286] Furthermore, connecting a decentralized governance with perceivable centralized governance, and creating a somehow hybrid structure gives the benefits of both worlds, as it maintains decentralization on a functionality level, but reduces its legal risks on an official level.[287]

DAO founders ought to weigh the advantages of wrapping the DAO with legal personhood, and the disadvantages of conforming to authorities and partially giving up DAOs principles, based on considerations such as the objective of the DAO and the risks associated. It is advisable for DAO founders to carefully consider their choice of legal wrapper and jurisdiction, as well as any potential legal or regulatory implications, before establishing a presence in a particular location.

[285] Brummer and Seira (n 256) 8
[286] ibid.
[287] DAO of DAOs (n 210) 13.

Experimentation with different legal wrappers that has not been carefully thought through could result in a chaotic trail of intercontinental setups and dissolutions, which may lead to legal, regulatory, and operational challenges for the DAO.

Conclusion

The emergence of DAOs as a new form of organization that can be governed using blockchain technology without intermediaries, and their increased use as an investment tool, has brought significant legal challenges for regulators, investors, and DAO founders. While the promises of efficiency, transparency, and democratic governance are attractive, the rigidity of the decentralized and coded governance creates a significant barrier to the interference of laws and regulations. The thesis aims to analyze the legal and regulatory implications of DAOs and provide a comprehensive analysis of the treatment of DAOs in two important legal systems, the U.S. and the UAE, focusing on the Emirate of Dubai.

DAOs are unique due to their decentralized and autonomous nature which poses difficulties when it comes to creating an appropriate legal framework. This is because they rely, at least partially, on the "code is law" principle, which means that their operations are governed by immutable and self-executing code, leaving minimal means for the law or courts to intervene. Additionally, the lack of centralized control associated with complete decentralization creates governance and accountability issues. As a result, creating new laws to govern DAOs is a complex issue that requires careful consideration as the unprecedented principles of DAOs make them incompatible with the current organizational structures and regulatory requirements.

To better understand the challenges in regulating DAOs, the thesis analyzes recent U.S. state laws in Wyoming and Tennessee that permit the registration of DAO LLCs. While these laws attempt to incorporate certain aspects of DAOs, such as distinguishing various levels of autonomy and giving presence to smart contracts, they are criticized for falling short of capturing the true nature of DAOs and failing to demonstrate a comprehensive understanding of their operational mechanisms.

For the purpose of the comparative study, the thesis explores the legal environment in the UAE to determine whether the country has the potential to recognize DAOs as legal entities, similar to the U.S. states. The findings reveal that although the UAE has taken an active approach towards promoting the adoption of blockchain technology and has established legal frameworks to support the crypto industry, the legal status of DAOs is not yet clear, with no specific regulatory framework governing them. Moreover, the UAE imposes ownership restrictions and security concerns that need to be addressed before recognizing borderless organizations with pseudonymous membership. The challenges of complete decentralization and autonomy in compliance with Know your Client (KYC), Anti Money Laundry (AML), and Counter-Terrorism Financing (CTF) regulatory requirements also need to be addressed. These challenges make it difficult for the UAE to recognize DAOs as legal entities.

It is clear that both the UAE and the U.S., are still in the process of resolving how to treat DAOs, and security authorities in both have expressed concerns regarding the unofficial trading of securities. Therefore, neither country has shown a clear consensus on the concept of DAOs. However, while some states have recognized DAOs as legal entities, the UAE has yet to officially address DAOs and their legal status. Furthermore, while the U.S. has already taken enforcement action against several DAOs for violating securities laws, there is no official information on whether the UAE plans to take any similar actions or provide legal recognition for DAOs. Nevertheless, given the increasing interest and adoption of blockchain technology in the UAE, it is very likely that the legal status of DAOs will be addressed in the near future. Therefore, it is important for the UAE to carefully consider its approach to recognizing DAOs.

If the UAE decides to recognize DAOs as legal entities, it is crucial to establish a clear legal framework that defines their legal status, as well as their rights and obligations towards investors. The legal framework should address the challenges associated with DAOs, such as governance and accountability issues and compliance with regulatory requirements.

First and foremost, the law should establish measures to ensure DAO’s compliance with AML and KYC rules to ensure that they are not facilitating illegal activities or engaging in money laundering. This might be particularly challenging for DAOs to adhere to while maintaining the autonomy and anonymity of members. If DAOs were unable to develop technologies that allow them to comply while preserving members' anonymity, DAOs should give up this anonymity and make sure only recognized individuals could be members.

Furthermore, any potential law should prioritize the protection of DAO members and investors. A legal framework should mandate that DAOs disclose their internal governance and decision-making processes to achieve this. This should include information on the level of involvement of each member in management to identify points of responsibility in cases of mismanagement. Without this information, legal action may be taken against members who are assumed to have played a role due to the decentralized nature of the organization, when in fact major decisions were made by others.

DAOs should also consider making compromises where needed. This involves adopting some level of centralization in a hybrid model to comply with regulatory requirements. DAOs could maintain their core governance features in operations, such as decentralized decision-making, transparency, and egalitarianism while being open to adopting more centralization at an organizational level. Compromising a level of decentralization will also enable DAOs to operate, through a DAO legal wrapper, in certain countries where they are not yet explicitly recognized.

To ensure regulatory compliance, it is important for DAO founders to also be transparent about the level of centralization in their organization and highlight actual points of responsibility instead of demanding regulatory treatment that caters to complete decentralization when, in fact, they are not committed to it themselves.

The thesis also emphasizes the role of founders to build trust by embracing regulation and accountability. Given that the DAO itself provides minimal means for the law to step in, and until an adequate legal framework is in place, DAO founders need to link their DAOs to a recognizable real-world corporate form. This legal wrapper can provide clear points of responsibilities, and which can be subject to KYC, AML and CTF rules, and abide by market integrity and consumer protection regulations. It is important to note that unregistered DAOs pose potential risks and challenges, particularly in terms of subjecting their members to personal liability. The thesis underlines the need for both governments and founders to recognize these risks and challenges and take appropriate measures to address them.

Until legal enforcement concerns are resolved, there would be a definite need for countries to consider alternative channels for managing the risks associated with the misuse of DAOs. One strategy is to raise public awareness of the legal uncertainties surrounding DAOs. This includes highlighting the risks of personal liability exposure and fraudulent activities, particularly for small investors with limited legal knowledge who may be lured by the prospect of rapid profit gain. By providing clear and accessible information about the risks of engaging with unregistered DAOs, states can help protect investors and discourage illegitimate utilization of this innovative organizational model.

Finally, in addition to exploring the legal recognition of DAOs, legislators could gradually integrate certain aspects of autonomy and decentralized governance into existing corporate and organizational frameworks. For instance, the thesis suggests introducing algorithmic governance as a complementary tool to support traditional corporate governance. This could involve allowing AI technology to serve as one or more directors within a company, even though they lack legal personality.

Overall, it is now an opportune moment for regulators and law makers to collaborate with the private sector in the blockchain industry to create a well-defined legal and regulatory framework for DAOs, which addresses the challenges, while also acknowledges their innovative approach to organizing.

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Acknowledgment

I am deeply grateful to my thesis supervisor, Anne-Kathrin Lalendran, for her invaluable support, patience and guidance throughout my research. Her expertise and feedback played a significant role in the development of my research.

I also want to acknowledge the unwavering support and patience of my spouse and family, who have been a constant source of strength throughout my academic journey. Special thanks to Adil Gwiazdowski for introducing me to the world of DAOs, and to my colleague and friend, Lara, for her constructive feedback.