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NFTs, DAOs AND SMART CONTRACTS, WHERE IS THE DECENTRALISATION?

Marica Ciantar
Centre for Distributed Ledger technologies, University of Malta, Malta

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ABSTRACT

DAOs, decentralised autonomous organisations, you have the power, right? Well, like most other matters now-a-days, it depends.
Oftentimes, the relationship between NFTs and DAOs is intertwined as a DAO may be set up with the purpose of creating NFTs or else, one may buy an NFT to become a DAO member. Both DAOs and NFTs make use of smart contracts on a blockchain. The purpose of this paper is to answer the following questions: How decentralised is a DAO? What is the role of NFTs within a DAO? How can NFTs enhance the workings of a truly decentralised autonomous organisation?
The author believes that decentralisation should stop being used as a hype word in the blockchain sphere and discusses about certain problems regarding centralised and decentralised points in a DAO, whether they realised or not. Both the Maltese Innovative Technology Arrangement and Services Act and the Wyoming Decentralized Autonomous Organizations Supplement will serve as focus as these laws directly regulate DAOs and in turn serve as a means to protect the member and the client of the DAO, and their NFTs.

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1. INTRODUCTION

This paper will discuss the novelties just some of the novelties brought about by Web3, these being, non-fungible tokens (NFTs), decentralised autonomous organisations (DAOs) and smart contracts. A discussion on these is important as they are on the route to change companies and organisations as we know it, to a degree at least. Focus will be on the tri-partite relationship between NFTs, DAOs and smart contracts and the role of NFTS within DAOs. Hence, there will be an exploration of how NFTs can operate within a DAO, enhance its workings, and potentially fix any shortcomings of the DAO. Furthermore, an important conversation will be held as regards the decentralisation of DAOs and how NFTs may be a potential solution for such.

A company willing to dip its toes into such innovations are more likely to stay relevant and may also create a buzz around it for some time which has the potential of increasing sales and clients. An example of such company is Budweiser. During the 2022 Super Bowl commercial titled "Zero in the Way of Possibility" showed a man in an art museum staring at a painting of a woman with an animated pair of blue glasses. This establishing the relationship between the Nouns DAO and Budweiser.

This decision to collaborate was passed by the Nounders who decided to buy back a Noun and gift it to Budweiser which changed its Twitter profile picture to the image of the pixelated beer mug and feature the Nouns glasses during the Super Bowl. This deal was done entirely on Ethereum with cryptocurrency hence, the transaction can be viewed and verified by all. In addition to this, Budweiser is now part of the Nouns DAO and as a Nounder has all rights pertaining thereto [18].

This example is perfect as it incorporates DAOs, NFTs and smart contracts which are the focus of this paper. It also shows that DAOs and companies may work together with collaborations potentially improving the image of both.

2. SOME DEFINITIONS

Before moving forward, it is important to give some definitions to the terms being used as some carry different meanings to different persons.

DAOs, smart contracts and NFTs promise transparency, however it is important to distinguish between actual transparency and technical transparency. Seeing the code is one thing however being able

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to read and understanding its nuances and capabilities is entirely another. It may be argued that only seasoned developers can claim to fully comprehend the code and its functionalities hence, for non-experts understanding the code can be challenging. Nonetheless, technical transparency allows a better degree of understanding than no transparency and offers a unique level of openness and accountability which more traditional organisations or companies may not always have.

2.1 Non-Fungible Tokens (NFTs)

An NFT may be described as a digital certificate on the blockchain associating a user with an image with each differing from the other according to its metadata and unique identifiers, hence each NFT is distinct from the other [25].

Gayton and Murray describe a fundamental difference between tokens and NFTs which, albeit sometimes used interchangeably, tokens are fungible and interchangeable whilst NFTs are unique and non-interchangeable. With regards DAOs, the NFTs uniqueness lies in the fact that it can be used to vote in one DAO but not another [9].

2.2 Smart Contracts

Nick Szabo is the father of smart contracts describing them as, "computerised transaction protocols that execute the terms of a contract" which work in an accelerated way to verify or execute digital negotiations and enable peer-to-peer transactions between individuals [25]. Smart contracts "enhance security, increase transparency and reduce the ability for individuals or small groups to break policies or rules via automation…(hence they) allows DAPs to automate a host of actions of certain conditions are satisfied." [17]

Smart contracts and NFTs are fundamental in the operations of a DAO as tokens may be in the form of NFTs which may be brought via smart contracts from the DAO itself or any other point allowed by it. NFTs have multiple uses within a DAO ranging from being used as currency, voting tokens and so on. Smart contracts and NFTs enable transparency, security and efficiency within the DAO.

2.3 Decentralised Autonomous Organisations (DAOs)

More contradictions lie when it comes to giving a definition to DAOs however each definition gives a different shade to what a DAO is.

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In their purest form, DAOs are an organisation, hence a group of people with a common mindset or goal. They are autonomous meaning that the organisation uses automated means such as smart contracts and hence, operate on the blockchain via smart contracts thus ensuring transparency and trust without the need to trust a third party. Lastly, DAOs are decentralised hence there is no centralised authority making the decisions hence, the failure of one member will not lead to the organisation's collapse [31], unlike what happens to companies upon the failure of its director. However, this perfect theory is, by far, further than the practical reality for a number of reasons which will be described hereunder.

According to Murray et al, DAOS are organisations "managed entirely through protocols that are encoded and enforced via smart contracts rather than human beings". They continue that DAOs "create opportunities for individuals to quickly and securely organise, raise funds and govern themselves while maintaining anonymity or pseudonymity." [17]

Jack du Rose (2016) gives a further definition to a DAO, describing such as "a type of decentralised application which incentivises its users to engage in activity which furthers its agreed business objectives by enabling them to work together without requiring them to trust one another." [31]

Chohan focuses on the more technological side of the DAO thus describes it as an "organization that is run through rules encoded as computer programs called smart contracts" governed by "pre-programmed algorithms that are executed by computers based on code." [4]

A similar approach is adopted by De Fillippi and Wright which describe a DAO as a "particular kind of decentralised organisation that is neither run nor controlled by any person but entirely by code. As opposed to other decentralised organisations – which are operated by individuals who had the ultimate decision-making power – DAOs are designed to run autonomously on a blockchain." [5] They emphasis how a DAOs activities are determined by the blockchain's protocol with the smart contracts dictating how the organisation makes the decisions and how the DAOs interact with the outside world. They continue that the nature of the blockchain network further ensures that all codified clauses perform as planned [5].

DAO enthusiasts define DAOs as a "dynamic set of working relationships that continuously and dynamically self-organize around projects and outcomes" hence, creating an environment wherein members are incentivised to engage in activities without the requirement of trust. Since they assume that members are there to contribute to the community, "the purpose of the business is to undertake economic

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activities in the interest of its worker-members, rather than to make a profit for the cooperative itself or external investors." [31]

In this author's opinion, a DAO may be defined as a blockchain-based organisation which operates via the use of smart contracts. The organisation's autonomy and decentralisation are subject to the preferences of its members and founders and can benefit as either a non-profit or a profitable entity. Hence, albeit ideally a DAO is a decentralised and autonomous organisation, in practical scenarios, a spectrum exists which ranges from complete centralisation to complete decentralisation and an entity will position itself on this spectrum based on its preferences and requirements. This in turn will dictate the level of atomisation and the type of organisation appropriate for that entity's particular mission.

3. INFLUENCES WITHIN A DAO

Lawrence Lessig identified four ways of regulating behaviour and these include law, social norms, market forces and architecture with each mode being interdependent and effecting the other. Laws are typically enforced by governments and courts, market forces include economic incentives and gaps in the market, social norms are the unwritten rules of behaviour and architecture refers to the physical spaces, which on the internet/blockchain is more commonly referred to as the code [12].

These four factors of regulating behaviour also influence the behaviour of DAO members and how a DAO is programmed to act. Hence, they are present before the birth of the DAO, during its life and at the end thereof. Furthermore, they are ingrained within the workings of the DAO, including the human element which is ever present and may also possibly lead to a point of centralisation within the DAO, as will be discussed below.

It is a misconception that blockchain is unregulated. The law will punish those who do not comply with the laws apply to blockchain which include, but are not limited to, consumer protection laws, employment laws, copyright laws and so on. Regulation deters persons from engaging in mischievous behaviour on the blockchain and such deterrent is quite important especially in light of the recent scandals, such as the FTX saga. Nevertheless, the law should strike a balance as not to halt innovation whilst still protecting blockchain users, including DAO members.

Social norms are enforced by the DAO community which dictates what is deemed acceptable within the group and what is not. The social norms of the DAO's members can be a reflect of its ethos,

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for example when a DAO is set up for charitable purpose as opposed to a DAO set up to defraud persons. In either case, there is a community of persons who stick together to achieve a common goal. There are instances wherein, within the community, regardless of pseudonymity, influential members may hold sway over others' votes, making the community dynamic crucial to the DAO's success. Furthermore, as will be discussed later, such will prove to be a centralised point within the DAO.

A significant role is also played by the market which may be the reason for the DAOs formation. For example, a DAO may be set up to address a gap in the market, to make a profit by providing a particular service or product which is in high demand or due to there being some other favourable market condition. The market may also determine whether a DAO is a success or else a failure. The DAO must be able to, via governance or code, pivot in response to certain changes in the market and be agile in response to economic fluctuations.

The code, which Lessig terms the architecture, is very important in the workings of the DAO since the DAO is built entirely out of code, from the blockchain it is built on and the smart contracts coded to determine how the DAO will work and enable the transactions and voting mechanisms, amongst other things. Hence, code is central to the operations of a DAO. Nevertheless, there are many limitations and risks and some even argue that code is bound to fail. since code cannot be changed such is a double-edged sword as it guarantees that things will work as intended however any potential bugs cannot be addressed unless specifically provided for and allowed in the code. Furthermore, in a proper DAO any changes to the code requires an overwhelming majority hence, there is no central authority which unilaterally changes the foundation on which the DAO is based.

4. DECENTRALISATION OF DAOS – A HOAX?

As help by Gayton and Murray, “most DAOs are decentralized in name only.” [9] As stated earlier the perfect and purest way of a DAO to operate is via automated means, through an organisation and with no centralised actor calling the shots. Hence, DAOs offer the promise of a democratic utopia however this is not always the case due to various issues, such as liability in the case of lawsuits or for legal compliance.

Tying back with Lessig’s modes of regulating behaviour, certain factors may have an overwhelming amount influence on others. A particular example of this is certain DAOs wherein a particular member has an overwhelming amount of influence with the organisation due to being regarded

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highly. Another example is having the code allowing the DAO to veto certain decisions. These can all skew with the decentralisation of the DAO showing that the reality of decision-making is more nuanced than simple democracy due to the various factors which influence the outcome [31].

Speaking about decentralisation in the blockchain space is crucial as, especially with DAOs, similar to what happened to the internet and ISPs, "[n]o matter how decentralized a service is to start with, left to itself, things eventually tend towards centralization" [15]. This may be due to a number of reasons including that, "centralisation is the best means to wealth and power [23]. Tse confirms the probability of DAOs acting in a centralised manner, "DAOs will likely witness increasingly centralised token holder bases, and moreover, increased power in the hands of controlling token holders." [31]

In this author's opinion, a degree of centralisation is inevitable however hope remains that it will be limited to adhere to the philosophy behind the idea of the blockchain. Certain centralised actors may be realised, such as some exchanges or mining pools whilst others are not as recognised, such as the developer's role in writing the code on which the blockchain, smart contracts and DAOs run upon, as will be described hereunder.

4.1 The Development Team

For any project, a development team is important to create the initial framework. In the blockchain sphere, developers are even more crucial as they are the ones who write the code, the rules and architecture so to say. Hence, even in fully decentralised autonomous organisations, there is always the initial human element at a point in time. As Tse points out, centralisation during the birth of the DAO is the most efficient way forward as initiators are in the best position to achieve their goals, he holds that "All of these DAOs were established by a centralized development team or person, including Bitcoin's Satoshi Nakamoto." [31] Hence, developers have the potential to be able to hold a significant amount of power, the effects of which are long lasting and determine the decisions which can be taken and how such decisions may be taken. Developers may determine also the immutability of the code hence they may also determine whether the community may bring about any changes to it or whether it absolutely cannot be changed. Hence, the development team determines the parameters within which the community acts, giving them a direct way of effectively restricting the actions of members. This puts the development team in a critical role when determining the power dynamics within the DAO.

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Upon deployment on the blockchain, members of a DAO place their trust in the developers who wrote the code and also in the code of the underlying blockchain. Such trust can be fragile if the developers misuse their power or act in ways which harm the DAO. This factor is often overlooked, and persons blindly trust that the code would perform as intended or perceived by them. Members trust that the code is bug-free, contains sufficient decentralised governance mechanisms and is safe for them to use. Hence, maliciousness is not automatically presumed when one interacts with a DAO [31].

There are those who argue centralization issues can be mitigated once the DAO is launched, however, studies show that individuals tend to have a strong status quo bias. Therefore, it ultimately depends on the development team's decision to retain their decision-making power, despite any economic or psychological factors at play [31]. Furthermore, the degree of centralisation or decentralisation may reflect the development team's integrity and intentions since it is in their total control, and they are in a position wherein they can potentially exploit any code weaknesses or loopholes to scam the token holders.

However, there are other, more reasonable, and justifiable reasons why developers may wish to retain a degree of centralisation. Some of the reasons may be that they wish to control how the DAO is operating and ensure that it is following the intended path, try to ensure its success and also to protect against malicious behaviour.

4.2 The One-Token-One-Vote System

The one-token-one-vote system may be exploited by someone who holds a majority amount of tokens. If one person holds most of the tokens, they may influence the outcome of the vote in a negative manner and for ignoble purposes such as to benefit themselves at the expense of other members or at the expense of the DAO itself. According to Kaal, this problem may be circumvented by more mature voting systems such as, quadratic voting, futarchy, liquid democracy, conviction voting, and reputation-based voting. These aim to balance the risks and rewards of voting and prevent exploitation by majority token holders [10].

The problem presented by the one-token-one-vote system is also presented in traditional limited liability companies wherein majority shareholders act at the expense of others. The law provides safeguards for the prejudiced minority shareholders. A classic case is that of Ebrahimi vs Westbourne Galleries Ltd [1973] AC 360 (HL) wherein a partnership was formed by Ebrahimi and another who were

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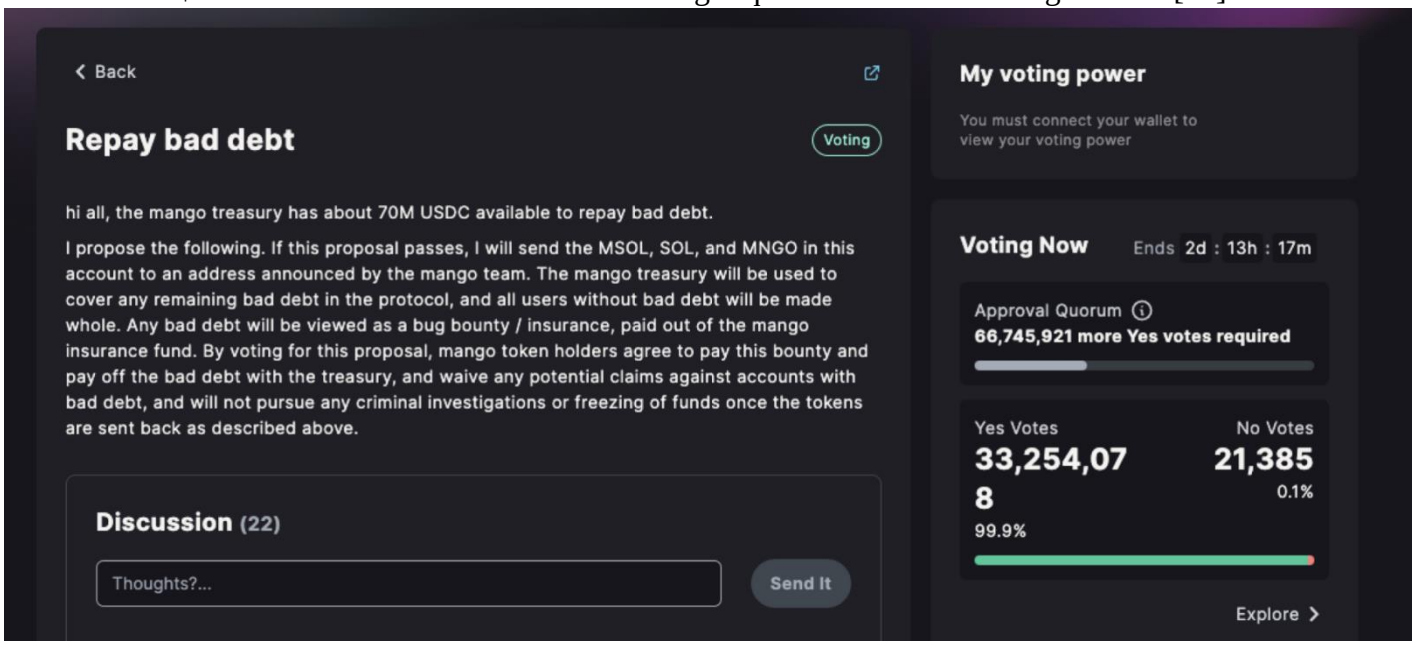
directors. Afterwards, the son of the other director also became a director resulting in them holding the majority of the shares. They used their powerful position to vote Ebrahimi out of office who therefore requested for a winding-up order before the House of Lords which held that the typical requirements of a quasi-partnership were breached. Hence, the House held that there was a violation of the mutual trust and confidence which shareholders should have, hence the House of Lords ordered the winding up of the business. Lord Wilberforce held that this remedy can be given when there are small private companies described as quasi-partnerships and situations such as the following,

"(i) an association formed or continued on the basis of a personal relationship, involving mutual confidence – this element will often be found where a pre-existing partnership has been converted into a limited company;

(ii) an agreement, or understanding, that all, or some (for there may be "sleeping members") of the shareholders shall participate in the conduct of the business;

(iii) restriction upon the transfer of the members' interest in the company – so that if confidence is lost, or one member is removed from management, he cannot take out his stake and go elsewhere" [28].

A blockchain related incident which shows the danger of the one-token-one-vote system is the recent episode surrounding the Solana-based Mango Market's DAO. In October 2022, an exploit in the protocol of the DAO allowed hackers to steal over $100 million from the DAO leaving the treasury with a deficit of $116.7 million and with the hacker having acquired 438 million Mango tokens [14]. The hacker



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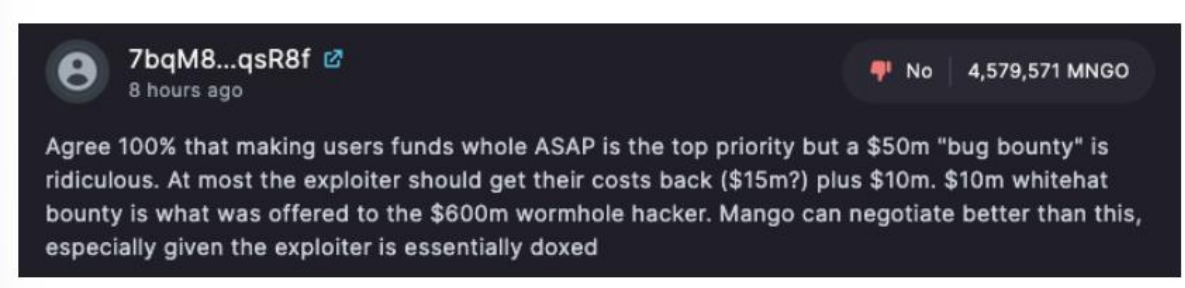
proposed his own solution by demanding a settlement in the DAO's governance forum which read that "Within 12 hours of the proposal opening, you shall send back the assets other than USDC, MSOL, MNGO, and SOL as a show of good faith," and continues that "The remaining assets shall be sent within 12 hours once the vote is complete and passes" [20] [24].



Following the proposal, the vote passed, and the hacker agreed to return the stolen funds, a move that investors such as Tyler Reynolds considered to be "monoric" [7] [29].

However, the hacker, found out to be Avraham Eisenberg is currently facing the possibility of being held liable under both criminal and civil law for his actions. The representatives for the DAO held that the proposal which passed violated contract law due to the duress/violence experienced by those who voted in the affirmative. Under criminal law he has been accused of having, "wilfully and knowingly, directly and indirectly, used and employed, and attempted to use and employ, in connection with a swap, a contract of sale of a commodity in interstate commerce, and for future delivery on and subject to the rules of a registered entity, a manipulative and deceptive device and contrivance", commodities manipulation and wire fraud [29].

This continues to show that, as held perfectly by the McMillan lawyers, "In their isolated system the votes undoubtedly seem powerful, and they are in a business sense as they operate as a cooperative of sorts aggregating purchasing power…But that doesn't mean that a DAO proposal and vote can cure all ills: like it or not, that's what the courts are for" [19].

5. GOVERNANCE WITHIN A DAO

NFTs and DAOs share a symbiotic relationship as each may benefit the other. NFTs allow DAO members access to make meaningful changes within the DAO whilst the DAO may provide the

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governance needed to support the NFT communities. Sometimes NFTs may also have their own DAOs. Hence, there is a dynamic relationship where NFTs and DAOs co-operate to promote the objective sought in an interdependent relationship between them which reveals a complex web of interaction and dependencies that shape the digital landscape [25].

Thus, this is why it is important to have a conversation on how NFTs may help in the governance of a DAO.

A DAO proposal is a suggestion put forward by a member of the community so that the other members of the DAO see whether it is something they want to pursue as a DAO or not. Proposals may be various and of different importance and can range from changes to the DAO's code to suggestions for community events.

The way a proposal is voted on depends on the specific DAO. In certain DAOs, all token holders have the right to vote on proposals whilst in other DAOs there is threshold which the number of votes must reach. The way that proposals and voting are put forth is determined by the development team, initially, but the DAO may put up a proposal to change the way proposing and voting can be done. Due to the possibility of an overwhelming number of proposals, certain DAOs may require payment or the use of NFTs to make a proposal, which helps to discourage superficial proposals, such system has been taken up by Dash [26].

Depending on the underlying code, proposals may be brought forward depending on the type of NFTs one has and the same applies for voting. Tokens may be bought or else acquired in other ways, such as being awarded as a 'reputation award' for the work the holder has performed within the DAO. Tokens, which may be in the form of NFTs, allow members to steer the DAO in the direction they wish for it to be steered, save for any limitations present within the code [26]. For example, in Tezos, there are rounds of voting to determine which, if any, are adopted.

Voting allows the members to have a say in which the DAO is steered. However, reference here is made again to Lessig's ways of regulating behaviour. It cannot be said with absolute certainty that decisions are taken freely as there are a number of psychological, social and environmental factors come which come into play.

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In addition to the one vote per token system described above there are various other problems in a DAO which concern voting, such as voter apathy. To encourage participation in a DAO, there may be certain incentives for voting however these may lead to careless or irrational voting which may lead to the DAO not operating well and being negatively affected [31]. Therefore, there is a fine line to thread when it comes to deciding the best way forward to ensuring that voting is done in a proper and educated manner allowing the DAO to prosper.

According to Kaham and Rock, a voter with no economic interest to vote may either, not vote, cast a less informed vote, look at how one with an economic interest voted and vote in a similar way or be influenced by extrinsic factors [2].

A way of ensuring more educated votes is via liquid democracy which allows members to delegate their vote to another member. A DAO making use of such type of democracy includes Tezos wherein bakers (delegates) vote on behalf of participants. However, Tse holds that this may make it difficult for the member to know whether the vote was correctly used or not.

Buying votes is another potential issue within a DAO but DAOs can impose voting restrictions for tokens which have been recently traded, however this can be circumvented through malicious off-chain deals. Some DAOs address this issue by giving royalty funds to the community through the DAO, thus helping to align incentives and discourage buying of votes [31].

According to Tse, the transparency offered by the blockchain provides safeguards against malicious activities by majority token holders, however challenges are present due to the anonymity or pseudonymity of identities. To address this issue, the DAO could implement voting ceilings hardwired into the smart contract's code. Nevertheless, this approach may lead to issues of disproportionate control and potential manipulation through the use of multiple addresses [31].

6. THE LAWS

We clear have a limitation regarding the use of colours, particularly if we consider our logo colors. We could apply darker versions of the journal colours and give it a modern look. We also will need to spend money if we want to create a QR Code for our journal.

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As this paper suggests, regulation play a key role in ensuring protection against fraudulent activities or unintentional errors. The law is important in preventing both fraudulent and unintentional acts and help in reducing the risks faced by members whilst also providing a remedy when members are being prejudiced. Hence, the law can protect members by providing both remedies and preventative measures to safeguard them against possible prejudices.

The law may unfortunately be viewed as an obstacle to the project's success and hype however, on the contrary, it should serve as an essential tool to facilitate the project's success, compliance and smooth operation in the real world where blockchain activities are being regulated.

In this context we will explore two jurisdictions, namely Malta and Wyoming, where regulations have been implemented to govern the operations of blockchain based projects which include DAOs.

6.1 The Maltese Innovative Technology Arrangements and Services Act

Malta has regulated DAOs through the Innovative Technology Arrangements and Services Act (ITASA), by regulating technology arrangements which DAOs are categorised under. The Malta Digital Innovation Authority (MDIA) is responsible for overseeing these arrangements and ensuring compliance with regulations. While all DAOs are considered technology arrangements under Maltese law, not all technology arrangements are categorised as DAOs hence there may be similar innovative technology arrangements regulated the same as DAOs. For the purpose of this article, the terms 'DAOs' and 'innovative technology arrangements' will be used interchangeably [11].[1] To get certification under ITASA, DAOs and other technological arrangements must adhere to certain general requirements such as compliance with the standards of legality, integrity, transparency, compliance, and accountability and the MDIA must confirm that there are no grounds for refusal of authorization and assess all documentation and software accessible to users of the arrangement. If requirements are met certification is granted thus establishing a high level of trust and credibility among users and stakeholders [11].[2]

To ensure that the innovative technology arrangement is appropriate for its intended purpose, the MDIA must also ensure its fitness and suitability based on the information provided in the application. Hence, this includes verifying that the technology has the qualities, attributes, features, behaviours, or

[1] First Schedule (Articles 2 and 8)
[2] article 8.

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aspects as declared. Should the technology be owned or controlled by a legal organisation, the MDIA will assess the fitness and propriety of the administrator and shareholders with over 25% shares or ownership interests or rights allocating effective control. Additionally, the software must undergo an independent review by a registered systems auditor approved by the MDIA. This would ensure that the code is thoroughly assessed by a party who is free from any involvement or interests in the DAO. These strict standards allow the MDIA to uphold a high standard of quality and maintain the trust of all stakeholders.

The independent systems auditor must perform a comprehensive review of the DAO to ensure that it meets the reasonable standards required for its purposes, qualities, features, attributes, behaviours, or aspects and ensure that it is working as intended. The DAO must also maintain a registered technical administrator and provide evidence to the MDIA that it meets all prerequisites for certification, adheres to standards, and can address critical matters. The DAO must be capable of modifying parameters or functionalities in response to future legal requirements and must have measures in place ensuring correct operations. The MDIA or a designated person should be allowed to intervene in the workings of the DAO or technological arrangement when this is considered necessary.

Furthermore, it is essential that the DAO complies with all applicable laws and guidelines, is capable of carrying out its legal obligations and has in-built technology features which allow the technical administrator to intervene transparently and effectively should there be a material cause of loss to a user or a material breach of the law. Thus ensuring that any loss or breach of law is addressed immediately, and measures are implemented to prevent future occurrences.

The MDIA requires that all purposes, qualities, features, attributes, limitations, conditions, terms of service, and behaviours or aspects of the DAO be communicated in English and in an easily accessible and comprehensible format. This would help ensure clarity and transparency for users and puts them in a position to make an educated choice. In the case of any discrepancy between the English language and the code or other languages used, the English language shall prevail, once again ensuring protection of the members of the DAO.[3]

An important aspect of having a DAO registered in Malta is that it can conduct business in all Member States of the EU due to the EU's obligation to acknowledge the existence of legal entities or

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persons from other Member States. By operating under Maltese law, DAOs can benefit from legal certainty in a grey area while also operating within the EU framework, providing a favourable environment for their operations.

6.2 The Wyoming Decentralised Autonomous Organisations Supplement

The Decentralised Autonomous Organisation Supplement holds that the Wyoming Limited Liability Company Act applies to DAOs, which are defined as, "a limited liability company whose articles of organization contain a statement that the company is a decentralized autonomous organization".[4]

The law in Wyoming allows the conversion of a limited liability company (LLC) into a DAO by amending its articles of organization which should thereafter include a statement indicating that the rights of members in a DAO may differ from those in other LLCs, and that the law may define, reduce, or eliminate fiduciary duties and restrict transfer of ownership interests, withdrawal or resignation from the DAO, return of capital, and dissolution. The name of the DAO should clearly show its status hence, included must be the abbreviation "DAO" or "DAO LLC". [5]

Anybody may form a DAO but such requires the signing and delivering of the articles of organization to the Secretary of State for filing and maintaining a registered agent in Wyoming. A DAO can operate for any lawful purpose, regardless of whether it is for profit or not.[6] The articles of organization and any smart contracts used to manage or operate the DAO govern all aspects of the DAO thus include, transferability of membership interests, withdrawal of membership, distributions to members before dissolution, and procedures for amending or changing the articles of organization and smart contracts.[7]

A DAO can be either member or algorithmically managed, with management vested in members if member-managed, or the smart contract if algorithmically managed, unless otherwise specified in the

[4] State of Wyoming. DAO Supplement. 17-31-104.
[5] ibid
[6] State of Wyoming. (n.d.). DAO Supplement. 17-31-105.
[7] State of Wyoming. (n.d.). DAO Supplement. 17-31-106.

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articles of organization or operating agreement.[8] A DAO may only be algorithmically managed if the underlying smart contracts are able to be updated, modified, or otherwise upgraded.[9]

Members can withdraw according to the articles of organization, smart contracts, or operating agreement. Upon withdrawal, the member shall forfeit of all membership interests in the DAO, including governance or economic rights, unless otherwise provided.[10]

Similar to an LLC, a DAO may also dissolve upon the expiration of a fixed duration, by a vote of the majority of members of a member-managed DAO, or upon the occurrence of events specified in the underlying smart contracts, articles of organization, or operating agreement. A DAO may also dissolve if it does not approve any proposals or take any actions for a year or by order of the Secretary of State if the DAO is no longer performing for a lawful purpose.[11]

The articles of organization and operating agreement of a DAO are effective as statements of authority. If there is a conflict between the articles of organization and operating agreement, the articles of organization take precedence. However, if there is a conflict between the articles of organization and the smart contract, the smart contract takes precedence.[12]

7. FUTURE RESEARCH AND LIMITATIONS

This section will be tackled by making reference to the various DAO projects currently operating as to see whether they are being practical and effective in ensuring the proper running of the DAO and also that decentralisation is maintained. NFTs may enhance the workings of a DAO in a number of different ways, such as through governance or through voting. However, NFTs do not do this alone as the code of the smart contracts, DAO and underlying blockchain must establish an ecosystem where the NFTs work as intended.

[8] State of Wyoming. (n.d.). DAO Supplement. 17-31-109.
[9] ibid
[10] State of Wyoming. (n.d.). DAO Supplement. 17-31-113.
[11] State of Wyoming. (n.d.). DAO Supplement. 17-31-114.
[12] State of Wyoming. (n.d.). DAO Supplement. 17-31-115.

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Shilina's (2021) perspective highlights the potential of NFTs, she holds that "NFTs are the best way of producing and maintaining membership proof for clubs, events, or communities. Since they are blockchain-backed, they can be used as digital tickets to various events as well as exclusive clubs. They may even be used to access limited edition articles and items that are out of reach for many."

There are various types of DAOs, all of which may benefit from the unique properties of NFTs, but the ones most relevant for this paper are collector DAOs which focus on the NFT landscape [25]. In collector DAOs, members contribute to the DAI in exchange for governance rights or ownership of assets thus creating a mutually beneficial relationship between the DAO and its members, who are able to pool their resources and expertise to invest in NFTs and grow the DAO's assets [3].

Explored in this section are various projects making use of NFTs in the governance of DAOs.

7.1 Lunar Society DAO

The Lunar Society DAO, previously known as Moonbirds, is a vehicle to support the PROOF team initiatives. As held by PROOF, "the Lunar Society is being set up as an additional route for funding and licensing, rather than the only route to partnership for brands who want to work with us."[13]

Like other DAOs, the Lunar Society accepts proposals and votes thereon. An innovative way of limiting proposals made is by requiring such proposals to be sponsored by five other NFT holders who are not members of the proposal team thus ensuring that proposals have the backing of other DAO members from the community to stay relevant to be voted upon.[14] Proposals can be made on the following crucial matters which effect the organisation and encompass issues such as grant funding to support the DAO's growth, trademark usage to utilise Moonbirds, Mythics or Oddities names or logo and the key of approval which grants the holder access to the Lunar Society Seal and signposting. Further proposal types should be available in the near futures as to ensure that members have a say in more decisions effecting the organisation.[15]

[13] PROOF of Documentation <https://docs.proof.xyz/society/what-role-does-the-lunar-society-play>
[14] PROOF of Documentation <https://docs.proof.xyz/society/membership-and-voting>
[15] PROOF of Documentation <https://docs.proof.xyz/society/what-role-does-the-lunar-society-play>

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Voting can be done by those who hold Mythics or Moonbirds NFTs. One Moonbirds NFT provides three votes, whilst one Mythic NFT provides one vote thus ensuring that Moonbirds lead the DAO similarly to majority shareholders, and Mythics lead it similarly to minority shareholders in a company.[16]

The Lunar Society DAO promotes open innovation thus allows individuals outside the organization to collaborate with members of the DAO on proposals for projects. However, a community member must be part of the team to represent the proposal in the DAO and join in Discord discussions, however the project's leader need not have an NFT.[17] This approach is beneficial as it allows more opportunities for the DAO to grow and better its operations. Furthermore, open innovation may help the DAO become more popular and thus may encourage more members to join and participate more fully in the organisation.

The Lunar Society DAO has tackled influential voting by keeping voting records private, allowing one to see only his own voting record. This would help in reducing the pressure for individuals to vote in a certain way and may also reduce vote buying.[18] In this author's opinion, albeit this takes away from transparency, the Lunar Society has potentially taken away an influential point within a DAO which may lead to possible centralisation.

Furthermore, the Lunar Society DAO will also start allowing members to delegate their vote to another Society member and albeit such may be done for any reason PROOF "recommend delegation to subject matter experts as well as those sufficiently engaged in the process so as to actively take part in votes." Hence, PROOF allows the members to delegate their votes whilst also issuing a warning that it is important for delegation to be educated and not be abused of. Another safeguard is that there will be a cap on delegation concentration protecting against malicious activity. In addition to this, there will be delegate overrides hence, if by default individuals delegate their voting power, they may then personally vote and upon the happening of this, the delegated vote (which would be the first vote in this case) would be diregarded. This ensures that individuals retain ultimate autonomy over their votes, allowing them to make informed decisions that align with their personal beliefs and preferences. This feature represents a

[16] PROOF of Documentation <https://docs.proof.xyz/society/membership-and-voting>
[17] ibid
[18] Ibid

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significant step towards democratizing decision-making processes within DAOs and fostering a more equitable and inclusive governance system.[19]

7.2 Space Knight Club[20]

Another DAO is the Space Knight Club which "is a 2-layer platform that is both public and private, that aims at giving back 100% of the royalty funds earned by the project back to the community through a DAO process". There are two types of club members, the more privileged private ones (Knights) and the public members (Spacewalkers). Private club members are those with the ultimate control of the project royalties and this is done through multisig (multiple signatures) safe.

NFTs are a big part of the Space Knight project, using them to prove membership, control funds and submit proposals. Spacewalker NFT holders are called spacewalkers and may submit proposals and vote on which proposals should go forwards. They vote via snapshot.org to "avoid manipulation" and is a way the DAO attempts to guarantee community members control of funds. If a proposal gets more than 30 spacewalkers it would be discussed by the Knights (private club members). The Knights are exclusive private club members and if more than half of them agree on a proposal it is executed immediately via the Gnosis multisig safe.

Each Spacewalker NFT has a holding period ranging from 30 to 300 days and Spacewalkers who hold the NFT for such determined period would qualify as a Knight after standing trial or being vouched by existing members. This rigorous way of progressing to the Knight status shows the exclusivity of the Club wherein members are having more of a say on who gets to be in a privileged position, and it is not solely the code and a simple purchase of an NFT which would allow one to start determining the faith of the DAO.

Knights either become owners of the Gnosis multisig safe or else receive their proof of Knighthood via the exclusive Knight NFT which cannot be sold or transferred due to holding certain exclusive privileges. Not having an economic incentive from the sale or transfer of this prestigious NFT would help

[19] PROOF of Documentation <https://docs.proof.xyz/society/membership-and-voting>
[20] Watts, A. (2021). CoinCodex: Mixing DAO and NFTs, the Space Knight Club [SKC] Vision. Newstex.

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curb against those who may wish to attain such Knight status to sell it at a profit thus ultimately helps protect the DAO and its members.

Hence, there are two gatekeepers in this DAO, the Spacewalkers and the Knights, for a proposal to go to the Knights it must be passed through the Spacewalkers and for it to be executed it must be passed through the Knights. This is an effective way of to ensure that meaningful proposals which are likely to have a positive impact on the DAO are passed whilst not overwhelming members with the number of proposals. It also creates a hierarchy in the DAO wherein those who are the most loyal to it are to consider the ultimate fate thereof. This may prove to also be an effective way of ensuring that members are protected from those with ill intentions as to infiltrate the DAO one would need to first go through the required 30 Spacewalkers and then garner half of the Knights support.

7.3 The Nouns DAO[21]

What makes the Nouns DAO particularly innovative is that each Noun is considered an "irrevocable member of the DAO," creating a dynamic system of governance where members are incentivized to remain active and engaged. Furthermore, it is marketed as a platform which will operate in perpetuity with a Noun being once “every day, forever”.

Once one acquires a Noun, such immediately becomes a member of the DAO with rights which are non-transferable but delegable. Nounders, who are Noun holders, may be rewarded with Nouns hence the system work to encourage more participation in the process and thus potentially more loyalty towards the DAO.

The Nouns DAO is not entirely decentralised with a point of centralisation being the Foundation’s "emergency power" veto however such will only operate until the DAO is ready to implement an alternative. Such veto power may prove essential to the workings of a DAO particularly when a proposal poses "non-trivial legal or existential risks" to it or the Foundation.

Although this approach may not be fully automated or perfectly decentralized, it can help safeguard the interests of the DAO and its members. By considering proposals on a case-by-case basis, a human element is retained, ensuring that certain decisions are not solely driven by the code. However, it also

[21] Nouns DAO, <https://nouns.wtf/>

https://doi.org/10.54934/ijlcw.v2i3.58

shows that there are not enough incentives to ensure that a person works in favour of the DAO as there will always the possibility that someone would try to sabotage the DAO.

7.4 Flamingo DAO[22]

The flamingo DAO describes the potential of NFTs perfectly by holding that, "NFTs evolve and ascribe value in the hands of artists, game makers, metaverse creators or dwellers, and DeFi at large. FLAMINGO aims to support, purchase, archive, collect, and potentially tokenize important pieces of this ecosystem." They continue that, "NFTs represent the digitization and financialization of digital property and intellectual property."

The Flamingo DAO prioritises NFTs and shows how they can help in the governance of a DAO by holding that investment strategies are NFT-focused and members may also fractionalise NFT holdings with any NFT purchased having the potential to be "lent, held, displayed in a digital art gallery, or used as collateral in other DeFi platforms" depending on the choice of the members.

Despite relying on member management and decentralized applications, Flamingo has opted to form as a Delaware limited liability company, hence, giving its members more secure protection from liability and minimising fiduciary obligations.[23] In its documents, Flamingo holds that it "is entirely member-directed and managed by the Members through democratic voting." Moreover, there is no general partner and there will not be unless members vote for such however Flamingo holds clearly, that it "wouldn't be in the spirit of things".[24]

The DAO holds clearly that joining it should be an educated choice potentially also including advice from a lawyer and tax advisor. Albeit it is actually a company, Flamingo operates as a DAO by holding that the operating agreement may be amended if half of the members or more thereof vote to approve such amendment. Members may also, by majority vote, wind down Flamingo and members would be responsible for expenses of liquidation.[25]

[22] Flamingo DAO <https://docs.flamingodao.xyz//>
[23] Flamingo DAO <https://docs.flamingodao.xyz/Organization.html#how-is-flamingo-structured>
[24] Flamingo DAO <https://docs.flamingodao.xyz/Investments.html#how-do-members-of-flamingo-make-purchase-decisions>
[25] Flamingo DAO <https://docs.flamingodao.xyz/Dissolution.html>

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Being a member of this DAO is also a privilege with members having to be 'accredited investors' and there being a cap of 100 members. This cap is a precaution taken by the DAO to ensure that, should Flamingo Units be considered securities there would already be compliance. Furthermore, there must be certain checks to ensure the lawful operation of the DAO such as anti-money laundering, Know Your Customer, and Office of Foreign Assets Control checks. [26] Additionally, there is a service provider to take care of the administrative functions hence the developers of the DAOs seem to have structured it in a way which ensures, as much as possible, legal compliance and although this may take away from the perfectly decentralised DAO it provides, in this author's opinion, appropriate safeguards to its members.

Voting rights may be bought and each Flamingo Unit may be sold in blocks of 100,000 and for the price of 60 ETH. Each block would give the member 1% voting rights and 1% pro rata rights to the proceeds. A member will not be able to purchase multiple flamingo units thus creating a centralised point in the DAO as each member can only buy up to 9% Flamingo Units.[27] Members may vote via the Flamingo DApp on decisions related to Flamingo and such is done through smart contracts on the Ethereum blockchain. Similarly, to other DAOs, the member may not be required to vote on all matters and anyone may delegate his vote to another with the member being able to cancel or re-delegate their vote any time.[28]

The documents of Flamingo make it clear that purchases are speculative, involve risk and are made by the members or their delegates. Flamingo will be the holder of all rights secured and members determine how proceeds are distributed and such will be received on a pro-rata basis. Members "reserve the right to fractionalize the NFT for the benefit of each Member, lend the collection to other gaming platforms, or show any purchased NFTs at digital galleries, etc. The Members have full discretion on how the NFTs will be used once acquired."[29]

Should there be the decision to purchase an NFT such will be purchased by the Service Provider or a member on behalf of the members with each purchase being held by Flamingo itself or fractionalised into tokens.

[26] Flamingo DAO <https://docs.flamingodao.xyz/Membership.html>
[27] ibid
[28] Flamingo DAO <https://docs.flamingodao.xyz/VotingRights.html>
[29] Flamingo DAO <https://docs.flamingodao.xyz/Proceeds.html>

https://doi.org/10.54934/ijlcw.v2i3.58

Rage quitting is described as members who withdraw their capital from the Flamingo and such is a right afforded to the members written even in the code of the DApp and smart contracts. Any pro rata portion of unallocated capital will be returned to the member upon rage quitting and the member will not be able to participate further albeit he may sell his interest if other members approve.[30]

Flamingo works with smart contracts to administer activities and help with funding investments, distributing proceeds, voting and so on. The smart contracts have been audited by a number of companies including, ConsenSys Diligence, MolochDAO, and MetaCartel. This would help improve trust in the DAO by the members as there is more assurance that the code would work as intended. furthermore, the code is publicly available hence, members may either employ their own auditors or else be able to make a decision on it themselves.[31]

7.5 Lobster DAO[32]

Lobster DAO started out in an informal manner with persons on the lobsterchat receiving an NFT. They later started using snapshot to become a DAO. Lobster NFTs (10b57e6da0 NFT) were not all allocated in the traditional manner of acquisition, hence, through buying them however most were given to those who contributed to research and known NFT collectors, with the remaining went to governance. For one to acquire a Lobster NFT today, they must either participate in the Lobster Chat or NFT Avenue or else hold a top-tier NFT such as CryptoPunks.

Royalties received by the DAO are split with 30% going to the artists and the remaining going to Governance. The 10b57e6da0 NFT gives holders preferential treatments both off-chain and on-chain as it would allow them to go to conferences and split the collector into metadata as to sponsor or support other projects. Moreover, holders may be able to utilise the extracted metadata and do things such as build games and so on.[33]

Similar to the Lunar Society DAO, the Lobster DAO also requires a minimum of 3 NFT holders' support to create a proposal which may be made by creating an issue to discuss a topic on github and snapshot the proposal.

[30] Flamingo DAO <https://docs.flamingodao.xyz/RageQuitting.html>
[31] Flamingo DAO <https://docs.flamingodao.xyz/SmartContracts.html>
[32] Lobster DAO <https://github.com/lobster-dao/overview>
[33] ibid

https://doi.org/10.54934/ijlcw.v2i3.58

7.6 Planet DAO[34]

Planet DAO is another example of an innovative DAO. It allows members to play and connect in Alien Worlds Metarverse with other NFT holders via Trilium (TLM). NFTs play a central role as players may utilise them to play games on the Binance Smart Chain and WAC. Planet DAO also encourages participation in weekly council elections and proposal submissions, this may ensure that proposals and discussions are done regularly, and that the DAO would continue to generate activity.

Players have an incentive to acquire TLM by mining NFTs as it allows them to control other Planet DAOs and unlock more gameplay. These examples demonstrate the innovative ways in which NFTs and DAOs can come together to create unique and rewarding experiences for digital communities.

7.7 Ape DAO[35]

Ape DAO is "an Innovation focused Protocol focused on expanding the Aurora Blockchain with Unique Projects in Gaming, De-Fi & NFT that rewards, distributes profits of the ecosystem back to all the holders of The Ape Club NFT & our native token $GBA (Golden Banana)."

NFTs are used in order to obtain $APE tokens. A product of the DAO is Ape Mania, a P2E NFT game that uses Golden Banana as its primary currency. This DAO is also quite ingenious in that it offers a rebate program that encourages users to explore and invest in more Aurora projects, hence Aurora projects are being marketed in this way and they may also have a larger following. Furthermore, it may also be characterised as a marketing tactic as users who receive funds may be more incentivised to continue investing in the projects.

7.8 Other DAOs

There are various other DAO projects we can include in this paper such as Rarible [25] which is a "non-financial-transaction NFT marketplace that is solely focused on creators, also has the required procedures for regulation under the aegis of a Decentralized Autonomous Organization (DAO), which is represented by the governance token known as RARI (DAO)." Holders of Rarible tokens include producers and collectors who may vote on platform enhancements and participate in moderating the

[34] Alien Worlds <https://alienworlds.io/>
[35] The Ape DAO <https://www.theapedao.finance/>

https://doi.org/10.54934/ijlcw.v2i3.58

marketplace. Collectors may see artworks and select which are those they think are best for investment [25].

Similarly, Meebits DAO[36] aims at creating "a vehicle for funding innovative projects that will develop the ecosystem around Meebits", with members gaining access to governance and ecosystem building through a general membership NFT [25].

8. CONCLUSION

One may argue that DAOs work on a spectrum ranging from complete decentralisation (after deployment) to complete centralisation. This author believes that transparency and honest with community members are essential to determine the success of a DAO, as demonstrated by PROOF and the Nouns DAO in the instances mentioned above. In such cases, when there is a parting from the perfectly decentralised autonomous organisation, it is crucial to have this be communicated to the community members so that they make informed decisions and truly understand what they are signing up for.

This is something which regulation is allowing since a lot of emphasis is put on transparency, as discussed during the discussion on the Innovative Technology Arrangements and Services Act of Malta and the Wyoming Decentralised Autonomous Organisation Supplement. Transparency is urgently needed in the blockchain sphere to ensure that DAOs remain a credible type of organisation and ensure that they stay sustainable.

The answer to some of the problems of DAOs is through NFTs. NFTs may be present from the birth of the DAO to their end. The development team may determine different classes of NFTs giving members different rights and may form a hierarchy within the DAO. During the running of the DAO, NFTs may be useful as both membership and governance tokens hence allowing members to steer the DAO in the direction they wish, should it be allowed by the code, hence the development team and also serve as a stamp of one's perceived loyalty to the DAO. Furthermore, they may help generate revenue for the DAO and their metadata may make it possible for members to split them up and build projects thereon, as seen from the projects analysed above.

[36] Meebits DAO <https://www.meebitsdao.com/>

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ABOUT THE AUTHOR

Marica Ciantar – Centre for Distributed Ledger Technologies, University of Malta, Malta
e-mail: marica.ciantar.17@um.edu.mt

ABOUT THIS ARTICLE

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