Law Commission of England and Wales:

Decentralised autonomous organisations (DAO Paper)

November 2022

Response to call for Evidence

Stirling & Rose (**S&R**) is a boutique emerging-technology firm with deep experience in the subject matter of decentralised autonomous organisations (**DAOs**), artificial intelligence, smart legal contracts, and digital assets. We advise large global investors (hedge funds, VC funds, and lenders) and enterprise blockchain architects on the real-world application and enforcement of all the above. We have done so at an international level as the executive team of a major international law firm since the inception of the space. Our bench has background in international regulatory law and disputes, insolvency and personal property law, asset, and structured financing. We are currently leading Australia's Responsible Contracting Project in respect of smart legal contracts together with Nooriam Pty Ltd and The Commonwealth Scientific and Industrial Research Organisation (**CSIRO**) which is the Australian Government agency responsible for scientific research and the Responsible Artificial Intelligence team.

We again extend hearty congratulations and warm thanks to the Law Commission for its world-leading and authoritative work in this consultation on decentralised autonomous organisations, and its surrounding consultations on digital assets, smart legal contracts, trade finance documents.

Initial comments on Autonomous Organisations (AOs) vs Decentralised Autonomous Organisations (DAOs)

Notwithstanding that the "D" in DAO stands for decentralised – the broader notion of an autonomous organisation entirely run by (centralised) AI (where AI is eventually recognised as falling within the definition of person in a legal sense) is likely to outlive the decentralised nature of the underlying infrastructure that supports it.

The Autonomous Organization (AO) of the future is increasingly likely to have AI style director capability closely mimicking centralised human governance, but with superior recourse to a corpus of more expansive data from which to make real time governance decisions.

It is for the reason that we use the term AO, rather than DAO in this submission.

We also note that there is a continuum in the degree of autonomy in AOs with governance delivered via a combination of executing code and human decision-making. We expect the pathway to fully autonomous AOs to be an ongoing expansion of the matters handled autonomously i.e., without human intervention. For this reason, we use the term AO to includes organisations which have a differing degree of governance discharged by code.

Part 1: Engaging with the Consultation Paper

In this section, we engage with certain key questions of the Consultation Paper where we feel we can offer additional insight.

Consultation Question 2. To assist in our understanding of the different crypto-token ecosystem functions performed by various participants, please provide feedback on the high-level descriptions in Chapter 2.

The paper is correct to point out that the crypto token ecosystem is composed of different stakeholders and different layers in the "tech stack". There are two comments we would make as to the construction of the participant processes and people.

1. From a legal perspective the ultimate stakeholder in an AO, like any other corporate entity, is often the AO founder(s). This (for now still) human role should not be overlooked.

   Notwithstanding that this category seems counterintuitive, as the idealised concept of the AO is the rejection of centralised human governance, in our experience, many if not the majority of AOs are still controlled (perhaps except for Bitcoin (and less so the Ethereum blockchain)) by humans, including post set-up of the original code[1].

   A primary motivation for humans setting up an AO regularly involves the potential for financial reward to be gained by the founder(s) through majority positions as a "Software Protocol token holders" and traditional external investment. To date, in practice the majority of AOs end up running in a very similar fashion to an established class of corporate structure, particularly as token holders tend to not have or not exercise active participation in governance decisions relating to the particular protocol, and the public facing founders increasingly make the majority of decisions in relation to the AO. Further, simply replacing shareholder meetings and shareholders agreements with operating code is more a technical difference to traditional corporations rather than a substantive legal one.

   Having an identifiable founder(s) is legally useful. When there has been some aberration in the operation of the AO that the software protocol is inadequate to

[1] The authors acknowledge the plethora of solutions now being designed to "staple" to DAOs legally recognisable structures like trusts, foundations, charities, and LLCs as bodies that can do the corporate work of legal responsibility, contracting and governance. These structures are consciously or unconsciously intended to work to mitigate the Responsible Machine Problem.

moderate (through the deterministic nature of potential coded premediated actions, or unwieldly and unrealistically large quorum requirements unsuited to most strategic and risk decisions), an identifiable human is still key to consumer, third party and other software protocol token holders' protections. Unless a way is found to make code responsible for aberrant legal actions (see the Responsible Machine Problem, and also our response to question 15 below), it is prudent for the law to continue to both recognise and appropriately hold accountable humans who participate in (and perhaps benefit from) leadership in AOs. The humans directing and managing the AO should still be liable as they would be under existing law.

Having said that, while we support personal liability being attached to any humans that direct and manage the AO, there are practical and legal challenges with relying on strict human responsibility alone. With respect to an AO, the universe of potentially liable persons are the founders, token holders (particularly where a single or small group of token holders control a majority of voting tokens) and the developers. In the case of civil or criminal actions which require mental intent (such as fraud) it may be difficult or even inappropriate to attribute the requisite intent to a particular individual. Such a cause of action against a human actor may not be sufficient recourse for an injured party.

Further, a responsible human may be too far removed from an actual decision or action of the AO to attribute fault to the human. The realistic possibility of code alone being responsible for making an aberrant decision or action which founders, token holders and developers are not reasonably able to foresee, draws a crucial distinction between an AO and a corporation, or any other traditional non-human legal personality. A corporation, partnership or unincorporated association ultimately depends on a human in the loop to make a decision, whereas the code underpinning an AO may be able to independently make decisions for itself with limited or no human direction.[2] In time, we expect AOs to be able to achieve the intended end state of an organisation which can operate autonomously on a day-to-day basis with minimal or no human managerial or directorial input. In that sense (one of) the responsible entities may very well be the AO, at least in respect of the actions which are executed autonomously. Recourse and the ability to bring a cause of action or sanction, should be available against the AO.

For these reasons, there is merit in potentially granting legal personality to protect internal and external stakeholders interacting with the AO. To iterate

[2] Technically, this may be achievable without the code being sentient or having the ability to 'think'.

(a) the development of machine learning will mean that greater management of an organisation for day-to-day functions by code becomes feasible and widespread;

(b) an AO presents potential improvements over a human-led organisation. The capacity to review more relevant information quicker, undertake more efficient decision making, and be prone to less biases than human counterparts means that there may be productivity gains from AOs. Individuals and investors may prefer to be token holders in an AO than shareholders in a human led corporation; and

(c) from the perspective of third-party protection, if the above two propositions are accepted, then the AO itself should have legal personality to be subject to legal sanction not only for the benefit of injured parties but also to empower regulators to deter aberrant behaviour. This provides an additional avenue of relief to the extent that action against individuals is not appropriate.

However, we have two key caveats in relation to conferring legal personality to AOs.

First, such legal personality is not unconditional and in our response to section 15 below, we set out details of conditions that lawmakers may wish to impose on an AO in exchange for conferring legal personality.

Secondly, recognising legal personality of AOs should not abrogate personal responsibility of human actors to the extent that they are involved in decision making and management. Granting legal personality to an AO expands the recourse available to external and internal stakeholders to both the AO and/or the human actors (as appropriate), rather than a liability shielding mechanism for any one responsible person.

The liabilities of responsible human actors and the AO should be on a non-mutually exclusive continuum that reflects the involvement of the human actors and the AO in the actual decision making and management of the AO.

2. The second comment is regarding the interdependence of the underlying blockchain protocol sitting within the AO tech stack as supporting infrastructure.

   As supporting infrastructure with its "own" terms and conditions or contract of condition of use, caution should be applied in conflating an underlying protocol with the AO application layer. Similarly, to how the internet layer is a group of legally distinct internetworking methods, protocols, and specifications within the internet protocol suite (that are used to transport network packets from the

originating host across network boundaries and if necessary, to the destination host specified by an IP address); the technical and legal boundaries of the stack supporting an AO application should and can be maintained.

Each entity layer should be able to maintain the boundaries of its legal identity through clear drafting of the parameters of liability in the terms agreed to at the onboarding and continued use of an AO application by protocol users, and engagement and use by developers and software protocol token holders to any particular protocol.

Developers who exhibit shadow director style behaviours should be mindful of their impact unless they have managed to contract away any potential liability to other stakeholders in the protocol. With the rise of large language models and GPT-3 style outputs, there is also a quibble that it may be incorrect to assume that developers are only ever "human persons".[3]

Consultation Question 3. We recognise that there is no singular, authoritative understanding of what a DAO is. However, please explain how you understand each of the individual descriptors of a DAO:

(1) decentralised;

(2) autonomous; and

(3) organisation.

See Initial Comments on AOs v DAOS above.

In our experience, to date the majority of DAOs "run" or perform their operations on public, permissionless blockchains – where the "rails" are the most obvious decentralised component of the tech stack. It is not our experience that most DAOs are governed in a decentralised way (again except for Bitcoin which is a highly simplistic (in terms of functionality) but highly successful proto-DAO and potentially Ethereum).

Consultation Question 5. In this question we are interested in the legal treatment of a DAO which has not taken any of the additional steps that we discuss in this call for evidence, for example either structuring itself with a variety of incorporated or unincorporated entities or using decentralising elements.

[3] Although there is discussion around the development of the prompts that creates a software style outcome and whether that act in itself is the act of the human developer.

Please explain whether your answer is based on general knowledge of DAOs or based on specific examples of DAOs of which you have first-hand knowledge or experience. We note that respondents might choose to answer this question more widely in the context of the discussion set out in Chapters 4 and 5 on how DAOs seek to modify the general starting point. In this respect, see also Question 21.

3.26 Do you agree that the general starting point for DAOs might be that they are characterised as an unincorporated association, or a general partnership under the law of England and Wales?

3.27 How common do you think it is for DAOs to meet the criteria to be characterised as an unincorporated association? In particular:

(1) Do many DAOs currently in existence or contemplation fulfil the following criteria:

(a) the DAO consists of two or more persons with a common purpose other than making a profit;

(b) the DAO is governed by rules, including in relation to how participants can join and leave;

(c) the DAO is non-temporary, so continues to exist even as its participation changes; and

(d) the DAO has no distinct legal personality?

(2) Are there any aspects of a DAO's operations which make it unlikely that it would be characterised as an unincorporated association?

(3) Do you have examples of any other aspects of a DAO's structure or operations that might suggest the existence of an unincorporated association?

3.28 How common do you think it is for DAOs to meet the criteria to be characterised as general partnerships as described from paragraph 3.17 of this call for evidence?

In particular: (1) Do many DAOs currently in existence or contemplation fulfil the following criteria:

(a) the DAO is a business;

(b) the participants within a DAO are acting together for their mutual benefit; and

(c) the participants participate in the DAO with a view of profit?

(2) Are there any aspects of a DAO's operations which make it unlikely that it would be characterised as a general partnership? (3) Do you have examples of any other aspects of a DAO's structure or operations that might suggest the existence of a general partnership?

See question 15 below.

Consultation Question 13. We are interested in how such could or should introduce a new entity or recognition specifically tailored to DAOs? If so, please form of explain why this would be helpful for DAOs and potential trade offs of formalising such an entity could be structured (including the entity).

See question 3 above.

Granting legal personality to an AO should not be unconditional. Bare requirements are necessary to recognise that an AO is a separate organism that may functionally operate separate to founders, token holders and developers, but, that at the same time, any legal personality construct must recognise that regulating humans does not readily translate to regulating code.

A suggested list of conditions may include the following:

1. Registration. All AOs should be registered with the appropriate local and international agencies and should have their own unique identifier (such as a registration number or digital fingerprint). We would propose that there should be a dedicated governmental authority to regulate AOs and monitor the register.
2. Identification as an AO. All AO should have a signifier in their names such that they are readily identifiable as an AO in all interactions. Much the same way companies are identified by "Ltd", "Inc.", "LLC" or other signifiers of their corporate status, AOs should also be identifiable as an AO – for example ACME AO Ltd.
3. Functional AO test. An AO must be able to provide reasonable evidence of its capability to discharge *de minimus* functionality, i.e., those things necessary to discharge the AO's legal obligations. For example, paying annual AO registration fees. This evidence would need to be provided as a condition to registration of the AO, but also possibly on a periodic and ongoing basis to confirm the continued functionality of the AO in what is a dynamic and rapidly evolving arena where consumer harm in interacting with an AO (or at least with an early generation AO) may be elevated.
4. AO sanctions. Economic risk allocation does not solve the role of 'skin in the game' whereby personal liability and the potential for adverse action against an

individual ensures alignment of interests and actions. Even with limited recourse vehicles, there is still a responsible person (in the case of a company, directors still owe director duties to the company, and in certain circumstances to, or are personally responsible for harm inflicted on, third parties e.g., misleading, and deceptive conduct).

The applicable governmental authority regulating AOs should be conferred with powers to suspend the operation or terminate an AO and exercise rights of forfeiture against AO assets. While it is impossible to imprison an AO, suspension, or termination of all active operation of an AO is required to provide a meaningful regulatory stick. To prevent AO sponsors "phoenixing" a sanctioned AO, there would have to be a means of identifying the code of a phoenixed AO from the underlying code of one that has been sanctioned.

We reiterate that even if AOs had legal personality and could be separately held liable, it remains prudent to hold individuals accountable: (a) to the extent that the private citizens are engaged in directing the AO; (b) to the extent that it is difficult to properly censure an AO to ensure that there is 'skin in the game' and there is sufficient deterrence from bad behaviour.

5. Economic reserves. It may be feasible to improve the economic risk of AOs to counterparties by imposing some form of credit support. This could be in the form of actual asset backing (i.e., collateralisation) to meet potential claims or guarantees provided by individuals or legal entities of substance or insurance (such insurance to be for a sufficient level of cover for the AO's activities and incurred obligations and with no material exclusions).

   A counterargument to this is that without some form of collateralisation, an AO represents a similar risk profile to external counterparties as corporate or other limited liability vehicles which have minimal asset backing e.g., shell companies. In which case, it is a matter of *caveat emptor* for parties that fail to do their due diligence (assuming that the AO is registered and identified as an AO pursuant to conditions 1 and 2 above).

6. Intent of an AO. As referred above, causes of actions and offences which presuppose mental intent will need to be adjusted for AOs, given there may not be a governing 'mind' in the legally understood sense. This may involve abolishing the mental intent from such causes of actions and offences to the extent an AO or relying on a completely objective (and possibly expert determined) test to determine what the AO should have done. Corporations attribute intent to their directors and officers. We do not think this presumption should automatically apply to AOs, but it should be available as a continuation of our liability

continuum comment above, to the extent that a founder or other human actor is a shadow director or is otherwise involved in the material decision making.

7. Minority token holder protections. Bare minimum protections may be granted to minority token holders (e.g., no compulsory transfer or extinguishment of minority tokens). This in conjunction with the evidence required to establish a functional AO may comprise the base governance protections to minority token holders to avoid potential fraud on the minority.

Consultation Question 14. Do you think that the concept of decentralisation (and / or sufficient decentralisation) could usefully be refined, clarified, or applied under the law of England and Wales? If so, please explain why and how, and give examples.

See question 3 above. The notion of decentralisation is perhaps the least important thing about the rise of AOs which are governed and run by AI and have minimal input from humans.

Consultation Question 15. To assist in our understanding of the use of crypto-tokens by DAOs, please provide further information on whether software protocol-specified tokens are designed to confer similar rights on holders to the holding of share capital in a business, or equivalent to the holding of a partnership interest in a business.

5.29 Do you consider that it is appropriate for holders of software protocol-specified tokens to be liable to users of the DeFi Protocols in which they hold tokens? Please explain your answer by reference to particular types of software protocol-specified tokens. Do you consider that the law of England and Wales could provide greater legal clarity on these issues? If so, how?

In our experience a large majority of software protocol specified tokens are designed to confer similar rights on holders to the holding of share capital in a business or at a minimum act as a medium of exchange / financial instrument. As such most digital assets (as currently constructed) will ultimately trigger financial product and service requirements by securities and/or banking regulators.

Moreover, notwithstanding that many AOs are inadvertently meeting the legal definition of a (general) partnership (and also inadvertently risking catalysing legal responsibility as a partner in the AO), in our experience that is not what AO participants tend to understand or desire as to their level of involvement or liability/risk in participating in an AO. More often an AO member's interest is a low entry, low threshold speculative decision or experimental interest in a new community over which they are not equals with founders who sit atop the tokenomics

model of the AO in question. Perhaps with the exception of founders or large holders in an AO tokenomics model, it is unlikely that is appropriate for holders of software protocol-specified tokens to be liable to users of the DeFi Protocols in which they hold tokens. AO founders should do the work necessary to ensure the AO they lead is not construed as a general partnership.

Certain founders seek to address the risk of an AO being construed as a partnership by establishing a not-for-profit foundation as the public facing entity which is stapled to the AO. This obviously translates to a potential mismatch in expectations by AO participants who are expecting to engage through an AO rather than a foundation. Substantively, it also arguably limits the purpose of having an AO in the first place.

There are potential technological solutions to get around current queries around AO structuring. For example, a Smart Legal Contract is a hybrid tool that may be a private and sufficiently flexible solution to avoid the need for substantive legislative change required to moderate AOs and act as an AO Token.

6.41 We are keen to hear from stakeholders whether there are other issues which we should consider in relation to DAOs and which should be included in the scope of our work.

Going forward, a smart legal contract can act as an AO governance tool with greater ability to moderate the complexity of risk allocation, rules of engagement, obligations and remedies between differing members / owners and rights holders and regulatory bodies in respect of the AO and its individual assets / tokens.

For example, a network of constitution and some form of shareholder / unit holders / AO token holders' agreement, connected to the operation of the third-party legal agreements drafted and constructed as smart legal contracts (with natural language and coded instructions) could do the work of automating performance of an AO or a hybrid AO with human governance rights and obligations.

If the Commission would like further information on this final point, we would be delighted to provide additional written or verbal comments.