



## **RESEARCH NOTE NO. 2:**

# **THE DECENTRALIZED AUTONOMOUS ORGANISATION (DAO) AND ETHEREUM: SELF- REGULATION TAKEN TO NEW HEIGHTS**

JIM APOLLO MATHIOPOULOS<sup>\*</sup>

*Research Fellow, Deakin Law School, Deakin University*

---

<sup>\*</sup> LL.B, B.Bus, MBA (Corporate Governance) forthcoming graduation (Deakin University, Australia), PhD Candidate (College of Law and Justice, Victoria University, Australia); Research Fellow, Deakin Law School, Deakin University; Fellow of the Centre for Comparative Corporate Governance, Deakin Law School, Deakin University; Barrister and Solicitor of the Supreme Court of Victoria and High Court of Australia.



## Introduction

Corporate Social Responsibility ('CSR') can be interpreted to mean the 'responsibility' of a company towards 'build[ing] a better society ... for the public good'<sup>1</sup> that focuses on 'discretionary actions'<sup>2</sup> that are largely not regulated by company law. Significantly, CSR can be adopted by a corporation to strategically position it as a responsible entity that considers the public interest beyond simplistic objectives like maximising profits.<sup>3</sup> These debates are considered increasingly in the context of shareholder supremacy and stakeholder interests.<sup>4</sup> However, an innovative and exciting trend in corporate governance is now taking the focus away from narrow shareholder and other stakeholder interests.

## The DAO powered by Ethereum: a new frontier in governance

In August 2014, Vitalik Buterin and Jeffrey Wilcke crowdfunded a project called Ethereum through Swiss not-for-profit Ethereum Foundation<sup>5</sup> to develop 'a decentralized platform that runs smart contracts: applications that run exactly as programmed without any possibility of downtime, censorship, fraud or third party interference'.<sup>6</sup> This is achieved through a blockchain that is made up of nodes. Nodes 'replicate ... data for all nodes [on the network] to reach an

---

<sup>1</sup> Jean Jacques du Plessis, Anil Hargovan, Mirko Bagaric and Jason Harris, *Principles of Contemporary Corporate Governance* (Cambridge University Press, 3rd edition, 2015) 12.

<sup>2</sup> Ibid 24.

<sup>3</sup> For a detailed analysis see Jim Apollo Mathiopoulos, 'The Purpose of for Profit Corporations in Light of Modern Perceptions and Responsibilities' (2016) a submission to the London Business School Conference on 'Organizations with Purpose' to be held at the London Business School in September 2016.

<sup>4</sup> See Shelley Marshall and Ian Ramsay, 'Stakeholders and Directors Duties: Law, Theory and Evidence' (2012) 35 (1) *University of New South Wales Law Journal* 291; Jean Jacques du Plessis, Anil Hargovan, Mirko Bagaric and Jason Harris, *Principles of Contemporary Corporate Governance* (Cambridge University Press, 3rd edition, 2015) 12; Hugh Alexander Grossman, 'Redefining the Role of the Corporation: The Impact of Corporate Social Responsibility on Shareholder Primacy Theory' (2005) 10 *Deakin Law Review* 572; Helen Anderson and Wayne Gumley 'Corporate Social Responsibility: Legislative Options for Protecting Employees and the Environment', (2008) 29 *Adelaide Law Review*, 35; B Sjåffjell and BJ Richardson (Eds), *Company Law and Sustainability: Legal Barriers and Opportunities* (Cambridge University Press, Cambridge, 2016); J. Rockstrom, et al., 'Planetary boundaries: exploring the safe operating space for humanity' (2009) 14(2) *Ecology and Society*; Jean Jacques du Plessis and Andreas Rühmkorf, 'New Trends Regarding Sustainability and Integrated Reporting for Companies: What Protection do Directors have?' (2015) 36 *Company Lawyer* 49; Jean Jacques du Plessis, 'Shareholder Primacy and other Stakeholder Interests' (2016) 34 *Companies and Securities Law Journal* 238.

<sup>5</sup> Ethereum Foundation, *About the Ethereum Foundation* (2016) <<https://www.ethereum.org/foundation>>.

<sup>6</sup> Ethereum Foundation, *Blockchain App Platform* (2016) <<https://www.ethereum.org/>>.

agreement and be compensated by users and app developers'.<sup>7</sup> Put in simple terms, Ethereum 'automate[s] management through [computer] code [to] create... [business] rules that determine what can be done within an organisation through smart contracts'.<sup>8</sup> Such organisations are called "Decentralized Autonomous Organisations" ('DAO')<sup>9</sup> or alternatively as Larimer puts it "Distributed Autonomous Corporations" (DAC).<sup>10</sup> The DAO is 'a digital company ... controlled by the people that help make it come to life [namely] ... project proposal users, investors, and curators'.<sup>11</sup> Hence, this movement has at its core "*autonomous corporations*".<sup>12</sup>

The DAO [the first organisation to launch DAO] is similar to Bitcoin<sup>13</sup>; it uses cryptographic technologies to provide increased security online.<sup>14</sup> In doing so, The DAO through Ethereum smart contracts aims to foster the development of a more accountable and transparent business model unlike any other company structure in the Corporations Act.

---

<sup>7</sup> Ibid.

<sup>8</sup> Michael Andreas Pirson, Decentralized Governance Structures Are Able To Handle Csr Induced Complexity Better (2015) *Business & Society*, 1. For a discussion on the use of the term "smart contracts" see Gideon Greenspan, 'Smart contracts: The good, the bad and the lazy' on Gideon Greenspan, *MultiChain Blog* (2 November 2015) <<http://www.multichain.com/blog/2015/11/smart-contracts-good-bad-lazy/>>.

<sup>9</sup> Christoph Jentzsch, Decentralized Autonomous Organization To Automate Governance Final Draft - Under Review, available here: <https://daohub.org/principles.html>

<sup>10</sup> Stan Larimer, 'Bitcoin and the Three Laws of Robotics' on LTB Network, *FROM THE FRONT PAGE Blog* (14 September 2013) <<https://letstalkbitcoin.com/bitcoin-and-the-three-laws-of-robotics>>.

<sup>11</sup> Jonathan Chester, 'Can A Company Be Run Without Leadership, Management Or Employees? \$150m Invested In The DAO Says Yes', *Forbes* (online), 20 May 2016 <<http://www.forbes.com/sites/jonathanchester/2016/05/20/can-a-company-be-run-without-leadership-management-or-employees-150m-in-investment-says-yes/#5b3aec6d512d>>.

<sup>12</sup> The DAO, <<https://daohub.org/>>.

<sup>13</sup> Bitcoin is an innovative method for payment using a Bitcoin: learn more here <https://bitcoin.org/en/>; Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System*, <<https://bitcoin.org/bitcoin.pdf>>. ; See also Simon Barber, Xavier Boyen Elaine Shi and Ersin Uzun, *Bitter to Better — How to Make Bitcoin a Better Currency*, <<https://crypto.stanford.edu/~xb/fc12/bitcoin.pdf>>; and for the legality of bitcoin by country a very useful resource is available here: [https://en.wikipedia.org/wiki/Legality\\_of\\_bitcoin\\_by\\_country#Australia](https://en.wikipedia.org/wiki/Legality_of_bitcoin_by_country#Australia)

<sup>14</sup> Ellie Rennie and Jason Potts, 'The DAO: a radical experiment that could be the future of decentralised governance', *The Conversation* (online), 11 May 2016 <<https://theconversation.com/the-dao-a-radical-experiment-that-could-be-the-future-of-decentralised-governance-59082>>.



## How does it work?

Put briefly, project proposal users offer a business plan seeking investment into start-ups, research and not-for-profits. Investors are the purchasers of the DAO token [Ether]. Curators protect The DAO community by ensuring that proposals are correctly imputed into computer code using smart contracts [business rules] to provide overall security and prevent fraud.<sup>15</sup>

## A radical decentralized governance structure and CSR

Token holders [not shareholders] hold 1 vote for each Ether that can be used to vote out a Curator [thereby ensuring overall that the abuse of power is difficult to achieve]<sup>16</sup> or vote for proposals. The DAO Token tracker at the time of writing holds more than 11 million Ether protected by smart contract [computer] code that will be distributed for investment in accordance with a voting quorum.<sup>17</sup> Ethereum and The DAO aim to propose a 'radical new governance model'<sup>18</sup> called Futarchy. Vitalik Buterin in his blog '*An Introduction to Futarchy*' writes:

The idea behind futarchy was originally proposed by economist Robin Hanson as a futuristic form of government, following the slogan: vote values, but bet beliefs. Under this system, individuals would vote not on whether or not to implement particular policies, but rather on a metric to determine how well their country (or charity or company) is doing, and then prediction markets would be used to pick the policies that best optimize the metric.<sup>19</sup>

---

<sup>15</sup> Ibid. See Jentzsch, above n 9, at 2.

<sup>16</sup> Christoph Jentzsch, Decentralized Autonomous Organization To Automate Governance Final Draft - Under Review, available here: <https://daohub.org/principles.html>

<sup>17</sup> Etherscan, *The Ethereum Block Explorer* (2016) <<https://etherscan.io/address/0xbb9bc244d798123fde783fcc1c72d3bb8c189413>>.

<sup>18</sup> Rennie and Potts, above n 14, 1.

<sup>19</sup> Prediction markets are defined as 'markets where participants trade contracts whose payoffs are tied to a future event, thereby yielding prices that can be interpreted as market-aggregated forecasts': see Vitalik Buterin, 'An Introduction to Futarchy' on Vitalik Buterin's, *Ethereum Blog* (21 August 2014) <<https://blog.ethereum.org/2014/08/21/introduction-futarchy/>>.

It is argued by Pirson that decentralized forms of governance can improve decision making and lead to improved firm capabilities to 'facilitate shareholder interests'<sup>20</sup> and meet the dual established and traditional expectations of shareholders [shareholder primacy] in addition to stakeholder interests [supremacy through CSR]<sup>21</sup> thereby 'enhance[ing] ... shareholder value and CSR'.<sup>22</sup> Furthermore, it is argued that 'the interactions between corporate governance structure and CSR practice have been neglected'.<sup>23</sup> Pirson believes that 'decentralized governance architecture with many boards can allow strategically important stakeholders to be constructively included in the governance processes to enhance CSR'.<sup>24</sup> Jentzsch, in his piece '*Decentralized Autonomous Organization to Automate Governance*', describes how computer code can be used to 'automate organizational governance and decision-making ... [so that] individuals [can] work together collaboratively outside of a traditional corporate form'.<sup>25</sup> In addition, the DAO is hyped as a tool for registered corporate entities 'to automate formal governance rules contained in corporate bylaws or imposed by law'.<sup>26</sup>

### **A corporation with no management structure: legal implications**

The DAO is touted as a "radical"<sup>27</sup> movement that is 'so democratic ... even the logo is up for vote'.<sup>28</sup> Already, parallels are being drawn between the launch of Netscape introducing the world to an information boom through the internet and the "wildly ambitious" DAO.<sup>29</sup> The DAO has no management structure or board of directors – nobody owns it! The DAO essentially

---

<sup>20</sup> Pirson, above n 8, 1.

<sup>21</sup> Mathiopoulos, above n 3, 31.

<sup>22</sup> Ibid.

<sup>23</sup> Pirson, above n 8, citing Dima Jamali, Asem Safieddine and Myriam Rabbath, Corporate governance and corporate social responsibility: Synergies and interrelationships. *Corporate Governance: An International Review*, (2009) 16 (5), 443-459; Ans Kolk and Jonatan Pinkse, 'The integration of corporate governance in corporate social responsibility disclosures' *Corporate Social Responsibility and Environmental Management* (2010) 17(1), 15-26.

<sup>24</sup> Pirson, above n 8, 6.

<sup>25</sup> Christoph Jentzsch, Decentralized Autonomous Organization To Automate Governance Final Draft - Under Review, available here: <https://daohub.org/principles.html>

<sup>26</sup> Ibid, 1.

<sup>27</sup> Rennie and Potts, above n 14, 1.

<sup>28</sup> Ibid.

<sup>29</sup> Ibid.

deals with the 'digital democratization of business'.<sup>30</sup> It has the potential of levelling the playing field between 'the have and have nots', because it enables anyone to get started on a new business venture. However, it may be 'operating at the boundaries of what is legal' or 'straight-up, 100%, beyond-a-shadow-of-a-doubt against the law' hence serious questions need to be asked of whether tokens in the form of Cryptocurrencies are more appropriately considered to be unregistered securities.<sup>31</sup> The DAO is essentially a corporation without the legal ramifications of being a corporation. Therefore, participants would likely come under scrutiny from the corporate watchdog ASIC or the ACCC. If recent examples of decentralized corporations, such as Bit Torrent are anything to go by, it will be extremely difficult to implement legal actions.

### **A proposal for a decentralized arbitration and mediation network ('DAMN')**

One of the first proposals currently with The DAO proposes to be an 'opt-in justice system for commercial transactions'.<sup>32</sup> The proposal titled '*Decentralized Arbitration and Mediation Network ('DAMN')*'<sup>33</sup>, developed by the author of the book entitled '*Mastering Bitcoin*'<sup>34</sup> aims to use smart contracts on the Ethereum network to recognise arbitrated agreements in accordance with the Convention on the Recognition and Enforcement of Foreign Arbitral Awards (New York, 1958) (the New York Convention) across more than 65 countries. Thus, this poses an Alternative Dispute Resolution that will 'intend for the DAMN to provide users with layers of choices regarding whether a dispute will be resolved by a person, an algorithm, pools

---

<sup>30</sup> Seth Bannon, 'The Tao of "The DAO" or: How the autonomous corporation is already here', *Crunch Network* (online), 16 May 2016 <<http://techcrunch.com/2016/05/16/the-tao-of-the-dao-or-how-the-autonomous-corporation-is-already-here/>>. Stan Higgins, 'Public Opinion Split As The DAO Rakes in Ethereum Funding', *CoinDesk* (online), 18 May 2016 <<http://www.coindesk.com/amid-huge-fundraise-the-dao-sparks-a-public-debate/>> refers to 'the talk of the digital town'.

<sup>31</sup> Tanaya Macheel, 'The DAO Might Be Groundbreaking, But Is It Legal?', *American Banker* (online), 23 May 2016 <<http://www.americanbanker.com/news/bank-technology/the-dao-might-be-groundbreaking-but-is-it-legal-1081084-1.html?zkPrintable=1&nopagination=1>>.

<sup>32</sup> Michael del Castillo, 'Lawyers Be DAMNed: Andreas Antonopoulos Takes Aim at Arbitration With DAO Proposal', *CoinDesk* (online), 26 May 2016 <<http://www.coindesk.com/damned-dao-andreas-antonopoulos-third-key/>>.

<sup>33</sup> Available here: <https://github.com/thirdkey-solutions/damn/blob/master/proposal.asciidoc>

<sup>34</sup> Andreas M Antonopoulos, *Mastering Bitcoin Unlocking Digital Cryptocurrencies* (2014, O'Reilly Media). The book is available here: <https://www.bitcoinbook.info/>



of random jurors, pools of experts, through collaboration of the parties involved or even another DAO specially set up for mediation'.<sup>35</sup> This is an interesting development that should be noted.

## **Conclusion**

Rennie and Potts cite recent disputes in the bitcoin community and a lack of diversity on the DAO boards as a potential cause of failure and describe the project overall as 'an experiment in ... plutocracy'.<sup>36</sup> Indeed, it is fraught with danger but nothing creative or innovative ever came from anything else. The DAO presents a new model of governance that does away with traditional soft and hard law approaches entrenched in Corporations legislation and governance codes throughout the world.

The DAO will have its critics, and so it should, it is a novel creation that is innovative, risky and extraordinarily creative. So creative, that it has provided a platform for new initiatives such as that proposed by DAMN. One thing is certain, we will all be watching the development of the DAO and associated projects with great interest: it is at the forefront of innovation and the ultimate experiment that may well achieve what we have struggled to implement through legislation and governance codes, namely increased awareness of responsibility to the broader society and environment through CSR that meets the interests of shareholders and other stakeholders more broadly.

---

<sup>35</sup> del Castillo, above n 32.

<sup>36</sup> Ellie Rennie and Jason Potts, above n 15, 1.