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AI in the boardroom: Let the law be in the driving seat

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Abstract

This paper discusses the introduction of artificial intelligence (AI) to the boardroom and the importance of law and regulation in doing so. We argue that AI should be utilised in the boardroom to address the current shortcomings in corporate governance – corporate short-termism. AI can assist boards as they consider societal interests as it can process data in a manner and at a speed that is beyond the capability of manual systems. With well-designed algorithmic steps, AI can provide guidance that is independent of subjective judgements biased by shareholder short-termism and board opportunism. Company law should be revised to support AI-assisted corporate development by mitigating the legal risks of boards and by encouraging directors to use AI to achieve the ESG goals of the company.

Keywords: AI, Data Analytics, Corporate Governance, Shareholder activism, Directors' duties, ESG, Corptech

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1. INTRODUCTION

Artificial Intelligence (AI) can be defined as 'technologies with the ability to perform tasks that would otherwise require human intelligence, such as visual perception, speech recognition, and language translation'.[3] Within AI can exist Machine Learning which can be defined as a type of AI that allows computers to learn rapidly from large datasets without being explicitly programmed.[4] There has recently been a dramatic growth of and investment in AI. Acceptance of AI is demonstrated by the increasing use of digital assistants such as 'Alexa'. In a 2017 EY survey, 11 percent of households owned one, while two years later, this had doubled to 22 percent. AI now plays a significant role in everyday domestic life, but its position within corporations poses many questions. This paper examines the possibilities and limitations of AI in UK corporate governance by evaluating both currently available AI and the 'AI of the future. The idiosyncratic nature of corporations necessitates bespoke offerings from technology that can be achieved through refinements to existing technology to meet individual requirements. But there are associated problems, such as corporate short-termism and a shareholder-centred approach. How can AI be used to address such problems? It can enable increased shareholder engagement to reduce short-termism while also including input from a more comprehensive number of stakeholders. It can also facilitate consideration of environmental, social, and corporate governance issues (ESG). The central claim advanced in this article is that although AI brings several problems for directors to overcome, it can be used as an advisory tool in the boardroom to augment directors' capabilities. This tool can result in more inclusive governance achieved by revising the current legislative framework.

2. The Corporate Governance Problems AI can Remedy

This section will first explore deficiencies within corporate governance to demonstrate a need for change. It will then outline how AI can be utilised to fill this gap and transform corporate governance.

[3] Industrial Strategy: Building a Britain Fit for the Future, 37. www.assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664563/industrial-strategy-white-paper-web-ready-version.pdf. [Accessed 14th June 2021]
[4] Ibid.

2.1 The Challenge of Embedded Systemic Short-termism

The control of corporations remains concentrated, which is troublesome for corporate governance.[5] Braun contends that ownership has radically changed since the popularisation discussed by Berle and Means.[6] Structures of portfolios are diversified, and the position of the more significant holding shareholders, asset managers, has evolved. The cumulative result of this division is that the stock is divorced from its economic interest. This results from its detachment between history and material origins where ownership and control were vested in the same individuals. This viewpoint is widely supported[7] by commentators attempting to invigorate institutional investors to exercise their rights. Palan contends the firm is an intermediate institutional structure used by groups of people with controlling interests whose legal obligation and sense of social responsibility are less defined. The imposition of institutional investors and investors holding shares on behalf of others[8] has two potential outcomes. Firstly, active institutional investors enhance the corporate governance of the companies. This results in significant power being attached to those managing investments. Duties are owed to the beneficial owners by fund managers; it is widely accepted that these duties are difficult to identify and enforce. Institutional ownership requires monitoring through compliance with the Stewardship Code.[9] The Code seeks to "set high stewardship standards for asset owners and asset managers."[10] These operate on an apply or explain basis where

[5] M.T. Moore, 'Understanding the Modern Company through the Lens of Quasi-Public Power' in B. Choudhury and M. Petrin (eds.), *Understanding the Company: Corporate Governance and* Theory (Cambridge: Cambridge University Press, 2017), 91-116.

[6] B. Braun, 'The Great Re-Concentration and the Eclipse of Ownership', *Working Paper* (2019), 3 www.benjaminbraun.org/ [Accessed 29th September 2020]

[7] For example, see J. Parkinson, *Corporate Power and Responsibility : Issues in the Theory of Company Law* , (Oxford: Oxford University Press, 1993); M. Blair, *Ownership and Control: Rethinking Corporate Governance for the 21st century* (Washington DC: Brookings Institution, 1995); G. Stapledon, 'Institutional Investors: What are their Responsibilities as Shareholders?' in J. Parkinson, G. Kelly, and A. Gamble (eds) *The Political Economy of the Company* (London: Hart Publishing, 2001); P. Ireland, 'The Corporation and the New Aristocracy of Finance' in J. Robé (ed), *Multinationals and the Constitutionalization of the World Power System* (Oxford: Routledge,2016).

[8] This could be pension funds, hedge funds, where the financial interest is provided by a third party and managed by the legal owner of the shares.

[9] A detailed analysis of the stewardship code is beyond the scope of this paper, for more see; P. Davies, 'The UK Stewardship Code 2010-2020 From Saving the Company to Saving the Planet?' *European Corporate Governance Institute-Law Working Paper* & *A theory of the firm: governance, residual claims, and organizational forms* https://ecgi.global/sites/default/files/working_papers/documents/davies5062020final.pdf [Accessed 14th June 2021].

[10] Financial Reporting Council, 'The Stewardship Code', www.frc.org.uk/getattachment/5aae591d-d9d3-4cf4-814a-d14e156a1d87/Stewardship-Code_Final2.pdf [Accessed 24 April 2021].

signatories to the Code have to report compliance. This revised Code comes after a much-criticised earlier iteration described as being modest. The Stewardship Code is unlikely to be the silver bullet needed to resolve the lack of activism or consideration of wider stakeholders to reduce short-termism. [11]

The pursuit of short-term gains is at the expense of long-term sustainability. Mixing insider and outsider rights with no-liability[12] rentier shareholders has become a recipe for short-termism. This has resulted in scholars arguing favour of having regulatory and legislative interventions in the UK.[13] These challenges are prevalent in the institutional and retail markets, with the exit right operating as the primary governance mechanism. This demonstrates a significant level of disengaged shareholders with a diminished democratic voice resulting in a democratic deficiency. The overall result is two principal deficiencies: 1) Shareholder's interest is so trivial that many will not exercise their voting rights, and 2) exit is preferred over voice. Lack of activism provides corporate management free reign over the governing of the company, where self-serving opportunism is at a heightened risk.[14] Moreover, the use of exit over voice only further exacerbates this challenge as the managerial direction may be focused on ensuring short-term returns. Short-termism is problematic for both the economy and the company as a whole. The European Commission has recently published proposals on sustainable corporate governance to foster longer-term corporate behaviour.[15] This further supports the significance of policy decisions on a short-term basis. The separation of ownership and control coupled with a further separation with institutional shareholders has diluted the ability for longevity to be a serious consideration. Institutional shareholders seek returns on their investment; if returns are not forthcoming, they will dispose of these shares and buy alternatives.

[11] For a discussion on short-termism see; P. Ireland, 'Company Law and the Myth of Shareholder Ownership' (1999) 6.2 *Modern Law Review*, 32; A. Bowdren, 'Contextualising Short-Termism: Does the Corporate Legal Landscape Facilitate Managerial Myopia?' (2016) 5.1 *UCL Journal of Law and Jurisprudence*, 285; M.J. Roe and R. Shapira, 'The Power of the Narrative in Corporate Lawmaking.' (2021) 11. 23 *Harvard Business Law. Review*, 233.
[12] Other than their initial paid-up capital.
[13] A. Bowdren, 'Contextualising Short-Termism: Does the Corporate Legal Landscape Facilitate Managerial Myopia?' (2016) 5 *The UCL Journal of Law and Jurisprudence*, 285.
[14] P. Ireland, 'Finance and the Origins of Modern Company Law', in G. Baars and A. Spicer (eds), *The Corporation: A Critical, Multi-Disciplinary Handbook*, (Cambridge: Cambridge University Press, 2017), 243.
[15] Proposal for a Directive Of The European Parliament And Of The Council on Corporate Sustainability Due Diligence and amending Directive (EU) 2019/1937, EC (2022) 95 final.

Beneficiaries of funds managed by institutional investors manage will likewise be concerned with growth which further perpetuates the use of exit over voice. The result for the corporate board is to maintain both their position and to deliver profit. This pursuit of profit could render wider ESG and stakeholder factors valueless in board decision-making. The introduction of an AI encourages these perspectives to be considered irrespective of pressures from short-term factors due to its objectivity. Greater engagement can increase shareholders utilising voice-over exit; AI systems can facilitate this inclusion. Conceptually shareholders will be able to feedback to the corporate managers directly. This has two benefits, the first being that shareholders may feel their voice is valued and increase voice-over exit. Secondly, corporate managers can seek input from shareholders. Systems like this already exist[16] and are 'off the shelf and available for implantation. Vast amounts of data are processed and turned into easy-to-read and implemented tables. Initial research has shown that this data can be processed into interactive reports with labelling and recommendations; this, in turn, generates engagement through the use of AI technology.[17]

2.2 The Shareholder and Stakeholder Centred Approaches

The leading conception of the company is that of the shareholder-centred approach, the corporation exists to serve the shareholders, and the company ought to be run in their sole interests. Broader stakeholder considerations will always remain subservient. Watson posits this conception of viewing the company from the position of shareholders is due to the company being one of the foundations of modern capitalism.[18] Parkinson contends that this viewpoint has historically been defended on three justifications: efficiency, difference, and the shareholder's money argument.[19] The shareholder-centred approach results in short-termism, with investors seeking to gain quick and efficient returns. AI may provide the tools to adjust

[16] IBM, Watson Studio, 'AI Capabilities' (2021) www.ibm.com/cloud/watson-studio/use-cases [Accessed 4 June 2021].
[17] N. Xin, R. Wang, D. Burdick, and Y. Li '*TableLab: An Interactive Table Extraction System with Adaptive Deep Learning'* (2021) arxiv.org/abs/2102.08445 [accessed 15th June 2021].
[18] S. Watson 'Viewing Artificial Persons in the AI Age Through the Lens of History', in P.W. Lee, R.T. Langford, and A. Godwin (eds) *Technology and Corporate Law: How Innovation Shapes Corporate Activity* (Cheltenham: Edward Elgar, 2021).

[19] J. Parkinson, 'Corporate Power and Responsibilit : Issues in the Theory of Company Law' , 305.

the value attributed to social actions and address short-termism by delivering an equally efficient and reliable method of attaching importance to actions.

The move towards a more stakeholder-based approach has recently gained momentum. The introduction of the enlightened shareholder approach[20] coupled with courts considering creditors' interests[21] demonstrate this. Watson claims that as a result, stakeholder capitalism,[22] the consideration of all corporate stakeholders, is growing. AI facilitates a departure from a pure shareholder consideration by developing algorithms for a broader review of stakeholder interests. Support for consideration of a wider, more societal approach has gained a renewed interest following the devastating economic effects of the COIVD-19.[23] A white paper by the World Economic Forum claims that the outbreak has had an unprecedented impact on businesses. It has exposed the fragility of the market-leading to a more significant consideration of stakeholders. Gelter argues that whilst we might not see a substantial change to governance structures, pressure from politicians and institutional investors on the role corporations play might force adjustment away from the shareholder primacy model.[24] This claim is that following COVID-19, firms will need to become more resilient to crises, and the way to achieve this is through long-term strategies. KPMG have reported on the importance of sustainability and has identified a growth from a reporting rate of 12-percent in 1993 to recently 80-percent of companies reporting on sustainability.[25] This supports sustainability playing an increasing role within corporate governance. The FT recently reported that digital technology could enhance sustainability and contribute to the 'circular economy.[26] This relates to sustainability and is applied to each step of the process. AI can assist boardroom processes in streamlining the inclusion of these sustainable and societal considerations. This can add a new

[20] Ibid.
[21] *BTI 2014 LLC v Sequana S.A* [2019] EWCA Civ 112.
[22] G. Kelly, D. Kelly, and A. Gamble '*Stakeholder Capitalism'* (Hampshire: Palgrave Macmillan, 1997).
[23] World Economic Forum, ' Measuring Stakeholder Capitalism: Towards Common Metrics and Consistent Reporting of Sustainable Value Creation' (2020) www.weforum.org/reports/measuring-stakeholder-capitalism-towards-common-metrics-and-consistent-reporting-of-sustainable-value-creation [Accessed 18th April 2021].
[24] M.Gelter and J.M.Puaschunder, 'COVID-19 and Comparative Corporate Governance', (2020) 46. 3 *Journal of Corporation Law*, 557.
[25] KPMG, ' Measuring Stakeholder Capitalism' (2021) https://home.kpmg/xx/en/home/insights/2021/01/measuring-stakeholder-capitalism.html [Accessed 18th April 2021].
[26] Financial Times, 'Closing the Loop: the Impact of Enriched Digitalization in Accelerating Circular Value Chains' (2021) www.ft.com/partnercontent/dassault-systemes/closing-the-loop-the-impact-of-enriched-digitalization-in-accelerating-circular-value-chains.html [Accessed 18th April 2021].

value to governance by including objective considerations of sustainability into the board-making decision process. AI tools can produce recommendations and advice to enhance corporate governance and embed core principles.

Several benefits arise in creating a more inclusive approach through AI, generating a new value. Shareholder and stakeholder approaches appear to have different conceptions; Watson contends this is not necessarily the case.[27] They are two ways of looking at the company from two perspectives. The private property conception[28] views the company from the shareholders' perspective, while the social entity conception views it from a broader societal perspective.[29] Watson reaches this conclusion due to the historical evolution. AI provides a third viewpoint which bridges these two perspectives due to its ability to objectively analyse more expansive stakeholder views. AI has the capacity to be more objective than natural executive directors due to the ability to disregard personal subjectivity. This allows for consideration of stakeholders and shareholders respective to the established interest. AI will operate within its pre-coded algorithm, reducing objectivity and potential bias seen in executive directors. Floridi argues that 'smart agency' can be utilised to enhance human agency.[30] The ability to create a developed objective AI presents a unique opportunity to strengthen moral systems and depart from the sole shareholder-centred approach. For example, stakeholder considerations could amount to 10-percent of the weighting in the analysis by the AI. The ability to process data and attach different levels of consideration is a unique capability offered by AI solutions.

A model for this is the direct inclusion of stakeholder considerations and weighted application to these features in the AI recommendation output. This complements the concept of shareholder democracy and provides an opportunity for wider stakeholders to feed in their inputs. This is favourable over a voting system for stakeholders, where there would need to be defined stakeholders who are assigned votes. This is problematic as it limits voices to defined stakeholders. The model proposed is a consultation whereby collective views are evaluated and then calculated in their correlative weighting to provide the output for managerial decision-making. This 'third viewpoint' supports the inclusion of both stakeholders and shareholders' which previously may have been diametrically opposed concepts, and conjoins them to provide

[27] Watson, 'Viewing Artificial Persons in the AI Age Through the Lens of History', 9.
[28] The Shareholder Model.
[29] Watson, 'Viewing Artificial Persons in the AI Age Through the Lens of History'. 9.
[30] J. Cowls and L. Floridi, 'Prolegomena to a White Paper on an Ethical Framework for a Good AI Society' (2018) www.ssrn.com/abstract=3198732 [Accessed 13 June];

a genuine 'enlightened' viewpoint. AI gives each party's representative interests weight when proposing suggested outcomes.

AI in consideration in computations achieves the addition of stakeholders without an overhaul of traditional corporate governance. Investors could ascertain the level of input from stakeholders before investment and adjust their investment accordingly. This affords a shift away from the one-dimensional consideration of shareholders. AI can calculate outputs based on pre-agreed parameters. The boundaries of the stakeholders need to be set and clearly defined as a stakeholder is a broad term. The weighted value given to each category considered by the AI process need not be total equality. The appropriate consideration can be programmed into the AI to consider the input and apply to the outputted recommendation once it has factored in all inputs and their respective weighted interest. For example, the weight of shareholder consideration is 75-percent, where the remaining 25-percent be split amongst all stakeholders. Conversely, a company with a clear environmental issue mandate could weigh environmental considerations more.

3. AI AS AN ASSISTIVE TOOL

This section will critically analyse how AI can be utilised to mitigate short-termism and the shareholder-centred approach. It will explore how AI could be used as a tool to assist the board in decision-making.[31]

3.1 Using AI as an Assistive tool for the Board.

3.1.1 Conceptualising AI as a tool

An AI director cannot fit within the current legislative framework, and defining AI as a tool or otherwise has been the source of some debate. AI, at one end of the spectrum, can perform advanced cognitive functions akin to humans,[32] whereas at the other, it is a mere processor. AI is currently not able to replicate the same level of cognitive processes of human beings. AI can

[31] For analysis on how AI can reshape the work of professionals see: J. Armour, R. Parnham and M. Sako 'Unlocking the potential of AI for English law' (2021) 28:1 *International Journal of the Legal Profession*, 65-83.
[32] As per the Turing test.

perform well and sometimes significantly outperform human beings on specific tasks. Object detection and classification, medical diagnosis,[33] bioscience,[34] market predictions,[35] and risk assessment are all examples of this.

Several scholars have evaluated AI in the corporate context and the potential of AI for corporate law. Chiu [36] introduced three analytical frameworks within CorpTech, termed as Incremental/facilitative, Radical/ disruptive, and fundamental/structural. The argument presented is that incremental is the lower level utilised in manufacturing. Radical is a displacement of human agency. Fundamental is whereby current governance systems are eradicated and replaced by new systems. This paper advocate for the categorisation of facilitative/ incremental. Historically AI was utilised in manufacturing industries; the subsequent development has resulted in a revised interest for 'white collar' industries previously considered unfulfillable by AI. Armour, in similar terminology discussed the concept of augmenting the role of AI with existing practices. Empirical data support this, and it presents the possibility that as opposed to AI replacing human agents, it can instead augment the skills of the AI with a human director. [37] The tasks of humans might change due to the impact of AI, but they will not be ultimately replaced. This augmentation framework can be built upon within the corporate boardroom, where AI as a tool can be utilised. The use of AI to augment the skills and abilities combined into the decision-making process can positively impact ESG considerations. This is supported by Bruner, who contends that levels of new technologies will allow for a significant change in the way corporate governance is considered.[38]

[33] J. G. Richens, C.M. Lee, and S. Johri 'Improving the Accuracy of Medical Diagnosis with Causal Machine Learning' (2020) 1 1.1 *Nature communications*, 11.
[34] A. Buetti-Dinh, V. Galli, S. Bellenberg, O. Ilie, M. Herold, S. Christel, M. Boretska, I. Pivkin, P. Wilmes, W. Sand, M. Vera, and M. Dopson, 'Deep Neural Networks Outperform Human Expert's Capacity in Characterizing Bioleaching Bacterial Biofilm Composition' (2019) 22.1) *Biotechnology Reports*, 321. www.sciencedirect.com/science/article/pii/S2215017X18301954?via%3Dihub Accessed 14th June 2021
[35] M. Obthong, N. Tantisantiwong, W. Jeamwatthanachai, and G. Wills, 'A Survey on Machine Learning for Stock Price Prediction: Algorithms and Techniques' (2019) www.eprints.soton.ac.uk/437785/1/FEMIB_2020_6.pdf [Accessed 14th June 2021].
[36] I. Chiu, and L. Ernest, 'Technology vs Ideology: How Far will Artificial Intelligence and Distributed Ledger Technology Transform Corporate Governance and Business?' (2021)18.1 *Berkeley Business Law Journal*, 1.
[37] Ibid.
[38] C. M. Bruner, 'Distributed Ledgers, 'Artificial Intelligence and the Purpose of the Corporation' (2020) 79.3 *The Cambridge Law Journal,* 431.

One challenge in developing AI has been the approach in which development has progressed. There are the 'top down and 'bottom up' approaches,[39] and 'top down' is the rule-based system which is used to implement hard-coded functions. The bottom-up is machine learning. Corporate decision-making is idiosyncratic in nature. This presents challenges in hard-coded rule-based approaches. The inability to adjust to specific needs renders this top-down approach inherently problematic. Hard coding is, therefore, likely to be used for overly simplistic tasks. AI as a tool needs to be augmented from a 'bottom up' approach into the corporate board to enhance its capabilities and integrate with the board. This allows machine learning to adapt and function within the business model to enhance corporate decision-making. The role the AI performs is assisting with strategic planning. The tool is more than a mere processor; it develops better results than a natural person would have been able to achieve. This is desirable as the AI can perform advanced problem solving, learning, reasoning and social intelligence.[40] AI tools can be used with a degree of confidence due to the advance functionality and included into the board decision making process. AI has the added benefit that more advance mathematical and economic analysis can be combined into this algorithm.

3.1.2 AI as Augmenting Intelligence Tool

AI can be used as an advisory tool augmenting directors' skill assisting with corporate decision making. It can process large data sets quickly and accurately which affords the board a wider remit of data in decision making. This can be achieved without displacement of natural directors.[41] AI can take data and process broader datasets and make recommendations for adoption. It remains supervised by human agents which is unfeasible with an autonomous AI director.[42] Directors are able evaluate the recommendations by the AI and make decisions with real time information.[43] This real time information from reliable sources can be fed into the recommendations by the board. The strategy can utilise AI to consider minority shareholders

[39] Armour, 'Unlocking the Potential of AI for English law'.
[40] See PAT RESEARCH, 'B2B Reviews, Buying Guides & Best Practices. 2021. Top 18 Artificial Intelligence Platforms in 2020 - Reviews, Features, Pricing, Comparison' (2021) www.predictiveanalyticstoday.com/artificial-intelligence-platforms/#:~:text=Many%20tools%20are%20used%20in,that%20allows%20software%20to%20run. [Accessed 3 February 2021].
[41] Chiu, 'Technology vs Ideology'.
[42] See part 4.
[43] As in information on a rolling basis, opposed to AGM or formal votes where notice and a quorum must be filled.

who may otherwise be unheard and stakeholders for promoting ESG principles. This technology is being used by Santander[44] where traditional voting by way of blockchain to generate a register of votes is utilised. Technology could be expanded to allow collection of data from these previously 'voiceless' shareholders to drive increased shareholder democracy. The result is recommendations for the board of directors to augment their decision-making processes.

An underlying duty of a director is that they promote the company for the benefit of its members as whole.[45] The extension of a wider data sets assists in discharging this duty by enabling the AI to consider these members. The principal benefit for AI, as a tool, is its hybrid status between an autonomous device and a 'dumb' tool such as a processor. It can transform elements of corporate governance by augmenting the existing skills of the directors to provide a more informed and inclusive decision-making process. Directors evaluate recommendations from AI and pass board resolutions. This fits within the current governance framework[46] and can transform the speed, accuracy, and breadth of data in its decision making whilst maintaining the all-important accountability.

3.2 Using AI as a Tool Addressing the Failings of Corporate Governance

This section will consider how using AI as a tool can enhance corporate governance. Elements which benefit are; 1) mitigating short-termism and 2) moving towards the stakeholder-centred approach. Shareholder democracy is ineffective due to the wide dispersion of shareholders resulting in exit over voice. AI allows for more voices to be considered when included into the boardroom decision making process, enhancing the decision-making process, of the collective board. The addition of stakeholder focused ESG can enhance corporate sustainability and reverse the focus of short-term decision making.

3.2.1 Enhancing Governance by Shareholder Democratic Participation

[44] A. Mooney and N. Megaw, 'Santander Shows potential of Blockchain in Company Votes', *Financial Times,* 17 May 2018, www.ft.com/content/c03b699e-5918-11e8-bdb7-f6677d2e1ce8 [Accessed 26 April 2021].
[45] Companies Act 2006, s 172.
[46] The framework here being the Companies Act 2006 and the UK Corporate Governance Code.

AI increases the flow of data which can improve democratic participation. Increased confidence from induvial and institutional investors can result from availability of information. Research has highlighted the importance of AI and the disclosure of information within corporations.[47] AI can process significant amounts of data which is highly beneficial for investors. Disclosure benefits investors as shares are increasingly bought and sold on recommendations by algorithms. This benefit of increased data flow provides a platform for transparency and allows for investors to retain confidence in exercising their rights due to the availability of information. A flow of information[48] can result in shareholders utilising their voice over exit due to the ability for this to be heard in the boardroom. This can be achieved by processed data enabling investors, to make a more informed democratic choice. A system, such as an online platform, investors can search information and request information in specific formats. Technology such as this already exists[49]allowing data to be processed and presented into a format which is easily readable. Shareholders can view information in a clearly displayed format and make decisions and engage in activism. This is then fed back into the AI, utilising their votes for the directors to consider. Institutional shareholder services (ISS) already provide one such solution, they offer Multiple Viewpoints on Governance and Detailed Vote Reports.[50] These solutions provide 'ease and simplicity' allowing investors to execute voting through the use of their online system. This affords investors an easy to navigate platform, encouraging engagement, and also an informed platform with access to relevant data allowing for informed decision making. This can reduce investors using exit over voice which could render more positive long-term objectives for the company. This facilitates a departure from asymmetric information. This 'informed process' works is by utilising the process to input and have perspectives considered in the computation by the AI. The AI then considers these wider inputs in the programmed weighting and presents some 'advice' for the directors. This results in a larger dataset for the AI to compute when making its recommendation to augment into the director's decision-making process. AI systems can function for both enhancing the board in their decision making and the investors in making their decisions. For large institutional

[47] See McKinsey Analytics, 'The State of AI in 2020' (2020) www.mckinsey.com/~/media/McKinsey/Business%20Functions/McKinsey%20Analytics/Our%20Insights/Global%20survey%20The%20state%20of%20AI%20in%202020/Global-survey-The-state-of-AI-in-2020.pdf [Accessed 14th June 2021]; McKinsey Global Institute, 'Notes from the AI Frontier Applying AI for Social Good' (2018) ;T. Fountaine, B. McCarthy, and T. Saleh, 'Reimagining your Business for AI' (2021), *McKinsey Analytics*, www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/reimagining-your-business-for-ai# [Accessed 14th June 2021].

[48] Disseminated through a system such as the online portal or platform.

[49] IBM 'Watson Studio' (2021) www.ibm.com/cloud/watson-studio/use-cases [Accessed 4 June 202].

[50] ISS, www.issgovernance.com/about/about-iss/ [Accessed 3rd May 2021].

investors with voting policies this could automate their voting based upon AI implementation of that policy.

3.2.2 Enhancing Sustainability and Governance through ESG Inclusion

The role of stakeholders differs across jurisdictions from active to passive. The potential for corporate managers to avoid transparency, additional governance methods for insiders is highly persuasive. Employees are well placed to ensure accountability with managers due to their understanding of the internal functioning. The role of shareholders has historically been dominant having to respect their interest "first and foremost".[51] The Companies Act 2006, provides for 'Enlightened Shareholder Value' (ESV). Directors are under a duty to promote the success of the company with regard to wider considerations.[52] These have express declarations of interests for employees, the community, environment, high standards of business conduct. This introduction has been one of the most controversial inclusions within the 2006 Act due to its departure from the long-standing shareholder primacy doctrine. The notion of 'have regard to' introduces a level of ambiguity which dilutes its application. Directors need only consider these wider stakeholder considerations insofar as they concern the benefit for the members. If there is no benefit for the shareholders as a whole, there need not be consideration of the broader list of stakeholders. The statutory provisions along with the revised codes,[53] therefore, suggest that stakeholder inclusion should be part of the framework for good governance. This paper argues that AI as a tool in the boardroom can enhance the section 172 duty and increase the use of wider to which corporate directors are to have regard too. This is achieved a consideration of a broader scope of inputs in decision-making. Additionally, there is an increased capacity to reduce collective decision-making costs and speedup processes.[54]

[51] *Brady v Brady* (1987) 3 B.C.C. 535.
[52] Companies Act 2006, s 172.
[53] The UK Corporate Governance Code 2018; The UK Stewardship Code 2020.
[54] The consideration of a cost benefit analysis of the efficiencies of AI is beyond the scope of this paper, see C. Picciau, 'The (Un)Predictable Impact of Technology on Corporate Governance' (2021) 17.1 *Hastings Business Law Journal*, 67.

4. COMPANY LAW FACILITATING AI

There are two principal ways in which company law can facilitate AI and the use of AI to augment the skills of directors' decision making in the boardroom. We submit two proposals. Proposal one deals with the considerations of directors' duties to ensure that utilising AI does not infringe or breach directors' duties. Proposal two is the introduction of 'technology director'.

4.1 Directors Duties

The ability to use AI to facilitate wider stakeholder viewpoints is likely to result in some concerns for directors. If directors are permitted and required to consider stakeholders, two further duties require clarification. These are the duty to exercise independent judgment[55] and a duty to exercise reasonable care, skill, and diligence.[56] The directors passing their board vote would be responsible for the action taken upon the recommendation of the AI. The duty to exercise independent judgment could be dealt with by the inclusion within the statutory provision itself, where an authorised AI is used, the duty is not infringed provided the director is acting honestly.[57] Judicial discretion has historically been used to provide relief for directors acting in this way, therefore there is justification for this inclusion with the statutory provision.[58] Without such legal support, it would be difficult for directors to utilise AI systems without risk of being in breach of their duties. The justification for the use of AI not breaching the duty to act independently can be sought from a common law position. Directors who are acting honestly and in the best interests of the company [59] are not in breach of this duty,[60] irrespective of the use of AI to inform their decision making.

[55] Companies Act 2006, s 173.
[56] Ibid, s 174.
[57] See Companies Act 2006, s 1157 (1), with respect to discretionary relief available to directors.
[58] Ibid, s.173. See also, G.Morse and S.Worthington, *Palmer's company law* (London: Sweet & Maxwell, 2010), Reliance on experts. para.8.2813).
[59] Companies Act 2006, s172.
[60] *Bairstow v Queens Moat Houses* [2001] 2 BCLC 531); *Re D'Jan of London Ltd* [1994] 1 BCLC 561.

4.2 The Technology Director

The duty to exercise reasonable care and skill and diligence have objective and subjective elements which presents problems where directors rely on data provided by AI. The risks to directors for utilising AI technology increases with the use of technology such as 'black box' as there is no way to ascertain subjective knowledge. Subjective knowledge in this context refers to the knowledge that a director has, the difficulty in attaining knowledge within a black box is inherently difficult due to its programming. This could lead to directors avoiding liability where they are unaware of how the AI system functions. This paper proposes an executive director to monitor AI, a 'technology director'. This responds to the question of division responsibilities often discussed in the literature.[61] The benefits for a technology director mitigate the risks of black box and data governance. An 'expert' in technology will be responsible for overseeing the input of data and monitoring the functionality to ensure it is running in accordance with the agreed coding for decision making.[62] As this technology director will be technically qualified in the field of computer science, this also reconceptualises the subjective and objective standards. The objective knowledge would be general knowledge expected of a director in that position. [63] Given the specialist nature of the role, this objective standard would be raised reducing the "I was unaware" defence. The subjective knowledge is increased due to the qualifications and experience as a technology expert. This subjective knowledge can further be supported by specifying the experience required for the office holder, specific requirements raise subjective standards. Therefore, the risks companies utilising AI to assist with decision making can be mitigated by the introduction of a specialist executive on the board. The technology director can assume responsibility for data quality for elements such as accuracy and completeness. AI can be defended as an augmenting tool to assist in making these decisions whilst complying with duties provided there remains a responsible party for the date.

[61] For example, E. Hickman and M. Petrin, 'Trustworthy AI and Corporate Governance: The EU's Ethics Guidelines for Trustworthy Artificial Intelligence from a Company Law Perspective.' (2021) 22.4 *European Business Organization Law Review* 22, 593–625 argues that businesses face questions in respect of division of specialist responsibilities.

[62] Such as programming in accordance with the articles of association which may provide the framework for how the AI is to function within specific firms. This could be included in revised model articles or specific to each company.

[63] Companies Act 2006, s 174 (2) (a).

4.3 AI System Regulation

The design and implantation of AI is not currently regulated, in the corporate context this presents two further problems. Firstly, ensuring that the AI which is being used is reliable and trustworthy and secondly providing a basis on which this can be certified. Elon Musk famously claimed that, in the absence of regulation, AI could amount to an existential threat, such as systems exposed to hacking at one end of the scale to the complete replacement of humans at the other end of this scale.[64] Therefore, there is a need for the introduction of regulation of the AI systems themselves. This could be in the form of industrial best practice or in the form of a code much like the UK Corporate Governance Code. The rapid development of technology does not suit AI regulation within the statue itself. Therefore, the introduction of regulatory body allows for clear standards to be set whilst ensuring that this can be kept up to date with the most recent technological developments. The framework for the use of AI is provided, such as the balance of duties and the regulation of AI coming from industry standards and experts.[65] Therefore, before AI is permitted to be used in a corporate context, it needs to be first subjected to control checks and issued with a compliance statement. This compliance statement should be issued by an independent body, much like an auditor, to ensure that the AI has been programmed in line with industry standards. The ongoing maintenance of the AI is then the responsibility of the technology director. Utilising this more facilitative approach from company law allows the use of AI in today's technology and permits tomorrows technology to be used without further legislative input.

5. AI AS A DIRECTOR?

There is increasing debate as to the possibility of AI in the boardroom in the capacity as a director, 'the robot director'.[66] A venture capitalist firm in Hong Kong 'appointed' an AI director to their board[67] aiming to demonstrate the possibility and importance of AI. This

[64] S. Gibbs, 'Elon Musk: regulate AI To Combat 'Existential Threat' Before It's Too Late' , *The Guardian*, 17 July 2017, www.theguardian.com/technology/2017/jul/17/elon-musk-regulation-ai-combat-existential-threat-tesla-spacex-ceo [Accessed 4 February 2021].
[65] Such as the AI council from a UK perspective.
[66] F. Möslein, 'Robots in the Boardroom: Artificial Intelligence and Corporate law'; J. Armour, 'Augmented Lawyering'; A. Paolini, 'Robots in the Boardroom: Would AI Beat Their Creators? D&O Insurers Please Think Deep!'.
[67] BBC News, 'Algorithm appointed board director', BBC New, (16th May 2014) www.bbc.co.uk/news/technology-27426942 [Accessed 4 February 2021].

section aims to evaluate the role of an AI director and if the imposition of an AI director is possible and how persuasive the argument is.

A fundamental reason which prevents an AI being appointed director is the requirements for appointment and the subsequent duties. The firm which appointed an AI in Hong Kong could be seen to be more of a publicity attempt than a substantive appointment. Directors need to have capacity and one director must be a natural person.[68] The actuality is that the 'appointment' for the AI director would not be akin to the formal appointment of a director expected by law. Chesterman contends that the AI in this example "was not appointed to anything".[69] This is supported by the managing partner confirming the status of the AI in the 'Vital' boardroom was merely an 'observer'[70] not a director on an executive basis. In England & Wales, there is a requirement that one director be a natural person.[71] Moreover, following the Small Business and Employment Act[72] the UK has demonstrated its intent toward a more 'natural' board by the removal of corporate directors.[73] AI's lack capacity, i.e. the lack of consciousness or legal capacity, there is no legal basis on which to appoint them to the board. The logistical challenges of legally appointing a director at the initial stage requires significant legislative reform. Even if the relevant provisions could be included to allow for AI directors, further challenges of governance exist. The change in policy direction in the UK and move away from corporate directors suggests that this reform will lack parliamentary support, further hindering its introduction. The challenge of AI directors is not that they merely do not meet the current formality requirements, notwithstanding this, there appears to be little appetite for this reform. This renders arguments in favour of AI directors unpersuasive.

This paper has considered the application of directors' duties in the context of its application to AIs. The justification that an AI can function as a tool is that it is supervised by human agents, augmenting directors existing skillset, who remain liable in discharging their directors' duties. With an AI director, discharging their duties remains a significant obstacle in their

[68] Companies Ordinance (Cap. 622), Part 10.
[69] S. Chesterman, 'Artificial Intelligence and The Limits of Legal Personality' (2020) 69.4 *International and Comparative Law Quarterly*, 819.
[70] N. Burridge and Nikkei Asia (2017) 'AI takes its place in the boardroom'. www.asia.nikkei.com/Business/AI-takes-its-place-in-the-boardroom [Accessed 21st June 2021].
[71] Companies Act 2006, s 155.
[72] Small Business and Employment Act 2015, s 87.
[73] At the time of writing the removal of corporate directors is still pending.

application. The imposition of the black box proposition specifically, presents a number of problems with respect to AI directors.

5.1 Accountability of AI Directors

The importance of accountability and transparency has been brought to the forefront of the corporate agenda. The significant risk is that of AI accountability, how can AI directors be held to account where they lack legal capacity? Legal capacity is granted to companies on the basis of human supervision, the introduction of AI directors presents concerns of holding these AIs to account.[74] In order to facilitate AI as a director who can be accountable, they would first need capacity. Mindaugas contends that if AI is to be granted capacity it should be on a 'juridical person' basis.[75] In this regard, there could be multiple juridical persons , i.e., the company itself and any parent organisation, within a business resulting in a more heightened issue of accountability, due to the lack of morality through human agents. The challenge here being that a juridical person could be responsible for another. Watson contends that conscience is a person's moral sense of right and wrong which assists with behaviour in decision making.[76] The introduction of multiple juridical persons without natural persons questions the concept of morality due to this lack of consciousness. The legitimisation for AI and the role of AI is predicated on accountability values. In the corporate context, accountability can be established through directors for their actions whereas in an AI context, accountability is difficult to ascertain. The argument that accountability could be attached to those who develop AI also presents its own difficulties. Attaching liability to AI developers is problematic for two principal reasons. The first, attaching liability for developers could result in developers being unwilling to develop future AI systems, stunting growth. The second, black box scenarios following machine learning, the developer cannot reasonably foresee every action and decision by the AI. This inability to foresee future action and learning presents obstacles for attaching liability to the developers. This challenge is based upon both contractual and tortious concepts. Contractually, once developed in accordance with the design brief there can be little recourse in contract once obligations have been fulfilled. From a tortious perspective, establishing both

[74] G. Ricci and S. Alberto, 'Artificial Agents in Corporate Boardrooms' (2019) 105.1 *Cornell Law Review*, 869.
[75] M. Naučius, 'Should Fully Autonomous Artificial Intelligence Systems Be Granted Legal Capacity?' (2018)1.17 *Teisės apžvalga,* 113.
[76] Watson, 'Viewing Artificial Persons in the AI Age Through the Lens of History'.

reasonability and foreseeability and the test of 'reasonable and fair'[77] will also be difficult to meet. Therefore, due to the difficulty in attaching liability and the lack of human agents as supervisors the arguments in favour of granting AI legal capacity in its current form is not persuasive. Without capacity, AI directors will be unable to discharge duties and be held to account in the same manner as either a natural director or a corporate director. Therefore, using AI as a tool to augment the existing skill set of the directors in the board making process is more likely to address the corporate shortcomings described than the introduction of AI directors.

5.2 Non-Executive Directors

The role of the NED director is supervisory, and their role differs from the of an executive director. The role of NEDs is to question the board and monitor executive decision-making. The UK Corporate Governance Code provides that NEDs have a prime role in appointing and removing executive directors. [78] They should scrutinise and hold to account the performance of management and individual executive directors.[79] This presents a significant problem as the ability for an AI to supervise the activity of natural persons appears somewhat disingenuous. For the AI to have the ability to do this, they are reliant on data which is to presumably be provided by the executive directors. Additionally, the ability for AIs to check and ask intelligent questions of the board is a technology which presents multiple challenges. Therefore, for these reasons, the ability for AI to serve as a NED is inconceivable.

6. CONCLUSION

There are two main problems within corporate governance which the introduction of AI tool could help to resolve: short-termism and a shareholder-centred approach. Short-termism has become more generally embedded into modern corporate governance to the detriment of the longevity of companies and society. The key contributors to this problem are 'exit over voice', where shareholders find it easier to leave a company than make their voices heard, and widely

[77] *Caparo Industries Plc v Dickman* [1990] 2 WLR 358.
[78] The UK Corporate Governance Code 2018, Principle 2 – Provision 13.
[79] Ibid.

dispersed ownership. AI can be used to exercise the voice of shareholders and to create greater engagement. Despite revised codes and introducing the 'enlightened shareholder value' requiring directors to consider the 'likely consequences of any decision in the long term,[80] short-termism remains a feature of modern governance. We have argued that the shareholder-centred approach to governance is a problem within corporate governance where the focus on shareholders results in all other stakeholders becoming subservient to them. Although this approach has been favoured for several reasons, including efficiency, we argue that there is support for a departure from this concept and that such a departure increases the potential for ESG objectives.

AI is proposed as a tool to reduce short-termism and also to discourage a shareholder-centred approach. The AI we propose would have the ability to gather and process data from a wide pool of shareholders and stakeholders. It would process data according to a pre-determined algorithm and provide a board of directors with recommendations or advice, based on the data the AI has evaluated, to help them in taking decisions. Significantly, the use of AI does not replace the personal role and responsibilities of directors but instead assists them in the decision-making process. AI has the capacity to reduce short-termism since long-term objectives and social norms can be included in the algorithm. Moreover, the ability to use a larger dataset and allow all shareholders, particularly minority shareholders, to feed in data reduces the 'exit over voice' problem we have identified.

It is possible to fit the use of AI as a tool into the existing legislative and regulatory framework. At the same time, company law can further facilitate and support the board's use of AI. We make two proposals in this regard firstly, an amendment that creates a legal basis to ensure directors are not in breach of their duties when utilising AI, and secondly, the introduction of a 'technology director' to oversee the use of AI and to ensure correlative accountability for data governance of the AI. The legal basis of directors' duties includes an exception to their duty to exercise independent judgment, which ensures that when their discretion is fettered, directors will not be liable for honest reliance on AI. Conversely, the technology director assumes responsibility for the AI to ensure that it is not utilised to evade liability by virtue of

[80] The Companies Act 2006, s 172.

poor-quality data. This introduction legitimises the use of AI because it is enforced by the supervision of a human agent.

Two additional proposals were considered, the use of AI as a corporate director and the use of AI as a non-executive director. Introducing an AI director is inherently difficult due to the lack of capacity, consciousness, and ability to attach liability or comply with duties, so we concluded that the use of AI as a director is not feasible within the current framework. Because of the risks and the legislative changes required, it is likely to give more problems than it solves. The role of an AI NED was evaluated, but given the supervisory role that NEDs hold and their need to be able to ask questions and supervise and appoint directors, the concept of a NED director is even less realistic than the appointment of a de jure director.

Our overall conclusion is that AI can not only transform corporate governance to make it a more inclusive construct but that its use in such a way is possible with only minor adjustments to the current legislature. AI has the capacity to generate greater value for shareholders and stakeholders in the longer term, and the use of AI as a tool can be the first step towards AI in the boardroom. Success as an AI advisor could lead to a wider acceptance of AI, thus paving the way for more extensive use of AI in modern and future corporations.

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