

AI AND CORPORATE GOVERNANCE

HOW MAY AI ASSIST THE BOARD IN INFORMED DECISION-MAKING?

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I. INTRODUCTION

Corporate governance presents a continuous challenge for every company. Well-designed corporate governance policies can play a significant role in advancing economic objectives and serving public policy benefits, such as promoting innovation and productivity.¹ Among various topics on how to ensure good corporate governance, the board’s responsibilities have stood at the core. While framed differently, it is universally acknowledged that the board owes a fiduciary duty to the company, including a duty of care and a duty of loyalty.² The duty of care requires board members to act on a fully informed basis before making a business decision.³ Although standards for informed decision-making vary across jurisdictions, staying fully informed has been an enduring challenge

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OECD, *G20/OECD Principles of Corporate Governance 2023*, at 6 (Sep. 11, 2023), <https://www.oecd-ilibrary.org/docserver/ed750b30-en.pdf?expires=1699385888&id=id&accname=guest&checksum=FF49EE5A6A458A705F446855C590406A>.

²*Id.* at 34.

³*Smith v. Van Gorkom*, 488 A.2d 858, 872 (Del. 1985), overruled on other grounds by *Gantler*, 965 A.2d at 713.

to the board, considering the board must digest a significant amount of information and make decisions in limited time.

Artificial intelligence (AI) has emerged as a valuable assistant in informed decision-making. The board often makes important decisions on very short notice, which is a tough task for independent directors because it may be difficult to digest all the required information in a short period of time.⁴ For example, in Elon Musk's bid to acquire Twitter, it took only 10 days from Musk's offer to its acceptance by Twitter's board.⁵ Regarding digesting information in a limited time, AI shows competitive advantages by offering a cost-effective and fast solution to the challenges of information processing and analysis. Due to its efficiency and heightened productivity, AI in the boardroom has become a reality. AI-powered tools for enhanced board decision-making have appeared on the market; such as Board Intelligence, OnBoard, Diligent Insights, etc.⁶ Nora Denzel, board director of Advanced Micro Devices (AMD), said AI "definitely helps you with decisions" for its abilities of "real-time data and risk analysis, scenario planning, and predictive analysis."⁷

However, using AI at the current stage faces multiple risks. AI technology is still developing. Also, AI models are plagued by unintended bias and discriminatory results.⁸ From the data being used to train AI models to the programs processing data, any tiny unconscious bias could lead to harmful outcomes. Due to unconscious biases embedded in data and programs, Amazon's experimental AI-powered recruitment tool exhibited discrimination against female applicants.⁹ While not directly related to board decision-making, Amazon's unfortunate case highlights the potential consequences of AI at its current stage. If unconscious biases are not properly handled, they could render AI incapable of informed decision-making. As a result, the board may breach its fiduciary duties by guiding decisions that harm the company's interests. How to

⁴Akshaya Kamalnath, *The Perennial Quest for Board Independence: Artificial Intelligence to the Rescue?*, 83 ALB. L. REV. 43, 49 (2019).

⁵On April 13, 2022, Musk texted Twitter board chair that he planned to make an offer to acquire all of Twitter. On April 14, 2022, the Twitter board met to discuss Musk's proposal and established a transactions committee to evaluate the proposal, oversee negotiations, and explore strategic alternatives. On April 15, 2022, the Twitter board adopted a poison pill provision. On April 21, Musk announced he had garnered commitments of about \$46.5 billion in financing for a possible Twitter acquisition. At a board meeting on April 25, 2022, the board discussed the agreement and ultimately approved the merger agreement. See *TWITTER, INC., Plaintiff, v. ELON R. MUSK, X HOLDINGS I, INC., and X Holdings II, Inc., Defendants.*, 2022 WL 2713259 (Del. Ch.).

⁶Liat Ben-Zur, *13 AI-Powered Tools for Enhanced Board Decision-Making: A Comprehensive Guide for CEOs and Board Directors* LBZ ADVISORY (May 9, 2023), <https://liatbenzur.com/2023/05/09/13-ai-powered-tools-for-enhanced-board-decision-making-a-comprehensive-guide-for-ceos-and-board-directors/>.

⁷Yun Park, *Companies Grapple With Limits in Bringing AI Into the Boardroom*, BLOOMBERG LAW (Aug. 11, 2023, 2:00 AM), <https://news.bloomberglaw.com/artificial-intelligence/companies-grapple-with-limits-in-bringing-ai-into-the-boardroom>.

⁸Janine S. Hiller, *Fairness in the Eyes of the Beholder: AI; Fairness; and Alternative Credit Scoring*, 123 W. Va. L. Rev. 907, 907 (2021).

⁹Alexandra N. Marlowe, *Robot Recruiters: How Employers & Governments Must Confront the Discriminatory Effects of AI Hiring*, 22 J. High Tech. L. 274, 303 (2022).

appropriately utilize AI and minimize AI-associated risks remains an ongoing challenge for the board. Importantly, the board must maintain the “heart of the management of the corporation” and control, not be controlled by, AI.¹⁰

This article has four parts. Part I is an introduction. Part II introduces the board’s role in corporate governance and the board’s duty of informed decision-making. Part II also introduces whether the board could use AI in decision-making under current legal frameworks. Part III discusses the advantages and risks of AI. Specifically, it discusses how AI can help in making an informed decision and the risks of using AI, especially the risk of immature technology and unconscious bias. Part IV is the conclusion.

II. THE BOARD’S FIDUCIARY DUTIES

A. Role of the Board

Corporations do not have autonomous minds or bodies, so they depend on humans to make decisions.¹¹ The board of directors emerges as a crucial solution. “The board of directors is the corporation’s governing body.”¹² It holds the ultimate responsibility for the corporation’s business affairs and has the power to make decisions on behalf of the corporation.¹³ Therefore, the board plays a critical role in shaping and upholding corporate governance.

Although board structures and procedures vary both within and among jurisdictions, all boards are expected to fulfill their fiduciary duties, including the duty of care and the duty of loyalty.¹⁴ The duty of care requires board members to be fully and adequately informed and act with care when making decisions for the corporation.¹⁵ The duty of loyalty requires directors to act in the best interest of the corporation, not in their own personal interest.¹⁶ When reviewing decisions and actions made by the board, the default standard of review is the business judgment rule. The business judgment rule presumes that the board “acted on an informed basis, in good faith, and in the honest belief that the action taken was in

¹⁰Christopher M. Bruner, *Artificially Intelligent Boards and the Future of Delaware Corporate Law*, 22 J. CORP. L. STUD. 783, 792 (2022).

¹¹Sergio Alberto Gramitto Ricci, *Artificial Agents in Corporate Boardrooms*, 105 CORNELL L. REV. 869, 870 (2020).

¹²*Powers and Duties of Corporation Directors and Officers*, WOLTERS KLUWER (Feb. 12, 2023), <https://www.wolterskluwer.com/en/expert-insights/powers-and-duties-of-corporation-directors-and-officers>.

¹³For example, Section 141(a) of the Delaware General Corporation Law provides that “The business and affairs of every corporation organized under this chapter shall be managed by or under the direction of a board of directors, except as may be otherwise provided in this chapter or in its certificate of incorporation.” Section 300(a) of the California Corporation Codes provides that “the business and affairs of the corporation shall be managed and all corporate powers shall be exercised by or under the direction of the board.” Del. Code Ann. tit. 8, § 141 (West); Cal. Corp. Code § 300 (West).

¹⁴OECD, *supra* note 1, at 34.

¹⁵*Fiduciary Duties of the Board of Directors*, Practical Law Practice Note Overview 6-382-1267.

¹⁶*Id.*

the best interests of the company.”¹⁷ Undoubtedly, staying informed remains a fundamental aspect of the board’s fiduciary duties and the business judgment rule. However, how to stay informed has consistently posed an enduring challenge to the board.

B. Duty of Informed Decision-Making

There are no detailed instructions telling the board how to stay informed. However, in practice, various courts have established differing standards and principles to evaluate whether a decision is informed. Considering most big corporations are incorporated in Delaware and the significance of the Delaware Court of Chancery, the standards and principles established by the Delaware Court can be a great source to analyze how to stay informed.

The standard for informed decision-making was established in *Aronson v. Lewis*, in which the Delaware Supreme Court held that directors “have a duty to inform themselves, prior to making a business decision, of all material information reasonably available to them.”¹⁸ In *Smith v. Van Gorkom*, the Delaware Supreme Court re-emphasized this standard and held that the directors of Trans Union breached their fiduciary duty by failing to inform themselves of all information reasonably available to them.¹⁹ Specifically, Trans Union’s first board meeting decision was not informed because the directors had no documents before them concerning the proposed transaction or summarizing the terms of the merger, and they were required to rely entirely on the chairman’s 20-minute oral presentation of the proposal.²⁰ *Van Gorkom* implies some advice on informed decision-making. Directors should not just attend meetings; they are also expected to carefully read reports or materials prepared for the board and ask questions at meetings.²¹ Additional criteria should also be fulfilled. For example, reports and materials concerning matters under consideration should be well-prepared to help directors quickly understand the context, content and implications of the matters. When making decisions, directors should exercise independent judgment rather than solely relying on the recommendations of others. The board can rely on information, opinions, reports or statements presented by the corporation’s officers, employees, or any professional, but the board must select these people with reasonable care.²²

The duty of staying informed requires the board to stay informed of not only material relevant to the decision, but also the corporation’s affairs. In *Caremark*, the court held that the board has the responsibility to monitor the corporation’s activities. To satisfy this responsibility, the board should make a

¹⁷*Aronson v. Lewis*, 473 A.2d 805, 812 (Del. 1984), overruled on other grounds by *Brehm v. Eisner*, 746 A.2d 244 (Del. 2000).

¹⁸*Id.*

¹⁹*Smith v. Van Gorkom*, 488 A.2d 858, 893 (Del. 1985), overruled on other grounds by *Gantler v. Stephens*, 965 A.2d 695 (Del. 2009).

²⁰*Id.* at 874.

²¹*Supra* note 15.

²²DEL. CODE § 141(e).

good faith attempt to establish an information and reporting system. The system should ensure appropriate information will come to the board's attention in a timely manner as a matter of ordinary operations.²³ Failure to implement such information and reporting system²⁴ or conscious failure to monitor or oversee its operations regardless of the system²⁵ is a breach of the *Caremark* duty of oversight and may render directors liable for losses.²⁶

Nevertheless, staying informed is a challenging task, particularly for independent directors. Independent directors are often perceived as the magical solutions to many corporate governance issues.²⁷ Confronting increasing pressure for an effective monitoring function, the board is expected to maintain independence from the management. Independent directors are considered the best-qualified individuals who can effectively scrutinize management and object to management decisions when necessary.²⁸ Although the usefulness and independence of independent directors are doubted from time to time, empirical research finds independent directors are valuable firm monitors and advisors, especially when they play key board roles or have critical expertise.²⁹ For example, acquisition-experienced independent directors have more influence on acquisition performance than independent directors without acquisition experience.³⁰ However, staying fully informed is the greatest challenge to these directors.³¹ A truly independent director typically maintains limited engagement with the company and its board. Consequently, when decisions are made, independent directors are confronted with far more information from management than they can absorb.³² Also, a study of the relation between board independence and corporate outcome shows when the information acquisition cost is high, directors will be more reliant on information provided by management, which thereby leads to negative corporate outcomes.³³ Obviously, this poses a substantial but avoidable challenge for independent directors to realize their value.

²³In re Caremark Int'l Inc. Derivative Litig., 698 A.2d 959, 970 (Del. Ch. 1996).

²⁴See Marchland v. Barnhill, 212 A.3d 805, 824 (Del. 2019).

²⁵See Stone ex rel. AmSouth Bancorporation v. Ritter, 911 A.2d 362, 370 (Del. 2006).

²⁶In re Caremark Int'l Inc. Derivative Litig., 698 A.2d at 970.

²⁷Maria Gutierrez & Maribel Saez, *Deconstructing Independent Directors*, 13 J. CORP. L. STUD. 63, 63 (2013).

²⁸Yaron Nili, *Board Gatekeepers*, 72 EMORY L. J. 91, 103 (2022).

²⁹Ronald W. Masulis & Emma Jincheng Zhang, *How Valuable are Independent Directors? Evidence from External Distractions*, 132 J. FIN. ECON. 226, 227 (2019).

³⁰*Id.* at 242.

³¹William George, *Board Governance Depends On Where You Sit*, MCKINSEY & Co., (Feb. 1, 2013), <https://www.mckinsey.com/featured-insights/leadership/board-governance-depends-on-where-you-sit>.

³²*Id.*

³³Masulis & Zhang, *supra* note 29, at 228.

C. Corporate Law Regarding AI in the Boardroom

Currently, there is no universally accepted definition of artificial intelligence. John McCarthy offered a classic definition of AI as “the science and engineering of making intelligent machines, especially intelligent computer programs related to the similar tasks of understanding human intelligence using computers.”³⁴ The simplest form of AI is a field that combines computer science and robust datasets to enable problem-solving.³⁵ In practice, three potential roles AI may play are discussed. First is assisted AI, where AI functions as an assistant for directors by providing technological support in areas such as Big Data, cloud, and data science. Second is advisory or augmented AI, where AI serves as an advisor to directors by combining existing data and information to propose innovative solutions rather than merely identifying patterns and applying predetermined solutions. Third is autonomous AI, which entails AI acting independent of human intervention, essentially substituting for human directors in decision-making processes.³⁶

However, in the legal world, autonomous AI is not allowed to replace human directors in all U.S. states and most other major capitalist economies.³⁷ DGCL Section 141(b) requires each director to be a natural person. California Corporate Code Section 164 defines “directors” as natural persons. Even Vital, an AI designated by the Hong Kong-based venture capital firm Deep Knowledge to its board as the first-ever AI board member in history,³⁸ was not a real director because a director should usually be a natural person under Hong Kong’s corporate laws.³⁹ Thus, although Deep Knowledge claimed Vital was treated no differently from other human directors, Vital was actually treated with “observer

³⁴IBM, *What is Artificial Intelligence (AI)?* <https://www.ibm.com/topics/artificial-intelligence> (last visited Nov. 26, 2023).

³⁵*Id.*

³⁶See Ricci, *supra* note 11, at 895; Jingchen Zhao, *Artificial Intelligence and Corporate Decisions: Fantasy, Reality or Destiny*, 71 Cath. U. L. Rev. 663, 673 (2022); Derek Rice, *Assisted Intelligence vs. Augmented Intelligence and Autonomous Intelligence*, FEDTECH MAGAZINE (Jan. 31, 2020), <https://fedtechmagazine.com/article/2020/01/assisted-intelligence-vs-augmented-intelligence-and-autonomous-intelligence-perfcon>.

³⁷Martin Petrin, *Corporate Management in the Age of AI*, 2019 COLUM. B. L. REV. 965, 997 (2019).

³⁸Ian Jacobsberg, *Chairbot of the Board - Can AI Take Over Corporate Decision-making?*, BIZCOMMUNITY (Mar. 3, 2023), <https://www.bizcommunity.com/Article/196/547/236505.html>.

³⁹*Corporate Governance and Directors’ Duties in Hong Kong: Overview*, Practical Law Country Q&A 7-506-8920, [https://uk.practicallaw.thomsonreuters.com/7-506-8920?transitionType=Default&contextData=\(sc.Default\)](https://uk.practicallaw.thomsonreuters.com/7-506-8920?transitionType=Default&contextData=(sc.Default)) (last visited Nov. 26, 2023). See also Section 457 of H.K. Companies Ordinance requires a private company, other than a private company that is a member of a group of companies of which a listed company is a member, to have at least one director who is a natural person. See https://www.elegislation.gov.hk/hk/cap622?SEARCH_WITHIN_CAP_TXT=natural (last visited Nov. 26, 2023).

status.”⁴⁰ Nevertheless, AI can play a role as an assistant or advisor in most jurisdictions. DGCL Section 141(e) provides that the board can rely on information, opinions, reports or statements presented by experts. California Corporate Code Section 309(b) also allows directors to rely on information, opinions, reports, or statements prepared or presented by experts. It is conceivable that these protections might be interpreted to apply to opinions and reports generated by AI⁴¹, whether through identifying patterns and applying predetermined solutions or innovation solutions. Of course, however, the prerequisite of applying these protections is that the board should act in good faith and after reasonable inquiry to ensure the reliance is warranted.⁴²

III. ADVANTAGES AND RISKS OF USING AI

A. Advantages of Using AI

AI is advancing humanity’s reimagination of the world and our future. This is particularly true in the business world. In PwC’s 2023 Annual Global CEO Survey, 49% of CEOs believe that technology disruptors, such as AI, will impact profitability in their industry over the next ten years.⁴³ To keep pace with technological innovation, more executives consider embedding new technologies into their business model as their top strategic priority in the next three to five years.⁴⁴ 59% say they will invest in new technologies such as AI in the next 12 to 18 months.⁴⁵ Regarding AI in the boardroom, in a survey undertaken by Alteryx with 300 enterprise board members across the U.S., it was found that AI is a high priority for most board members. In total, 46% of respondents affirmed that AI is currently a board-level strategy, constituting their “main priority above anything else.”⁴⁶ The World Economic Forum’s Global Agenda Council on the Future of Software and Society, aimed at estimating the time span in which significant technological advances would manifest in everyday life, found 45% of respondents believed that the first AI model will be on the board of directors of a company by 2025.⁴⁷

⁴⁰Nicky Burrige, *Artificial Intelligence Gets a Seat in the Boardroom*, NIKKEI ASIA (May 10, 2017), <https://asia.nikkei.com/Business/Artificial-intelligence-gets-a-seat-in-the-boardroom>.

⁴¹Bruner, *supra* note 10.

⁴²See Del. Gen. Corp. L. § 141(e); Cal. Corp. Code § 309(b).

⁴³PwC’s 26th Annual Global CEO Survey, PwC (Jan. 16, 2023), https://www.pwc.com/gx/en/ceo-survey/2023/main/download/26th_CEO_Survey_PDF_v1.pdf.

⁴⁴PwC Pulse Survey: *Focused on reinvention*, PwC, <https://www.pwc.com/us/en/library/pulse-survey/business-reinvention.html> (last visited Nov. 26, 2023).

⁴⁵*Id.*

⁴⁶Heather Ferguson, *New Research: What Boardroom Leaders Think About Generative AI*, ALTERYX (Oct. 5, 2023), <https://www.alteryx.com/blog/what-boardroom-leaders-think-about-generative-ai>.

⁴⁷Aashirwa Baburaj, *Artificial Intelligence v. Intuitive Decision Making: How Far Can It Transform Corporate Governance?*, 8 GNLU L. REV. 233, 235 (2021).

As stated in Part II, the board's fiduciary duties require directors to stay informed and make informed decisions. Nevertheless, the pressure to make the right decision is high and is increasing.⁴⁸ Regulatory focus on the board's duty of care and oversight has heightened over the past year.⁴⁹ A study conducted by Oracle and Seth Stephens-Davidowitz revealed that 85% of business leaders have suffered from decision distress, and 97% expressed a desire for help from data to help them make better decisions, reduce risk, make faster decisions, make more money, and plan for the unexpected.⁵⁰ In this context, AI's data processing and pattern analysis abilities can provide significant assistance and advice to the board in informed decision-making.

AI presents the potential for competitive advantages.⁵¹ AI can offer a cheaper, better, and faster solution to whatever system it is applied to through its ability to maximize extracted data, automate repetitive tasks, and regenerate a more efficient process.⁵² When programmed correctly, AI can mitigate human errors, manage vast amounts of data smoothly and quickly, serve as a 24/7 available digital assistant, execute risky and perilous tasks efficiently, and enhance operational efficiency.⁵³

Specifically, corporations are mainly attracted to AI's three potential abilities: managing an ever-increasing data volume, recognizing patterns, and predictive analytics.⁵⁴ During board management, through its three abilities, AI may help improve financial projections and capital allocation decisions, anticipate and identify potential risks, inform efforts to mitigate risks, predict outcomes, identify matters for board attention in a more timely manner, and improve the information available to the board.⁵⁵ The board often must make

⁴⁸Mark Purdy & A. Mark Williams, *How AI Can Help Leaders Make Better Decisions Under Pressure*, Harv. Bus. Rev. (Oct. 26, 2023), <https://hbr.org/2023/10/how-ai-can-help-leaders-make-better-decisions-under-pressure#:~:text=AI%2Dpowered%20technologies%20can%20drive,answer%20questions%20and%20act%20as>.

⁴⁹*Artificial Intelligence & Financial Services Symposium*, MAYER BROWN (Oct. 27, 2022), <https://www.mayerbrown.com/-/media/files/perspectives-events/events/2022/10/ai-symposium/mayer-brown—2022-artificial-intelligence—financial-services-symposium—final-presentation-slides.pdf?la=en>.

⁵⁰Oracle, *Global Study: 70% of Business Leaders Would Prefer a Robot to Make Their Decisions*, CISION PR NEWSWIRE (Apr. 19, 2023), <https://www.prnewswire.com/news-releases/global-study-70-of-business-leaders-would-prefer-a-robot-to-make-their-decisions-301799591.html>.

⁵¹Holly J. Gregory, *AI and the Role of the Board of Directors*, REUTERS, <https://www.sidley.com/-/media/publications/h-gregory-practical-law-journal—ai-and-the-role-of-the-board-of-directors-aug-2023.pdf?la=en&rev=a2ca17e4f5ae48fc83040a1c12846458> (last visited Nov. 22, 2023).

⁵²Stefan Rao Kostas, *The Past, Present, & Future of M&A - Assessing How the Lean Process and Artificial Intelligence Can Remedy the Pitfalls of Traditional M&A*, 24 TENN. J. BUS. L. 115, 150 (2022).

⁵³Rashi Maheshwari, *Advantages of Artificial Intelligence (AI) in 2024*, FORBES (Aug. 24, 2023, 1:12 PM), <https://www.forbes.com/advisor/in/business/software/advantages-of-ai/>.

⁵⁴Iris H.-Y. Chiu & Ernest W. K. Lim, *Managing Corporations' Risk in Adopting Artificial Intelligence: A Corporate Responsibility Paradigm*, 20 WASH. U. GLOB. STUD. L. REV. 347, 355–57 (2021).

⁵⁵Gregory, *supra* note 51.

important decisions on very short notice, as exemplified by Musk's acquisition of Twitter, which a particularly tough task for independent directors because they may not be familiar with the industry and business⁵⁶ and may not be able to digest all the required information in a short period of time.⁵⁷ In this regard, AI can be of great help because of its ability to digest a great amount of information and provide analysis and advice in a short period of time. As technological advancements enable more detailed data tracking, corporations can gain comprehensive insights into the origins of their raw materials and inputs. Further, they can ascertain whether these inputs have been sourced and produced in an environmentally friendly and ethical manner.⁵⁸ According to Konstantinos Mitsopoulos, a research scientist at the Institute for Human and Machine Cognition (IHMC) in Florida, AI, especially generative AI, "can help overcome some of the problems affecting human decision making, such as limited working memory, short attention spans, and decision fatigue, especially when it comes to making decisions under pressure."⁵⁹

AI in the boardroom is no longer theory.⁶⁰ Vital, although claimed as a member of the board, was used to help the human board members of Deep Knowledge Venture make investment decision in biotechnology companies.⁶¹ Dmitry Kaminskiy, managing partner of Deep Knowledge Ventures, introduced the motivation of incorporating Vital into the boardroom as a response to numerous unsuccessful investments in biotechnology and the desire to avoid companies with a high likelihood of failure.⁶² Vital used machine learning to analyze financing trends in databases of life science companies and predict successful investments.⁶³ For example, it supported Deep Knowledge Ventures' investments in Pathway Pharmaceuticals, Ltd. in Hong Kong, and InSilico Medicine, Inc. in Baltimore, U.S.⁶⁴

Now, directors are widely using AI. AI-powered tools for enhanced board decision-making have appeared on the market, such as Board Intelligence, OnBoard, Diligent Insights, etc.⁶⁵ Some of these tools have received good reviews from customers. Corporations have started to use AI to boost sales, marketing, and for financial analysis, with some leading tech companies having already adopted it in assisting decision-making procedures.⁶⁶ Nora Denzel, board

⁵⁶George, *supra* note 31.

⁵⁷Kamalath, *supra* note 4, at 49.

⁵⁸Purdy, *supra* note 48.

⁵⁹*Id.*

⁶⁰Ricci, *supra* note 11, at 871.

⁶¹Deep Knowledge Ventures, *Deep Knowledge Venture's Appoints Intelligent Investment Analysis Software VITAL as Board Member*, GLOBENEWSWIRE (May 13, 2014, 9:34 AM), <https://www.globenewswire.com/news-release/2014/05/13/635881/10081467/en/Deep-Knowledge-Venture-s-Appoints-Intelligent-Investment-Analysis-Software-VITAL-as-Board-Member.html>.

⁶²*Id.*

⁶³*Id.*

⁶⁴*Id.*

⁶⁵Ben-Zur, *supra* note 6.

⁶⁶Park, *supra* note 7.

director of Advanced Micro Devices (AMD), said AI “definitely helps you with decisions.”⁶⁷ From the board’s administrative aspects, AI can help create meeting minutes, summarize documents, and list action items, to “minimize mundane parts of the meeting, from ingesting the information and distilling down what’s most important.”⁶⁸ On a business side of things, AI can help in real-time data and risk analysis, scenario planning, and predictive analysis such as predicting competitors’ moves based on their past actions.⁶⁹ In a recent AMD earnings call, directors used Generative AI to summarize financial analysis reports and track down the most common, important, positive, or negative information within a few hours, which used to take days.⁷⁰

AI’s advantages to the board’s decision-making are not limited to mere improvements in monitoring efficacy because of fewer time restrictions.⁷¹ It also helps in preventing poor decision-making. Financially, poor decisions cost firms on average at least approximately 3% of profits. For a \$5 billion company, this translates to an annual loss of approximately \$150 million.⁷² Moreover, the negative consequences extend beyond the financial field. A delayed shipment to an important supplier, a failure in IT systems, or a poorly-managed interaction with an unhappy customer on social media can all quickly escalate, potentially resulting in considerable reputational and regulatory costs for businesses.⁷³ AI can help reduce losses from poor decision-making through improving a board’s efficiency. For example, Generative AI technologies such as ChatGPT can be an efficient tool in overseeing corporate risks. In a study on uncovering corporate risks using Generative AI, the authors used ChatGPT to construe risk exposure metrics at the firm level and analyze whether GPT-based risk indices can predict stock market volatility and associated economic outcomes.⁷⁴ The study demonstrated present intuitive industry-specific and time trends in risk assessment.⁷⁵ Also, there is a strong positive correlation between GPT-based risk exposure measures and stock price volatility, particularly for political and climate risks. GPT-generated risk assessments even generally outperform traditional bigram-based measures.⁷⁶

Further, most boards suffer from groupthink and many board members are unable to challenge the management due to some biases and fictive

⁶⁷*Id.*

⁶⁸*Id.*

⁶⁹*Id.*

⁷⁰*Id.*

⁷¹Petrin, *supra* note 66, at 1007.

⁷²Purdy, *supra* note 48.

⁷³*Id.*

⁷⁴Alex Kim, Maximilian Muhn, Valeri Nikolaev, *From Transcripts to Insights: Uncovering Corporate Risks Using Generative AI*, HARVARD LAW SCHOOL FORUM ON CORPORATE GOVERNANCE (Nov. 1, 2023), <https://corpgov.law.harvard.edu/2023/11/01/from-transcripts-to-insights-uncovering-corporate-risks-using-generative-ai/>.

⁷⁵*Id.*

⁷⁶*Id.*

friendships.⁷⁷ For example, in the area of mergers and acquisitions, public company bidders are often found to overpay for targets, imposing significant losses on shareholders.⁷⁸ One important contributor towards this phenomenon are social factors, such as the existence of extensive business or educational ties between the managers of the bidder and target firms, the presence of fewer independent directors on the bidder's board, and the desire to keep up with peers.⁷⁹ A notorious example of this was in August 2011, Hewlett Packard (HP) announced it agreed to acquire UK software firm Autonomy for approximately \$11 billion; a mere year later, HP announced a write-down of \$8.8 billion related to this acquisition, destroying billions of dollars in value for HP shareholders.⁸⁰ This disaster was led by Léo Apotheker, HP's then-new chief executive officer, who was eager to use the Autonomy acquisition to make his mark on the company.⁸¹ AI can be a useful aid for countering groupthink and other social factors, because it can provide input without being influenced by human biases if programmed as carefully as possible, challenging as that may be.⁸² AI can reduce human biases in decision-making by objectively evaluating data and providing impartial recommendations. While AI inevitably will be influenced by data and the unconscious bias therein, AI can act better than humans because AI "...will not be afraid to upset its friends."⁸³ As a result, the board could discuss more comprehensively and avoid what might have been missed, either because of time constraints or blind spots caused by groupthink.⁸⁴ Marc Benioff mentioned in Salesforce's 2017 second-quarter earnings conference that he was using an AI tool called "Einstein Guidance" for every Monday staff meeting. He expressed Einstein helped him be a better CEO because of its exciting next generation technology and lack of bias.⁸⁵

B. Risks of Using AI

Undoubtedly, AI can be a great tool to the board in making informed decisions. However, relying on AI does not equate to informed decision-making. The wide application of AI technology also creates risks of immature technology, unconscious bias, privacy, and other regulation concerns.

⁷⁷Kamalnath, *supra* note 4, at 50–51.

⁷⁸Afra Afsharipour, *Enhanced Scrutiny on the Buy-Side*, 53 GA. L. REV. 443, 446 (2019).

⁷⁹*Id.* at 456.

⁸⁰*Id.* at 449-50.

⁸¹*Id.* at 450.

⁸²Kamalnath, *supra* note 4, at 52.

⁸³*Id.*

⁸⁴*Id.*

⁸⁵Larry Dignan, *Salesforce Preps Guidance Feature for its Einstein AI Technology*, ZDNET (May 19, 2017, 8:05 AM), <https://www.zdnet.com/article/salesforce-preps-guidance-feature-for-its-einstein-ai-technology/>.

1. Immature Technology

At its current stage of development, AI platforms are unlikely to be completely accurate when first designed.⁸⁶ Each company is unique. The time and cost needed to adjust a generally designed AI adapted to a particular company's need may result in unexpected risks. Before a generally designed AI becomes fully adapted, the results and predictions generated by such AI may be inaccurate. Reliance on such results may mislead the board and cause the board to make wrong decisions. Corporations must overcome uncertainties of this immaturity when implementing daily business operations.⁸⁷ Additionally, legal persons like corporations rely on the "consciousness and conscience of their human agents," while AI machines do not have such reliance on safeguards.⁸⁸ Relying entirely on an AI platform, whose algorithm lacks these considerations to make decisions, may have adverse effects.⁸⁹ Therefore, at the current stage, many AI outputs must be checked by humans to avoid inconsistent and even wrong outputs and unethical results.⁹⁰

Additionally, unlike other IT applications, AI learns from examples, experiences, and interactions with people, rather than being explicitly programmed for a particular result or outcome.⁹¹ AI is similar to an infant or pet; it cannot yet defend itself against hostile behavior.⁹² Tay, an experimental AI chatbot launched by Microsoft, was taught to be a racist, less than 24 hours after launch.⁹³ But with advancements in AI, "it would be reasonable to assume they will develop ways to protect themselves from bad actors either through identification and reporting or more draconian methods that work collectively to eliminate the threat punitively."⁹⁴ Though, the time of mature AI has not yet arrived, even Deep Knowledge Ventures has stopped using Vital just five years after announcing Vital got its board seat. This was because for an effective AI to be able to assist a venture capital firm in investment strategy, it requires tons of

⁸⁶Kalmanath, *supra* note 4, at 55.

⁸⁷Peter Bendor-Samuel, *Current Risks Involved in Adopting Generative AI Technology*, FORBES (Oct. 3, 2023, 10:16 AM), <https://www.forbes.com/sites/peterbendorsamuel/2023/10/03/current-risks-involved-in-adopting-generative-ai-technology/?sh=50dd081223c7>.

⁸⁸Ricci, *supra* note 11, at 893.

⁸⁹*Id.*

⁹⁰*Id.*

⁹¹Jingchen Zhao, *supra* note 37, at 676.

⁹²Rob Enderle, *Generative AI is Immature: Why Abusing It is Likely to End Badly*, TECHNEWSWORLD (Feb. 20, 2023, 4:00 AM) <https://www.technewsworld.com/story/generative-ai-is-immature-why-abusing-it-is-likely-to-end-badly-177849.html>.

⁹³James Vincent, *Twitter Taught Microsoft's AI Chatbot to be a Racist Asshole in Less Than a Day*, THE VERGE (May 24, 2016, 3:43 AM), <https://www.theverge.com/2016/3/24/11297050/tay-microsoft-chatbot-racist>.

⁹⁴Enderle, *supra* note 92.

examples to train, but they did not have big enough strategy decisions to train Vital effectively.⁹⁵

Further, boards' understandings of AI are still in their early stages. According to a survey of private company boards conducted by the National Association of Corporate Directors, despite 93% of directors acknowledging the potential impact of increased adoption of AI tools on their businesses, fewer than 23% of respondents reported regular discussion about AI on the board, and fewer than 7% expressed confidence their management teams' proficiency in AI issues was very high.⁹⁶ Given the technology's immaturity and the board's lack of knowledge of AI, the utilization of AI in the boardroom at this stage must be monitored.

2. Unconscious Biases

AI presents a "false neutrality."⁹⁷ AI models are plagued by unintended bias and discriminatory results.⁹⁸ On one hand, the meaning of fairness in data science and legal disciplines are different.⁹⁹ On the other hand, what data is inputted and how such data is processed affects AI outputs.¹⁰⁰ Bias and discrimination embedded in the design and data origins of AI systems will result in undiscoverable bias and discrimination in product development, marketing, implementation, deployment, and even the use of AI.¹⁰¹ Even if the basic program is accurate, training the program requires an adequate amount of correct and unbiased data, which is a difficult requirement to meet.¹⁰² For example, Amazon used an experimental AI-powered recruitment tool to quicken the hiring process and mechanize the search for top talent. Amazon used data from historical Amazon applicants to train the tool. Since most Amazon applicants in the past were men, unconscious biases were then embedded in the data and program, which led the tool to exhibit a bias against female applicants.¹⁰³ Consequently, this tool "taught itself that male candidates were preferable."¹⁰⁴ While this is not a

⁹⁵Jeremy Kahn, *Learning to Love the Bot: Managers Need to Understand A.I. Logic Before Using it as a Business Tool*, FORTUNE (Sep. 26, 2019), <https://fortune.com/2019/09/26/ai-business-strategy-management/>.

⁹⁶2023 NACD Private Company Board Practices and Oversight Survey, NATIONAL ASSOCIATION OF CORPORATE DIRECTORS (Aug. 24, 2023), <https://www.nacdonline.org/all-governance/governance-resources/governance-surveys/surveys-benchmarking/2023-nacd-private-company-board-practices-and-oversight-survey/>.

⁹⁷Emile Loza de Siles, *Artificial Intelligence Bias and Discrimination: Will We Pull the Arc of Moral Universe towards Justice?*, 2022 REVISTA FORUMUL JUDECATORILOR 40, 43 (2022).

⁹⁸Hiller, *supra* note 8.

⁹⁹*Id.*

¹⁰⁰Chiu, *supra* note 54, at 349.

¹⁰¹Siles, *supra* note 97, at 46-47.

¹⁰²Iria Giuffrida, *Liability for AI Decision-Making: Some Legal and Ethical Considerations*, 88 FORDHAM L. REV. 439, 442 (2019).

¹⁰³Marlowe, *supra* note 9.

¹⁰⁴Jeffrey Dastin, *Insight - Amazon Scraps Secret AI Recruiting Tool That Showed Bias Against Women*, REUTERS (Oct. 10, 2018, 5:00 AM), <https://www.reuters.com/article/us-amazon-com-jobs->

case of how unconscious bias might influence the board's decision-making, this shows the susceptibility of AI to unconscious bias and the potential negative consequences that may arise from it.

The board's decisions affect the entire company if the board's decision is influenced by unconscious bias while the board has no awareness of it, the negative consequence caused by unconscious bias will similarly affect the entire company. This effect may be magnified given the board is responsible for overseeing the company's operations, and no further doorkeeper can monitor it. Some safeguard measures are necessary to prevent AI from existing bias in human decisions.¹⁰⁵ As the governing body of corporations, "the board is accountable both legally and ethically for the positive use of AI within corporations."¹⁰⁶ The board should consider several solutions to prevent the introduction of bias into the decision-making process. First, the board may establish an ethics committee that includes employee representatives to "oversee AI proposals and implementations."¹⁰⁷ The ethics committee should assess potential beneficial and negative effects of AI and recommend the board whether to implement AI. It should also assess the risk of bias embodied in AI and suggest strategies for mitigating and eliminating bias.¹⁰⁸ Second, the board should build a system containing methods to detect and report bias. Upon detecting bias, the board should take actions to identify the origin and cause, eliminate bias from the AI system, and implement measures to prevent its recurrence.¹⁰⁹ Third, the board should train employees and implement programs in the corporations to prevent, monitor, and report bias and potential harmful outcomes.¹¹⁰

3. Regulatory Concerns—Privacy, Security, and AI Regulation

Implementing AI also raises various regulatory concerns, encompassing issues such as privacy, cybersecurity, intellectual property infringement, and adherence to AI-related regulations. While AI is widely used in the boardroom, board members carefully evaluate its risks and challenges. In Alteryx's survey, the top risks reported by board members include job displacement (49%), security (44%), and unaccountable processes (41%).¹¹¹ Board members actively using AI

automation-insight/amazon-scrapes-secret-ai-recruiting-tool-that-showed-bias-against-women-idUSKCN1MK08G/?utm_source=morning_brew.

¹⁰⁵Michael Ambjorn et. al, Innovation and Technology Expert Advisory Group, *AI in the Boardroom the Essential Questions for your Next Board Meeting*, INSTITUTE OF DIRECTORS SCIENCE, <https://www.iod.com/app/uploads/2023/03/IoD-The-AI-in-the-boardroom-3d69e07919bad710b0d29fb309e6d5ce.pdf> (last visited Nov. 26, 2023).

¹⁰⁶*Id.* at 8.

¹⁰⁷*Id.* at 10.

¹⁰⁸*Id.*

¹⁰⁹*Id.* at 11.

¹¹⁰*Id.* at 12.

¹¹¹Ferguson, *supra* note 46.

additionally reported challenges like governance (23%) and data privacy concerns (23%).¹¹²

Privacy concerns mainly stem from AI's potential threats to protecting sensitive, private data.¹¹³ AI relies on large data sets to fuel its algorithms,¹¹⁴ presenting significant risks to corporations if AI tools depend on collecting, processing, disclosing, and retaining personal data.¹¹⁵ When corporations "rely on third-party AI solutions or services," which are commonly used by the board, sharing data with external providers is unavoidable. This raises "concerns about data privacy, security, and the potential for unauthorized access or data breaches."¹¹⁶

Many boards employ Generative AI as assistants, but a notable issue arises as shared information becomes public. For example, as said by Jackie Lyons, Chief Financial Officer and Executive Partner at Gartner, "if a company runs its account payables through ChatGPT, that puts the information in the public domain, then anyone who asks can find out what the company's thresholds are."¹¹⁷ Additionally, AI can combine extensive personal information reported to or collected by public authorities with publicly available information. Even though individual sources of information may all be publicly available, "the resulting combined dataset may be seen as excessively invading privacy."¹¹⁸

AI also raises other concerns, including heightened security risks "by opening up more areas of attack and new forms of attack," such as deepfakes that can "simplify the impersonation of company leaders, raising reputation risks."¹¹⁹ These various risks have attracted policymakers' attention and have led to the rise of regulations of AI throughout the world. Although a unified law for AI regulation has not been enacted, legislatures are actively working on shaping AI regulations. An AI Index analysis of the legislative records of 127 countries indicates a significant increase in the number of bills containing "artificial intelligence" that were passed into law, growing from just one in 2016 to thirty-

¹¹²*Id.*

¹¹³EY & European Commission, Directorate-General for Justice and Consumers, *Study on the Relevance and Impact of Artificial Intelligence for Company Law and Corporate Governance – Final Report*, PUBLICATIONS OFFICE (June 2021), <https://data.europa.eu/doi/10.2838/790784>.

¹¹⁴Kimberly A. Houser, *Artificial Intelligence and the Struggle between Good and Evil*, 60 WASHBURN L. J. 475, 484 (2021).

¹¹⁵*Artificial Intelligence (AI) Legal Risks: Outline & Resources*, BLOOMBERG LAW, <https://www.bloomberglaw.com/document/X812P7CG000000#Privacy-Data-Security> (last visited Nov. 26, 2023).

¹¹⁶*Data Security, Checklist - Privacy, Cybersecurity & Data Management Risks for Artificial Intelligence (AI)*, BLOOMBERG LAW, <https://www.bloomberglaw.com/product/blaw/document/X8R0L38C000000> (last visited Nov. 26, 2023).

¹¹⁷Park, *supra* note 7.

¹¹⁸EY & European Commission, *supra* note 113, at 34.

¹¹⁹Frithjof Lund, Dana Maor, Nina Spielmann & Alexander Sukharevsky, *Four Essential Questions for Boards to ask About Generative AI*, McKinsey & Co. (July 7, 2023), <https://www.mckinsey.com/capabilities/quantumblack/our-insights/four-essential-questions-for-boards-to-ask-about-generative-ai>.

seven in 2022.¹²⁰ In 2021, among all U.S. federal AI bills, only 2% of them were passed into law. In contrast, in 2022, 10% of federal AI bills were passed into law and 35% of state-level AI bills were passed into law.¹²¹ On October 30, 2023, the Biden administration issued an Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence, establishing new standards for AI safety and security and protecting American's privacy.¹²² This order demonstrates the United States' desire to lead in developing not only AI technology but also its regulation.¹²³ Consequently, the board must exercise caution against the growing regulation of AI when applying AI to ensure corporate compliance with the law.

However, relying solely on cautious regulatory measures is insufficient for effective risk management. "Regulation is really hard to enforce because it is inherently a look back versus a look forward."¹²⁴ A mature board should build its internal policies and oversight system to ensure the safe and ethical use of AI and the management of risks. Nevertheless, the management of AI is a long journey. According to the Board Practices Quarterly report, only 13% of companies "have an AI policy or code of conduct," around 1/3 "don't have the protocol" and another 1/3 "are currently considering enacting it."¹²⁵ Many corporations have realized the importance of the risks.¹²⁶ According to Alteryx's survey, most companies reported having policies to address various risks and challenges: 79% of policies address privacy and security, 77% address ethical concerns, and 76% include fairness and bias.¹²⁷ However, a significant gap exists between policy creation and active steps to ensure proper governance and ethical use of AI technology. Board members reported lower rates of governance enforcement, including conducting regular audits of policy adherence (56%), establishing clear lines of responsibility for generative AI management (51%), and training staff on generative AI ethics (45%).¹²⁸ Therefore, boards should emphasize governance enforcement in addition to policymaking to effectively manage AI-related risks.

¹²⁰*Artificial Intelligence Index Report 2023, Chapter 6: Policy and Governance*, AI Index, 4 (2023), https://aiindex.stanford.edu/wp-content/uploads/2023/04/HAI_AI-Index-Report-2023_CHAPTER_6-1.pdf.

¹²¹*Id.*

¹²²Exec. Order No. 14110, 88 F.R. 75191 (October 30, 2023).

¹²³Cecilia Kang & David E. Sanger, *Biden Issues Executive Order to Create A.I. Safeguards*, N.Y. TIMES (Oct. 30, 2023), <https://www.nytimes.com/2023/10/30/us/politics/biden-ai-regulation.html>.

¹²⁴Nicholas Jacobino & Akiko Fujita, *Future of AI & Regulation: The Role of Corporate Boards*, YAHOO FINANCE (Nov. 22, 2023), <https://finance.yahoo.com/video/future-ai-regulation-role-corporate-171652370.html>.

¹²⁵Park, *supra* note 7.

¹²⁶*2023 KPMG U.S. AI Risk Survey Report*, KPMG, 3, <https://kpmg.com/kpmg-us/content/dam/kpmg/pdf/2023/ai-risk-survey.pdf> (last visited Mar. 11, 2024).

¹²⁷Ferguson, *supra* note 46.

¹²⁸*Id.*

IV. CONCLUSION

“AI” is the most notable word in 2023.¹²⁹ With rapid advancements in AI technology, especially in Generative AI like ChatGPT, discussions have proliferated around whether AI will replace humans.¹³⁰ While the idea of AI replacing humans sounds both fascinating and unsettling, the prevailing viewpoint is that AI won’t replace humans; instead, “humans with AI will replace humans without AI.”¹³¹

From the corporate governance perspective, a board equipped with AI also enjoys great advantages over one without AI. As discussed in Part II, the board is obligated to stay informed to fulfill its fiduciary duties to the shareholders, which is a challenging job, especially for independent directors. Because of AI’s competitive advantages, as discussed in Part III, AI can be a significant and even potentially irreplaceable assistant and advisor to the board. Some discussions have even pondered the possibility of AI replacing humans as formal board members. However, existing legal structures do not allow AI to replace human directors in most jurisdictions, and current AI technology remains too immature to replicate human functionality. Moreover, the utilization of AI raises many risks, such as unconscious bias, privacy concerns, security issues, intellectual infringement, etc.

To effectively exercise AI’s role as an assistant or advisor, some solutions must be taken to address these risks. The board must assert control over the tool of AI instead of being controlled by AI. First, board members should have the requisite skills and knowledge to assess risks and understand how data, algorithms, and other technologies are being used in their business, including third-party products embedding AI, especially in critical decision-making processes.¹³² Second, the board should establish subcommittees, such as ethics committees and oversight departments, to ensure the ethical adoption of technologies and effective board governance.¹³³ Third, when encountering challenges in the use of AI, the board should promptly seek advice from AI experts, such as a Head of AI or Chief Technology Officer, to mitigate

¹²⁹Esther Addley, ‘AI’ named most notable word of 2023 by Collins dictionary, THE GUARDIAN (Oct. 31, 2023), <https://www.theguardian.com/technology/2023/nov/01/ai-named-most-notable-word-of-2023-by-collins-dictionary#:~:text=%E2%80%9CAI%E2%80%9D%20has%20been%20named%20the,2023%E2%80%9D%2C%20the%20publisher%20said>.

¹³⁰See e.g. Cheyenne DeVon, *The ‘relatively simple’ reason why these tech experts say AI won’t replace humans any time soon*, CNBC (Dec. 9, 2023), <https://www.cnbc.com/2023/12/09/tech-experts-say-ai-wont-replace-humans-any-time-soon.html#:~:text=AI%20won't%20replace%20humans%2C%20but%20people,who%20can%20use%20it%20will&text=%22If%20you%20don't%20use,helps%20people%20boost%20their%20productivity>.

¹³¹*AI Won’t Replace Humans — But Humans With AI Will Replace Humans Without AI*, HARV. BUS. REV. (Aug. 4, 2023), <https://hbr.org/2023/08/ai-wont-replace-humans-but-humans-with-ai-will-replace-humans-without-ai?registration=success>.

¹³²See Ambjorn et. al, *supra* note 105, at 8.

¹³³See *id.* at 10.

unforeseen risks arising from AI.¹³⁴ The core principle guiding the board's actions is that the board must maintain the "heart of the management of the corporation"¹³⁵ while ensuring the proper functioning of supervising departments.

¹³⁴See Ferguson, *supra* note 46.

¹³⁵Bruner, *supra* note 10.