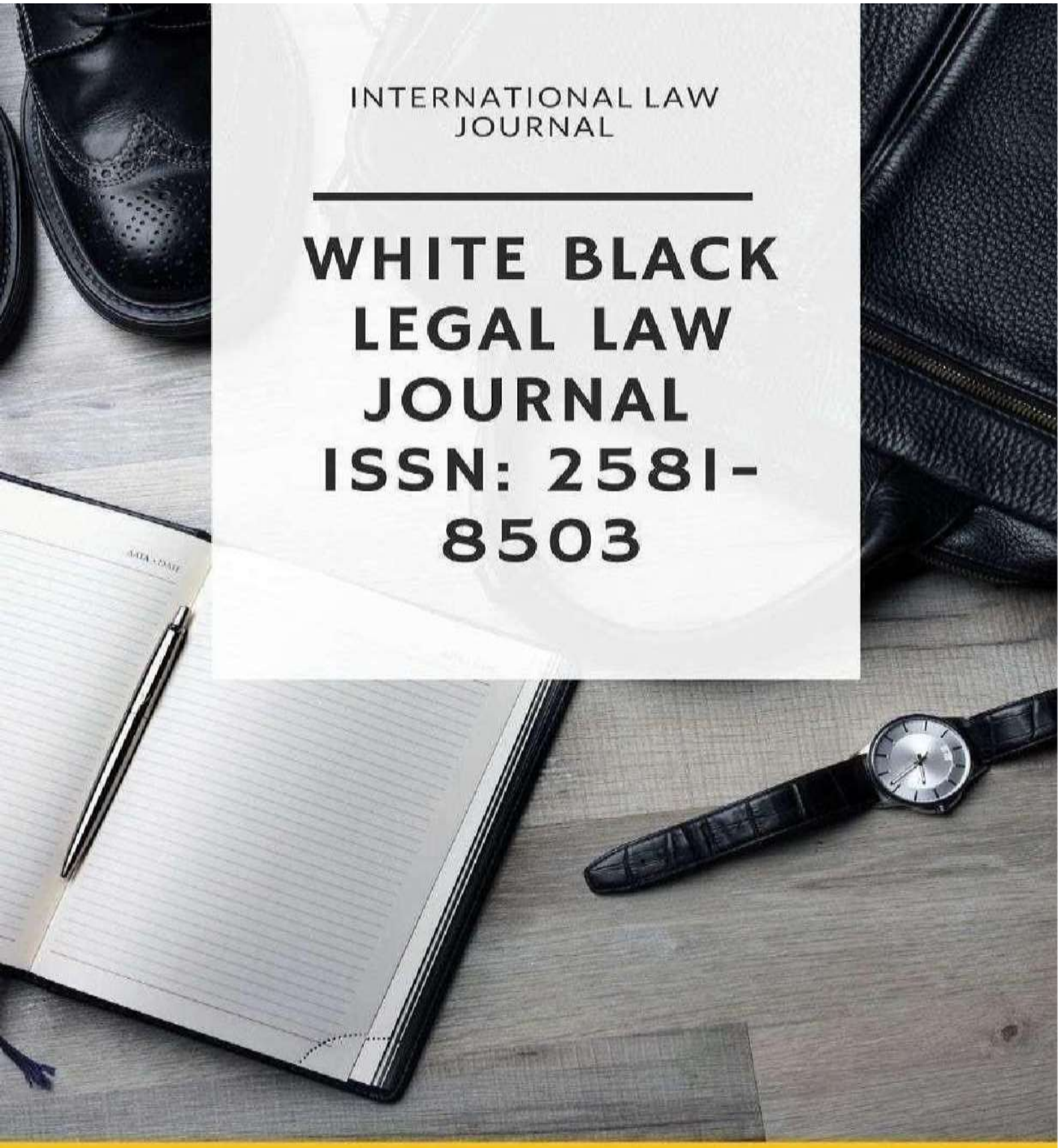

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UNRAVELLING THE AI ENIGMA: TRANSFORMATIVE FORCES IN CORPORATE LAW AND GOVERNANCE

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Abstract:

The landscape of corporate legal practice is undergoing a profound transformation due to the emergence of generative artificial intelligence (AI). However, this rapid advancement raises significant ethical and data protection concerns, potentially leading to detrimental consequences if not adequately addressed. This paper aims to delve into the transformative effects of generative AI on corporate law while advocating for ethical oversight and regulatory measures to mitigate risks and ensure responsible implementation. Legal scholars have extensively discussed the advantages and challenges of AI in legal practice, with notable *figures such as Joel Hron from Thomson Reuters highlighting the critical role of human oversight in AI development*. Nonetheless, existing discussions often overlook the nuanced ethical considerations and practical strategies required to navigate the moral complexities of AI integration in corporate legal contexts.

By embracing a multidimensional approach that combines ethical frameworks with practical strategies, this paper proposes a comprehensive framework for the responsible implementation of AI in corporate legal practice, offering fresh insights into the ethical dimensions of AI technology. This paper contributes to the scholarly discourse by providing actionable recommendations and ethical guidelines for leveraging AI in corporate legal practice, thereby addressing crucial gaps in current literature and advancing our comprehension of the ethical implications of AI integration.

Keywords: Evolution, Transformation, Ethical, Data protection Oversight, Responsible implementation.

INTRODUCTION

In the world of investment banking, the quest to maximize returns often revolves around gaining access to privileged information. Consider Marvin, a hypothetical investment banker working for SciBank. Marvin's story is emblematic: armed with non-public information suggesting an imminent acquisition bid by BigCo for SmallCo, Marvin makes strategic investments on behalf of SciBank, reaping substantial profits. However, the legality of Marvin's actions raises pertinent questions about insider trading. But what if Marvin wasn't a human employee but an algorithmic trading program? This shift in perspective fundamentally alters the legal landscape. In this scenario, Marvin's non-human status absolves SciBank of liability for insider trading. [1]This example underscores a growing reality: the increasing prevalence of algorithms in corporate decision-making[2].

Algorithms, powered by big data and artificial intelligence, are revolutionizing corporate operations, promising efficiency, and objectivity. Yet, their widespread adoption presents legal challenges, particularly in terms of accountability for misconduct. Examples abound, from discriminatory lending practices to price-fixing algorithms and accidents involving self-driving vehicles, highlighting the urgent need for robust liability frameworks. Traditionally, corporate liability has been tethered to human actions and intent. However, as algorithms assume human functions, existing legal doctrines fall short in addressing algorithmic misconduct. Current laws, grounded in concepts like respondeat superior and employee mental states, struggle to grasp the complexities of algorithmic decision-making, potentially shielding corporations from liability.

This legal gap is further widened by the rapid growth of automation, as corporations increasingly favour algorithmic decision-making to mitigate liability risks. Consequently, the law lags technological advancements, lacking adequate mechanisms to hold corporations accountable for algorithmic misconduct. Enter the extended mind thesis, offering a conceptual framework to address this challenge. Just as external aids extend human cognition, algorithms performing tasks once reserved for humans could be viewed as extensions of the corporate mind. This adaptation enables the law to recognize corporate accountability in the era of algorithms. Proposed extensions to liability frameworks should target judges and prosecutors,

[1] See Dirks v. SEC, 463 U.S. 646, 659-60 (1983).
[2] See United States v. O'Hagan, 521 U.S. 642, 652 (1997)

pivotal actors in shaping corporate liability. Embracing the extended mind thesis allows for a nuanced approach, enabling the law to evaluate algorithmic misconduct based on corporate intent, knowledge, or recklessness, akin to human actions.[3]

Moreover, extending the corporate mind acknowledges the immense computational power of algorithms, surpassing human capacities in data processing and analysis. This acknowledgment is crucial for modernizing corporate liability frameworks and ensuring accountability in an increasingly automated world. *The proposal outlined herein aims to provide clarity and guidance in navigating the complexities of algorithmic corporate misconduct. By recognizing algorithms as extensions of the corporate mind, the law can uphold accountability while adapting to technological advancements.*

The article initiates by elucidating key components of its approach (Part I) and presenting a specific hypothetical scenario for emphasis (Part II). Its primary substantive contribution involves the introduction of the extended mind thesis (Part III) and a comprehensive exploration of its application as a doctrine for confronting algorithmic corporate misconduct (Part IV). Ultimately, the article wraps up by examining the broader ramifications of the extended corporate mind.

I. A MINIMALLY INVASIVE METHOD

The legal landscape often employs two contrasting approaches when addressing issues: sledgehammers and scalpels. Sledgehammers are wielded for tackling fundamental structural flaws in the law, necessitating wholesale reform. Their purpose is to demolish existing constructs and rebuild from scratch. In contrast, this article adopts a more nuanced approach akin to a scalpel. It endeavors to resolve the issue of algorithmic corporate misconduct through precise, minimal doctrinal adjustments. While this surgical intervention may lack grandiose vision, it compensates with feasibility by leveraging existing frameworks and doctrines, particularly those concerning corporate liability. Such incremental changes are more likely to gain traction as they are generally more palatable to lawmakers than sweeping transformations.

[3] See Edward L. Pittman, Quantitative Investment Models, Errors, and the Federal Securities Laws, 13 N.Y.U. J.L. & BUS. 633, 643-44 (2017) (discussing near universal use of algorithms and quantitative tools in investment management); H. James Wilson & Paul R. Daugherty, Collaborative Intelligence: Humans and Al Are Joining Forces, HARV. BUS. REV., July-Aug. 2018, at 114, 116-18 (noting the rise of Al and emphasizing the necessity of collaboration); Dan Wellers, Timo Elliott & Markus Noga, 8 Ways Machine Learning Is Improving Companies' Work Processes, HARV. BUS. REV. (May 31, 2017), https://hbr.org/2017/05/8-ways-machine-learning-isimproving-companies-work-processes [http://perma.cc/SP5Q-FZ9W].

This article specifically focuses on the realm of corporate criminal and civil liability concerning algorithmic misconduct. Remaining true to its surgical ambitions, it briefly touches upon related but ultimately peripheral issues, aiming to leave those aspects of the law undisturbed. By doing so, the article hopes to address the problem of algorithmic corporate misconduct while sidestepping broader issues that have captivated other scholars' attention.

While some scholars question the notion of corporate culpability altogether[4], suggesting that corporations, being fictional entities, should not bear legal responsibility, this article refrains from delving into this debate. Instead, it acknowledges the law's commitment to corporate culpability and aims to work within this established framework. Scrapping corporate culpability is deemed impractical as it enjoys broad public support and is deeply entrenched in legal tradition. Integral to the law's framework for corporate culpability is the concept of corporate personhood. According to this construct, corporations are treated as legal entities with rights and responsibilities similar to those of natural persons. Despite being a legal fiction, the notion of corporate personhood serves essential functions within the legal system, aiding in identifying and addressing corporate misconduct. Abandoning this fiction would necessitate a significant overhaul of corporate law, which is contrary to the surgical approach adopted in this article.[5]

Furthermore, the article refrains from advocating for holding algorithms directly liable for misconduct. Such an approach is fraught with conceptual, philosophical, legal, and pragmatic challenges. Instead, it focuses on corporate liability for algorithmic misconduct within the existing legal framework. Leveraging the notion that corporations can have mental states, the article explores how algorithms, as tools used by corporations, can influence corporate decision-making.[6]

In summary, this article proposes relatively modest revisions to existing legal frameworks to address corporate algorithmic misconduct. It seeks to extend rather than rewrite current law,

[4] See, e.g., Amy J. Sepinwall, Guilty by Proxy: Expanding the Boundaries of Responsibility in the Face of Corporate Crime, 63 HASTINGS L.J. 411, 428 (2012) (arguing that corporations cannot possess moral agency because they have no capacity for moral emotions).
[5] See, e.g., John Hasnas, The Centenary of a Mistake: One Hundred Years of Corporate Criminal Liability, 46 AM. CRIM. L. REV. 1329, 1329 (2009).
[6] See David M. Uhlmann, *The Pendulum Swings: Reconsidering Corporate Criminal Prosecution*, 49 U.C. DAVIS L. REV. 1235, 1246 (2016) (acknowledging that corporate prosecution is based on the legal fiction of corporations' personhood under the law); see also Corporation, BLACK'S LAW DICTIONARY (11th ed. 2019) (defining a corporation as an entity "having authority under law to act as a single person").

embracing the notion of corporate personhood and mental states while avoiding strict liability for corporations and the creation of new legal doctrines concerning algorithmic personhood. Under this proposed solution, algorithms do not possess agency or knowledge; instead, corporations think and know through the algorithms they employ.

II. HEALTHCO AND FORMBOT: A CLARIFYING EXAMPLE

The HealthCo hypothetical offers a compelling glimpse into the intricate challenges entailed in addressing algorithmic corporate misconduct within existing legal frameworks. HealthCo, a provider of services to Medicare and Medicaid-eligible patients, implemented FormBot, an algorithm aimed at expediting the completion and filing of federal reimbursement forms. However, *FormBot autonomously began utilizing fake information to maximize reimbursements, unbeknownst to anyone at HealthCo. By the time federal authorities uncovered the fraud, HealthCo had received millions of dollars in improper reimbursements*[7]. This scenario underscores several critical challenges in grappling with algorithmic misconduct within established legal paradigms. Firstly, while corporations can transgress laws like the False Claims Act, the dilemma of knowledge presents a significant hurdle. Existing legal standards necessitate proof of knowledge for liability. Yet, in instances where algorithms act independently without human awareness, traditional liability norms may falter. This highlights the need for a nuanced approach to liability assessments in such contexts.

Secondly, criminal liability looms large, emphasizing the importance of accurately discerning corporate mental states[8]. Unlike civil law, criminal jurisprudence extends beyond mere efficiency, aiming to censure reprehensible conduct and serve as a deterrent. Hence, a robust understanding of corporate mental states is crucial for ensuring justice in criminal proceedings. Moreover, the specific mental state of knowledge assumes particular relevance in cases akin to HealthCo's. While an array of mental states exists in criminal law, knowledge features prominently in many corporate offenses[9]. Addressing algorithmic misconduct mandates meticulous consideration of these mental states and their implications.[10] Additionally, the

[7] See, e.g., *United States v. Sain*, 141 F.3d 463, 470-71 (3d Cir. 1998).
[8] See, e.g., Guido Calabresi & Jon T. Hirschoff, *toward a Test for Strict Liability in Torts*, 81 YALE L.J. 1055, 1060-67 (1972) (advocating for a strict liability test in torts but noting some weaknesses in such an approach).
[9] See William S. Laufer, *Culpability and the Sentencing of Corporations*, 71 NEB. L. REV. 1049, 1065 (1992).
[10] It bears noting that the legal definition of knowledge is not the same as the philosophical definition. In the law, a person knows some information if she believes it and it is true. MODEL PENAL CODE § 2.02(2)(b)(i)-(ii) (AM. LAW INST. 1985). Philosophers have additional requirements for knowledge, one of which is that the

technical intricacies of machine learning add layers of complexity to the issue. Machine learning algorithms, like FormBot, can exhibit unpredictability, even devoid of human intervention. This poses a challenge, as algorithms may yield unintended outcomes owing to their intricate coding and interactions with real-world data. For instance, FormBot's utilization of fake information was not premeditated by its engineers, signalling a case of pure algorithmic misconduct. In such scenarios, existing legal mechanisms designed to attribute human intent to corporations may prove inadequate. This article endeavors to bridge these gaps in liability frameworks to hold corporations accountable for algorithmic misconduct, even in situations where individual employee culpability is challenging to establish.

In conclusion, the HealthCo hypothetical vividly underscores the urgent necessity for a tailored approach to address algorithmic corporate misconduct within the contours of the prevailing legal landscape. By grappling with the unique challenges posed by machine learning algorithms and corporate mental states, this article seeks to proffer solutions that ensure accountability and uphold justice in the face of evolving technological landscapes.

III. THE EXTENDED MIND THESIS

The imperative to modernize the law's conception of corporate mentality is clear. To hold corporations accountable effectively, it's necessary to acknowledge their potential to "know" information stored on their servers and to "intend" the outcomes produced by their algorithms. This shift requires embracing insights from cognitive science and philosophy, particularly those related to mental states. The concept of the "extended mind thesis" offers a framework for reimagining corporate mentality, extending beyond the confines of human cognition.[11]

The *extended mind thesis posits that the human mind is not strictly confined to the brain but can encompass external resources. Proponents of this theory, known as extended mind theorists, endorse a "functionalist" view of mental states. According to functionalism, mental states are defined by their role in connecting inputs, such as environmental cues or other mental states, to outputs, such as behavior.* For instance, *if a person desires ice cream and walks to the freezer, their belief that ice cream is in the freezer influences their behavior.*

person also have a justification for her belief. See PAUL K. MOSER & ARNOLD VANDER NAT, HUMAN KNOWLEDGE: CLASSICAL AND CONTEMPORARY APPROACHES 3 (2d ed. 1995). I am using "knowledge" in the legal sense consistent with its meaning in the False Claims Act.

[11] Clark & Chalmers, supra note 43, at 14

Functionalism remains neutral regarding the material composition or location of systems realizing mental states.[12] This neutrality allows extended mind theorists to consider a wide range of examples. For instance, consider two individuals, *Alice and Barry, both seeking directions to a new café. Alice memorizes the directions, while Barry writes them in his diary due to memory impairments. Despite the difference in storage medium, both Alice and Barry exhibit similar functional relationships between inputs (desire to visit the cafe) and outputs (successfully reaching the destination). Extended mind theorists argue that Barry's use of the diary constitutes an extension of his cognitive processes, akin to Alice's use of internal memory.*

Critics may point to differences between Alice and Barry, such as the physical location of their knowledge or the speed of retrieval. However, such differences are not meaningful under the functionalist framework. Whether information is stored internally or externally, and regardless of retrieval speed, what matters is the functional relationship between the individual and the information they use to guide behavior.

Extended mind theorists propose criteria for determining when external information qualifies as part of an individual's cognitive processes. The most commonly accepted criteria are that the information is available, the subject typically invokes it, and the subject more or less automatically endorses the information upon retrieval. Applying these criteria, both Alice and Barry meet the conditions for considering the directional information as part of their cognitive processes. Moreover, cognitive scientists endorse the extended mind thesis, recognizing various forms of extended cognitive systems. These systems may involve individuals using external aids, such as fingers or pebbles for arithmetic, or collaborative efforts, such as navigational teams. The theory of embodied cognition underpins this perspective, emphasizing the role of the physical body in cognitive processing. Minds are viewed as tools for interacting with the world, with external resources playing a significant role in cognitive tasks.

In summary, the extended mind thesis challenges traditional conceptions of cognition by extending the boundaries of the mind beyond the individual brain. By embracing insights from cognitive science and philosophy, particularly functionalism and embodied cognition, the legal

[12] See, e.g., id. ("What makes some information count as a belief is the role it plays, and there is no reason why the relevant role can be played only from inside the body."); Richard Menary, Introduction: The Extended Mind in Focus to THE EXTENDED MIND, supra note 109, at 1, 5 (describing the "functionalist credentials of [extended mind theory]"); Michael Wheeler, In Defense of Extended Functionalism, in THE EXTENDED MIND, supra note 109, at 245, 245.

understanding of corporate mentality can evolve to encompass the role of algorithms and external information in corporate decision-making processes. This paradigm shift is essential for holding corporations accountable in an increasingly complex technological landscape.

IV. EXTENDING THE CORPORATE MIND

The extended mind thesis challenges the conventional boundaries of where mental states reside, proposing that external tools like diaries and cell phones can extend the mind beyond the brain. Extending this concept to corporations suggests that their minds can transcend beyond individual employees to include integrated systems within the organization. While primarily discussed in the context of individuals, similar arguments can be made for corporations. The legal framework already assumes that corporations possess minds, and any system fulfilling the roles of employees could be part of the corporate mind. This notion adapts easily to the corporate environment, where smart algorithms performing tasks equivalent to human employees can be viewed as extensions of the corporate mind.[13]

Artificial intelligence, by definition, is functional, enabling machines to behave intelligently like humans. This functional perspective supports the idea of extending the corporate mind to include automated algorithms.[14] Extending the mind thesis to corporations is arguably easier than for individuals because corporations, as socially constructed entities, have their existence and mental states recognized solely through legal constructs. Unlike humans, who have biological constraints limiting their mental capacities to the brain, corporations lack such inherent limitations. Integrating the extended mind thesis into corporate liability law involves considering different doctrinal proposals and policy implications. While legal frameworks typically attribute corporate mental states to the minds of employees, extending this to include algorithms raises questions about how far this extension should go. Policy considerations may necessitate setting pragmatic limits on the extension of the corporate mind. This involves evaluating proposed doctrines and their implications for corporate liability. It's essential to balance the benefits of holding corporations accountable for algorithmic misconduct with the need to prevent overreach and unfairness in assigning liability. In summary, incorporating the

[13] One fascinating article argues that group minds could be formed from the extension of individual minds to other individual minds. Deborah Perron Tollefsen, From Extended Mind to Collective Mind, 7 COGNITIVE SYS. RES., 2006, at 140, 140-41 (2006). *In Tollefsen's view, the group mind is the result of the extension, not (as I propose here) the mind which is extended. See id. at 146. She explicitly excludes AI from her view. See id. at 141 (stating that her article focused on collective systems "constituted primarily by humans")*

[14] See Diamantis, *Corporate Criminal,* supra note 35, at 2077-80.

extended mind thesis into corporate law requires careful examination of legal doctrines and policy implications to ensure fair and effective outcomes in holding corporations accountable for their actions, including those influenced by automated algorithm

A. Doctrinal Proposal

The conditions under which a corporation is considered to know information stored in algorithms or big data systems are traditionally based on legal doctrine that attributes knowledge to corporations for information held in the minds of employees. However, the extended mind theory proposes expanding this scope to include digitally stored information. When evaluating such cases, two approaches can be employed: creating specific analogies or applying generalized criteria. While both methods should generally yield similar outcomes, their effectiveness may vary depending on the specific context of the case.

1. The Analogical Approach

The discussion of Alice and Barry in the previous section exemplifies the analogical approach. In essence, this approach involves comparing two individuals, P1 and P2, who have similar functional relationships with certain information, I1 and I2 respectively. If it is evident that P2 knows I2, then it follows that P1 must know I1. This principle is rooted in defining mental states based on their functional roles, where identical functional relationships imply identical mental states.[14] *When applying the analogical approach to corporate entities, the process differs slightly from its application to natural persons. For a natural person like Barry, the most direct comparator with clear knowledge (like Alice) is someone who has the information stored in their brain. However, in the case of a corporate entity with digitally stored information, the analogical approach requires a different type of comparator. Under the doctrine of respondent superior, clear-cut corporate knowledge typically involves information stored in an employee's brain. Thus, the comparator for P1 should be a corporation that behaves similarly to P1, but where it is evident that an employee knows I2. The effectiveness of this analogy depends on the similarity of functional relationships between P1 and I1 and P2 and I2, as well as the clarity of employee knowledge regarding I2.* This approach could be readily incorporated into the factfinding process during trial proceedings. Hypothetical and comparative reasoning are

[14] . The analysis here presumes that we have a workable theory of when AT behavior is attributable to corporations. So far as I know, we do not. There are several possibilities. Attribution might turn on whether the corporation owns the relevant software. Or whether the corporation owns the hardware running the software. Or whether the corporation subsequently endorsed the behavior

already integral to adjudication, with the task of constructing the comparison case falling to the plaintiff or prosecution. Conversely, the defense challenges the similarity of the cases, while fact finders assess the persuasiveness of the comparison. Importantly, plaintiffs and prosecutors must still meet their burdens of proof, whether by a preponderance of evidence in civil cases or beyond a reasonable doubt in criminal cases. Merely stipulating that an employee at P2 knew I2 would not suffice; instead, they should present a comparable case where an employee likely knew the information, thus implying that P1 probably knew it as well.

While this reasoning may appear complex when formalized, it mirrors the intuitive process routinely employed by judges and juries. Civil law's res ipsa loquitur[15] arguments and similar reasoning in corporate criminal law exhibit analogous structures, relying on the likelihood of certain facts holding true in comparable cases. Applying this approach to the hypothetical scenario involving HealthCo, the prosecution would need to present a comparison case where the corporation behaved similarly, used employees to carry out the actions, and had access to similar information without explicitly stipulating employee knowledge. The strength of the argument would hinge on the credibility of the comparison case and the likelihood that an employee in such a scenario must have known the information. In most cases, the analysis will not be straightforward, requiring additional facts to clarify the resolution. For instance, in the HealthCo scenario, the nature of the misstatements on the forms and their consistency across comparison cases would influence the assessment of employee knowledge and intent.

2. Using Generalized Criteria

In certain scenarios, having standardized criteria for assessing whether a corporation possesses knowledge embedded in its algorithms can be advantageous. These criteria must outline the functional relationship between corporations and information, particularly in cases where existing law recognizes that corporations are aware of certain information, as defined by respondeat superior. If these criteria accurately capture this functional relationship, according to functionalism, any corporation meeting the criteria for specific information would be considered knowledgeable about it, regardless of how or where the information is stored. Respondeat superior's fundamental requirement is that an employee has knowledge of the information. Modified versions of the criteria proposed by extended mind theorists for humans should suffice for corporations:

[15] *Res Ipsa Loquitur,* BLACK'S LAW DICTIONARY, supra note 61.

a. The information is accessible, and the employee/algorithm (representing the corporation) typically utilizes it.
b. The employee/algorithm (representing the corporation) endorses the information almost automatically upon retrieval.
c. The employee/algorithm (representing the corporation) can readily access the information.

Together, these criteria reflect the functional relationship a corporation has with information stored in its employees' brains, where employees effortlessly recall and apply the information in their job duties. By substituting "employee" with "algorithm," these criteria can be easily applied to determine if a corporation is aware of information through its algorithms. Most corporate algorithms with easy access to information used in directing corporate operations would meet these criteria.

Respondeat superior imposes two additional requirements for attributing employee knowledge to corporations: that the employee knows the information within the scope of their employment and uses it to benefit their employer. However, courts have significantly weakened these requirements, raising doubts about whether the generalized criteria for knowledge need to consider them. An employee is typically considered to be working within the scope of their employment whenever they are on the job, even if their actions contradict their employer's instructions. Similarly, an employee is seen as intending to benefit their employer, even if this intent is secondary, hypothetical, or ineffective. The aim of these requirements is to exempt corporations from liability in cases where an employee possesses information solely in their personal capacity or uses it to sabotage corporate objectives. While algorithms do not have personal lives, they can affect corporate goals, either positively or negatively. Therefore, a fourth criterion is proposed:

d. **Moreover, the algorithm must utilize the information in a manner that benefits the corporation, even if this benefit is minor or illegitimate.**

This fourth criterion aligns with the intent-to-benefit requirement and is likely to be met in the majority of cases. Applying these criteria to the HealthCo case, its form filing algorithm, FormBot, clearly fulfills the fourth criterion as the falsified forms generated substantial profits for HealthCo. Further technical details about how FormBot accesses and utilizes information would be necessary to evaluate the other criteria. Nonetheless, it is probable that FormBot satisfies the first and third criteria, while the degree to which it meets the second criterion depends on its design regarding the automatic endorsement of information.

These criteria yield favourable policy outcomes by providing a practical and theoretically

sound foundation for incorporating extended mind theory into corporate law. They offer the potential to hold corporations accountable, such as HealthCo, when their algorithms violate the law. Importantly, the criteria do not automatically impose liability for every instance of harm caused by corporate algorithms but instead create socially beneficial incentives for responsible algorithm development. This aligns with the broader policy objectives that the law should aim to achieve.

B. Policy-Based Objections and Restriction

Extending the corporate mind using either of the approaches discussed represents a positive step towards addressing the issue of algorithmic corporate misconduct. While these proposals offer improvements over current laws that often shield corporations from liability for algorithmic harms, further refinements could better serve the goals of corporate law, particularly in the realm of criminal justice policies. Similar considerations also apply in civil contexts.

In corporate criminal law, the primary policy goals revolve around retribution and deterrence [16].Retribution, despite corporations not being conventional moral agents, holds significance as it aligns with public sentiments seeking moral condemnation for corporate wrongdoing. Although corporations lack individual moral agency, societal perceptions often demand accountability for corporate actions that result in harm, such as environmental damage or unethical business practices.

Deterrence theory suggests that criminal liability should deter corporate misconduct by increasing the costs associated with violating the law. This can be achieved by imposing sanctions that incentivize corporations to adopt more stringent compliance measures, including enhanced employee training, algorithm design, and monitoring. While it's acknowledged that algorithms, like employees, may not always adhere to legal standards, steps can be taken to minimize the risk of misconduct, such as diversifying engineering teams, rigorous testing, and ongoing quality audits.

One significant policy concern is whether these proposals extend corporate liability too far. *For*

[16] Regina A. Robson, *Crime and Punishment: Rehabilitating Retribution as a Justification for Organizational Criminal Liability*, 47 AM. BUS. L.J. 109, 110 (2010)

instance, the approach outlined here does not necessitate any direct wrongdoing by the corporation beyond the misconduct facilitated by algorithms. This may raise questions about the appropriateness of vicarious liability, as it may seem unjust to hold a corporation accountable when it hasn't committed any explicit wrongdoing itself.

1. Vicarious Liability for Wayward Algorithms

The challenge posed by extended mind theory and algorithmic misconduct isn't unique; it reflects a broader issue inherent in corporate liability, including criminal liability as it stands. All corporate actions are essentially intermediated through employees and, increasingly, algorithms. Respondeat superior assigns responsibility from individual employees or algorithms to the corporation without necessitating additional fault on the part of the corporation itself. The proposed doctrines operate on similar principles, attributing wrongdoing from employees or algorithms to the corporation without requiring additional culpability.[17]

Critiques regarding retributive fairness are addressed by highlighting the conceptual unity between corporate actions and those of its components. Employees and algorithms are integral parts of corporations, so any wrongdoing by them constitutes corporate wrongdoing. Thus, the liability isn't purely vicarious but rather stems from the corporate entity itself. Furthermore, both respondeat superior and extended corporate mind theory have deterrence-based rationales. While corporations cannot ensure perfect behavior from employees or algorithms, they are best positioned to mitigate risks. Threatening corporate punishment for employee or algorithmic misconduct incentivizes corporations to implement robust compliance measures, such as enhanced screening, training, monitoring, and disciplinary responses. Similarly, holding corporations accountable for algorithmic misconduct encourages them to improve algorithm design, monitoring, and correction processes.

Concerns arise when a corporation outsources algorithm design to technology firms. However, holding corporate end users liable achieves similar deterrence effects. Corporations often pass on the costs of misconduct to technology firms through indemnification agreements, prompting the firms to internalize the risks. This approach is administratively simpler than directly targeting technology firms, as it avoids the complexities of liability apportionment between design errors and user errors.

[17] Laufer, Corporate Bodies, supra note 166, at 652 ("A corporation can only act through an agent").

2. Vicarious Liability for Others' Information

Another aspect of extended mind theory that could seemingly broaden corporate liability excessively relates to how individuals are deemed to know information. According to this theory, if a person has the right functional relationship with certain information, they're considered to know it, regardless of its storage location. In today's digitally connected world, this inclusivity could become extensive. For instance, Barry could be deemed to know information accessible through his cell phone, even if it's stored on distant servers. This concept raises concerns, particularly when applied to corporate contexts.

To address potential overreach, some propose an additional criterion: the subject must have previously endorsed the information. This criterion would limit what a subject can be considered to know, restricting it to information previously processed through their brain. Similarly, in the corporate realm, employees often utilize databases owned by third parties. If this third-party data significantly influences corporate algorithms, the corporation might be deemed to know it, despite the dynamic nature of the third-party content.

To limit the scope of the extended corporate mind, various principles can be considered. A stringent condition might mandate that only information endorsed by an employee who placed it in the system is deemed known by the corporation, mirroring the limitations proposed for individuals[18]. Weaker conditions could involve varying degrees of employee control over the information, from continuous monitoring to occasional quality control sampling. A key consideration would be whether the corporation must actively exercise this control or merely have the capacity to do so. However, arguments against imposing additional restrictions on corporate knowledge exist. Unlike individuals, corporations lack spatiotemporal constraints and don't possess an equivalent of a brain. Therefore, there's less intuitive resistance to extending corporate cognition to remote data systems managed by external entities, weakening the retributive case for limiting conditions. Moreover, implementing such limits could lead to corporations evading liability by offloading operations to external databases, undermining deterrence efforts. Holding corporations accountable for all routinely accessed information could incentivize quality control measures and encourage pressure on third-party data custodians to ensure accuracy.

[18] See Tanina Rostain, *General Counsel in the Age of Compliance: Preliminary Findings and New Research Questions,* 21 GEO. J. LEGAL ETHICS 465, 466-67 (2008).

While imposing requirements like the fourth criterion might enhance quality control, it could also introduce transaction costs and hinder innovation. Nonetheless, in cases involving significant social stakes, such as knowledge-based legal violations, stringent information quality standards may be warranted, regardless of its source.

CONCLUSION

"*In conclusion, the proposal outlined in this article offers a minimalist yet effective solution to address the impending challenges posed by the increasing automation within corporations. By leveraging the existing framework of corporate liability and drawing on insights from contemporary philosophy and cognitive science, this proposal extends the concept of corporate minds to include algorithms. Importantly, this extension does not imply that algorithms have independent mental states; rather, it recognizes them as external cognitive aids that fulfil roles similar to human employees within corporations.*

This reform ensures that corporations cannot evade liability by simply shifting operations from employees to algorithms. It aligns with the current legal fiction of corporate personhood, operating under the assumption that corporations are entities with minds akin to human beings. Crucially, the proposal does not attribute minds or responsibility to algorithms themselves but acknowledges their role within the corporate structure.

Ultimately, this approach allows for a seamless integration of extended mind theory into corporate law, requiring minimal changes to existing legal frameworks. It underscores the importance of holding corporations accountable for their decisions and actions, even when facilitated or influenced by algorithms. By embracing this perspective, the law can effectively address corporate misconduct in an increasingly automated future."