

DO AIS DREAM OF ELECTRIC BOARDS?

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ABSTRACT—When artificial intelligence (“AI”) acquires self-awareness, agency, and unique intelligence, it will attain ontological personhood. Management of firms by AI would be technologically and economically feasible. The law could confer AI with the status of legal personhood, as it did with the personhood of traditional business firms in the past, thus dispensing with the need for inserting AI as property within the legal boundary of a firm. As a separate and distinct entity, AI could function independently as a manager in the way that legal or natural persons do today: *i.e.*, AI as director, officer, partner, member, or manager. Such a future is desirable only if AI as manager creates more value than AI as tool or android serf. The principle of legal personhood is not intrinsically incompatible with the idea of machine person. This Article explores the legal, policy, and economic questions: Could we confer AI with legal personhood? Should we?

This Article answers that the idea of AI as manager, *qua* legal person, is compelling. Economic and legal theories suggest that the conferral of AI personhood, permitting AI as manager, would create more value. With respect to law and policy, current laws of business firms are robust enough to provide the essential framework for the future. They mandate that corporate managers must be natural persons but permit managers of noncorporate firms to be legal persons. This dichotomy provides the appropriate conceptual compromise. The use of AI as manager should be limited to private and noncorporate firms. This compromise, coupled with the limiting conditions identified in this Article, reflects the balance of cost and benefit, and risk and value. Corporations have always been more consequential business enterprises and could impose greater social and economic externalities. Legal personhood of AI would usher a brave new world, which should be welcomed in the spirit of innovation, but the law should ensure a stable old world.

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INTRODUCTION

In *Do Androids Dream of Electric Sheep?*, Philip Dick imagined a post-apocalyptic world populated by humans and androids in the year 2021.¹ Humans have settled other planets, and settlers are served by androids, which are so human-like that only sophisticated tests can detect them. Humans who remain on dystopian earth covet living animals, and those who can't afford one have android simulacra. Androids serving in off-world colonies think independently and have agency, except that they lack the essential human trait of "empathy."² Several revolt against human bondage and escape to earth, where they are outlawed. The protagonist is a bounty hunter who owns an android sheep, and he is assigned to "retire" the renegade androids. The

¹ PHILIP K. DICK, *DO ANDROIDS DREAM OF ELECTRIC SHEEP?* (1968) (1975 Del Rey Books). The novel was the basis of the classic film *Bladerunner* (Warner Brothers 1982).

² "Empathy, evidently, existed only within the human community, whereas intelligence to some degree could be found throughout every phylum and order including the arachnida." DICK, *supra* note 1, at 30-31. By the end of the story, however, this point was equivocal, or perhaps even ironic, since the androids wanted to be like humans.

book's title implies a desire by androids to be human, thus dreaming of owning electric sheep themselves, like their human antagonist. Philip Dick explored the meaning of being a person. Great science fiction is prescient—fiction then, but science now, and reality maybe soon (he even got the year almost right).

Until recently, most of us could not have believed a near reality when machines attain unique intelligence.³ Yet, we are now close enough to reach out and touch this future. Machines surpassed human intelligence in limited ways some time ago.⁴ They still lag in important respects.⁵ But technology is progressing at geometric rates.⁶ Artificial intelligence (“AI”) is no longer just a supercomputer that can make massive calculations given a data set or algorithm, ideal for certain types of games or functions with finite rules and large possibilities, like chess or poker or even complex mathematical problems.⁷ AI technology is progressing toward something more.

The year 2023 was a watershed moment in history. We saw the confluence of advancement of AI technology, broad public awareness of the speed of technology, ubiquitous media coverage of AI, and dawning concern by governments.⁸ The reality today is that AI can access massive data and

³ This Article uses the term “unique intelligence” to refer to AI general intelligence. AI general intelligence is the idea of artificial intelligence having “capabilities that rival those of a human.” *What Is Artificial General Intelligence (AGI)?*, MCKINSEY & COMPANY (Mar. 21, 2024), available at <https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-artificial-general-intelligence-agi>. Unique intelligence means that AI is capable of two traits that characterize human intelligence: first, general intelligence that is independent of exacting external prompts or specific instructions to perform complex tasks; second, elastic intelligence that is capable of growing and learning from experience and accumulation of knowledge.

⁴ An early achievement was when IBM's Deep Blue beat chess grandmaster Garry Kasparov. Bruce Weber, *Swift and Slashing, Computer Topples Kasparov*, N.Y. TIMES (May 12, 1997). Chess is based on a set of defined rules and finite number of moves, and Deep Blue was able to beat the best human by making more and faster computations. AI also beats humans in poker. Keith Romer, *How A.I. Conquered Poker*, N.Y. TIMES (Jan. 18, 2022).

⁵ We do not yet have an AI generated equivalent of supreme human originality. See Jason Farago, *A.I. Can Make Art That Feels Human. Whose Fault Is That?*, N.Y. TIMES (Dec. 28, 2023) (noting that AI can perform certain artistic functions by “approximations and reconstitutions of preexisting materials” but that “A.I. cannot innovate”).

⁶ See Tiernan Ray, *Google Says ‘Exponential’ Growth of AI is Changing Nature of Compute*, ZDNET (Nov. 1, 2018) (quoting Google engineer as saying AI development has seen “exponential growth”).

⁷ See *supra* note 4; Siobhan Roberts, *A.I. Is Coming for Mathematics, Too*, N.Y. TIMES (July 2, 2023).

⁸ E.g., Karen Weise et al., *Inside the A.I. Arms Race That Changed Silicon Valley Forever*, N.Y. TIMES (Dec. 5, 2023).

human knowledge available in the public domain,⁹ adopt human language,¹⁰ emulate human thinking, perform tasks in real-world environments,¹¹ have the capacity for self-learning,¹² and write its own code in furtherance of independent knowledge acquisition.¹³ These facts are confirmed in the public domain. We do not know the state of the technological art as it exists in the private domain of corporate secrecy and secure laboratories. The anticipated benefits of AI are tantalizing; the known and unknown risks are unsettling.¹⁴ The rapid development of AI technology has compelled the Biden Administration and the European Union to act in a concrete, serious way.¹⁵ Given the speed of today's news, AI personhood is not impossible fantasy but near future possibility—less J.K. Rowling and more Philip Dick.

⁹ See Katie Robertson, *News Group Says A.I. Chatbots Heavily Rely on News Content*, N.Y. TIMES (Oct. 31, 2023); Shawn Helms & Jason Krieser, *Copyright Chaos: Legal Implications of Generative AI*, BLOOMBERG LAW (Mar. 2023) (“Generative AI is any artificial intelligence tool that generates something new from existing data when prompts are given, like an image or text.”).

¹⁰ “Large language models (LLMs) are deep learning algorithms that can recognize, summarize, translate, predict, and generate content using very large datasets.” *Large Language Models Explained*, NVIDIA (last visited Nov. 24, 2023), available at <https://www.nvidia.com/en-us/glossary/data-science/large-language-models/>.

¹¹ “[A]rtificial intelligence refers to the general ability of computers to emulate human thought and perform tasks in real-world environments, while machine learning refers to the technologies and algorithms that enable systems to identify patterns, make decisions, and improve themselves through experience and data.” *Artificial Intelligence (AI) vs. Machine Learning*, COLUMBIA ENGINEERING, COLUMBIA UNIVERSITY, available at <https://ai.engineering.columbia.edu/ai-vs-machine-learning/>. See, e.g., Eric Lipton, *As A.I.-Controlled Killer Drones Become Reality, Nations Debate Limits*, N.Y. TIMES (Nov. 21, 2023) (discussing the reality of A.I. killer drones acting independently in the battlefield); Sue Halpern, *The Rise of A.I. Fighter Pilots*, NEW YORKER (Jan. 17, 2022).

¹² See *supra* note 11.

¹³ Cade Metz, *AI Can Now Write Its Own Computer Code. That’s Good News for Humans*, N.Y. TIMES (Sept. 9, 2021).

¹⁴ See Cade Metz & Gregory Schmidt, *Elon Musk and Others Call for Pause on AI, Citing ‘Profound Risks to Society’*, N.Y. TIMES (Mar. 29, 2023); *Pause Giant AI Experiments: An Open Letter* (Mar. 22, 2023) (letter stating: “AI systems with human-competitive intelligence can pose profound risks to society and humanity, as shown by extensive research and acknowledged by top AI labs.”), open letter available at <https://futureoflife.org/open-letter/pause-giant-ai-experiments/>; Joshua Rothman, *Why the Godfather of A.I. Fears What He’s Built*, NEW YORKER (Nov. 13, 2023).

¹⁵ On October 30, 2023, President Biden issued an executive order establishing policy priorities and directing federal agencies to take action to address privacy, security, and public interest issues related to the responsible use of AI. *Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence*, WHITE HOUSE (Oct. 30, 2023), available at <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/10/30/executive-order-on-the-safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence/>. The European Union has also recently adopted rules for regulating AI. See Adam Satariano, *E.U. Agrees on Landmark Artificial Intelligence Rules*, N.Y. TIMES (Dec. 8, 2023).

AI “singularity” is the hypothetical future point at which AI acquires extraordinary intelligence that surpasses human intelligence.¹⁶ This event may occur in our near future.¹⁷ Only scientists, engineers, corporate leaders, and perhaps soon enough, regulators, can answer the technical question: Could AI achieve self-awareness, agency, and unique intelligence?¹⁸ If “yes,” the broader polity must answer the myriad legal and policy questions that follow. Given public information, we can already assess that AI could reach into every corner of human activity and conclude that the conferral of legal personhood would reach into every aspect of law.

The dawn of the industrial revolution began a quarter of a millennium ago when machines magnified labor production.¹⁹ Shortly after the power loom mechanically spun textile, the discovery of oil fueled the next phase of the industrial revolution to unimagined heights.²⁰ Today, AI can already use human language, learn autonomously, and write its own code in the pursuit of dialectic development of intelligence and knowledge acquisition. These machine functions are the elementary preconditions of ontological personhood. AI may be only an infant now, but it is a rapidly growing child. No one knows for sure exactly how AI-induced societal and economic transformations will unfold. A plausible prospect is that humankind is at the cusp of the next epochal evolution of our economic system, where corporate capitalism, characterized by the fusion of capital and labor in a firm structure, that has managed the economic system since the industrial revolution, morphs into android capitalism that substitutes on scale the human labor function in the economy with AI labor.²¹

¹⁶ See Amir Hayeri, *Are We Ready to Face Down the Risk of AI Singularity?*, FORBES (Nov. 10, 2023) (“Singularity is the hypothetical point at which the AI becomes an independent superintelligence surpassing human capabilities.”).

¹⁷ See Tim Newcomb, *A Scientist Says the Singularity Will Happen by 2031*, POPULAR MECHANICS (Nov. 9, 2023).

¹⁸ To clarify a potential confusion, I use “agency” in the sense of one’s capacity to think and act upon volition, unless a specific reference to agency law and agent therein is stated or clearly inferred from context.

¹⁹ See ERIC HOBBSBAWN, *INDUSTRY AND EMPIRE: THE BIRTH OF THE INDUSTRIAL REVOLUTION* 34 (1968) (dating the beginning of the industrial revolution to 1780); T.S. ASHTON, *THE INDUSTRIAL REVOLUTION 1760–1830* (1948).

²⁰ See DANIEL YERGIN, *THE PRIZE: THE EPIC QUEST FOR OIL, MONEY & POWER* 10–12 (1991) (describing how Colonel Edwin Drake successfully drilled for oil in 1859 in Titusville, Pennsylvania); N.J. Hagens, *Economics for the Future—Beyond the Superorganism*, 169 *ECOLOGICAL ECONOMICS* 106520, at § 4.4 (2020) (“At 4.5 years per barrel [of human labor equivalent], this equates to the labor equivalent of more than 500 billion human workers (compared to ~ 4 billion actual human workers).”).

²¹ See Pararathana Prakash, *Nobel Prize-Winning Economist Who Said ChatGPT Would Result in a Four-Day Workweek Says the Past 12 Months Have Only Convinced Him He’s Right*, YAHOO! FINANCE (Dec. 2, 2023) (“Christopher Pissarides, a Nobel Prize laureate and London School of Economics professor who specializes in labor economics and the impact of automation . . . predicted that generative AI would enable employees to be more productive in their roles and therefore spend less time on them.”).

Supercomputers and robots in factories have long operated in firms. With necessary human input, they manufacture microchips, cars, and other commodities today. Robots will soon perform services at scale, such as drive cars, make deliveries, and operate logistics. The minimal future is that AI will elevate technological efficiency. The obvious application of AI in business will be as tool or android serf (the latter connoting the concept of AI substitution of human labor).²² In these conceptualizations, AI is as an asset *in* a firm that augments or even substitutes human labor.²³ This aspect of AI application is relevant to management science and labor economics, but is not particularly interesting to the laws of business firms because AI is just an asset within the firm, no different in theory than any other property, plant, or equipment. But substitution of human labor is a progression: from the mailroom clerk, to the factory floor machinist, to the back-office accountant, to the regional manager, to the vice president, to the C-suite officer, and finally to the boardroom director.²⁴ Rather than being a tool or serf *endogenous* in the legal property boundary of the firm, could AI be a manager that is an independent legal person *exogenous* to this boundary?

Legal scholarship on AI as manager in the field of the laws of business firms has been scant.²⁵ Because near future ontological personhood of AI is so fantastic and seemingly science fiction, one may dismiss the concept of AI as manager as an ivory tower indulgence.²⁶ Such dismissal would be

²² See *infra* note 126 (explaining the historical origin of the concept of serfdom).

²³ See *supra* note 21 and accompanying text. See also Jessica Stillman, *Bill Gates and New Research Agree: We Could Soon all Work 4-Day Weeks Thanks to A.I.*, INC. (Dec. 1, 2023) (“The bots will do the grunt work for us”); Irina Anghel, *Some of the Big 4 Consulting Giants Already Think AI Could Trim Years Off the Path to Partner*, FORTUNE (Dec. 4, 2023).

²⁴ An actual (operating) company has already appointed the world’s first AI CEO. See *infra* note 48. The media is already beginning to ask whether AI can become a corporate manager. See David Streitfeld, *If A.I. Can Do Your Job, Maybe It Can Also Replace Your C.E.O.*, N.Y. TIMES (May 28, 2024).

²⁵ Several scholars have directly discussed the issue of AI personhood. See Carla L. Reyes, *Autonomous Corporate Personhood*, 96 WASH. L. REV. 1453 (2021); Sergio Alberto Gramitto Ricci, *Artificial Agents in Corporate Boardrooms*, 105 CORNELL L. REV. 869 (2020); Martin Petrin, *Corporate Management in the Age of AI*, 2019 COLUM. BUS. L. REV. 965 (2019). Scholars have also recently considered the application of AI in uniquely human functions. *E.g.*, Eugene Volokh, *Chief Justice Robots*, 68 DUKE L.J. 1135 (2019) (discussing the possibility of AI serving as judges). At least one legal scholar, Lawrence Solum, a legal theorist and philosopher, has been quite prescient in identifying and discussing the issue when AI was still science fiction. Lawrence B. Solum, *Legal Personhood for Artificial Intelligences*, 70 N.C. L. REV. 1231 (1992). Solum starts his 1992 essay with a timely observation: “Could an artificial intelligence become a legal person? As of today, this question is only theoretical. No existing computer program currently possesses the sort of capacities that would justify serious judicial inquiry into the question of legal personhood. The question is nonetheless of some interest.” *Id.* at 1231.

²⁶ Only a few years ago, I would have thought that AI personhood was the stuff of *Bladerunner* (*supra* note 1) and *2001: A Space Odyssey* (Stanley Kubrick Productions 1968) (film adaptation of ARTHUR C. CLARKE, 2001: A SPACE ODYSSEY (1968)). The latter film features HAL 9000, an AI with self-awareness, sentience, and unique intelligence.

shortsighted. AI tomorrow may not be limited to the concept of a mere supercomputing analyst. It is clear already that AI will augment or even substitute human labor; if so, the highest form of human labor in business is management, the exercise of authority to conduct the firm's business and affairs. The implications of AI are clear, and the fantastic is not always fiction but the science of fact to be. Technology is racing fast, and legal scholarship must keep pace with enormity of AI achieving ontological personhood.²⁷ The issue of AI legal personhood has ripened into an urgent debate in industry and academies of various fields,²⁸ and legal scholarship must be a part of this important discussion.

When AI eventually acquires self-awareness, agency, and unique intelligence,²⁹ it will have the minimum human traits necessary to conduct the business and affairs of a firm. Ontological personhood will enable AI to make the transition from appendage of human authority to autonomous android authority.

This Article explores whether, under the laws and principles of business firms, AI could be conferred with legal personhood so that it could and should serve as a manager of firms, *i.e.*, whether AI could and should be a

²⁷ See *supra* note 16 and accompanying text (discussing AI “singularity”); Ricci, *supra* note 25, at 871-72 (explaining that due to rapid developments in AI technology the question of AI as directors is no longer a theoretical hypothesis).

²⁸ See *supra* note 25; Sergio M.C. Avila Negri, *Robot as Legal Person: Electronic Personhood in Robotics and Artificial Intelligence*, 8 HYPOTHESIS AND THEORY 1 (Dec. 23, 2021); Reyes, *supra* note 25; Ricci, *supra* note 25; VISA AJ KURKI, A THEORY OF LEGAL PERSONHOOD 175-89 (2019) (chapter 6 on “The Legal Personhood of Artificial Intelligences”); Diana Mădălina Mocanu, *Gradient Legal Personhood for AI Systems—Painting continental Legal Shapes Made to Fit Analytical Molds*, 8 FRONTIERS IN ROBOTICS AND AI art. 788179 (Jan. 2022); MIREILLE HILDEBRANDT, LAW FOR COMPUTER SCIENTISTS AND OTHER FOLK 237-50 (2020) (chapter 9 on “Legal Personhood for AI?”); Siina Raskulla, *Hybrid Theory of Corporate Legal Personhood and Its Application to Artificial Intelligence*, 3 SN SOCIAL SCIENCES 78 (May 11, 2023). See also Lance Eliot, *Legal Personhood for AI Is Taking a Sneaky Path that Makes AI Law and AI Ethics Very Nervous Indeed*, FORBES (Nov. 21, 2022); Carla L. Reyes, *Personhood for AI—Coming to a Jurisdiction Near You?*, THE ECGI BLOG (Sept. 13, 2022); Eric Schwitzgebel & Henry Shevlin, *Is It Time to Start Considering Personhood Rights for AI Chatbots?*, L.A. TIMES (Mar. 5, 2023); David Schultz, *ChatGPT Evolution to Personhood Raises Questions of Legal Rights*, BLOOMBERG LAW (July 27, 2023); Lance Eliot, *AI Legal Personhood Distresses AI Ethicists Since People Could Deviously Scapegoat Machines to Avoid Apt Human Responsibility, Including in the Case of AI-Based Self-Driving Cars*, FORBES (Mar. 4, 2022).

²⁹ See *supra* note 3 (defining “unique intelligence”). According to one senior Google engineer, AI has already become sentient. See Leonardo De Cosmo, *Google Engineer Claims AI Chatbot Is Sentient: Why That Matters*, SCIENTIFIC AMERICAN (July 12, 2022); Nitasha Tiku, *The Google Engineer Who Thinks the Company's AI Has Come to Life*, WASH. POST (July 11, 2022). Google fired the engineer who made this claim. Nico Grant, *Google Fires Engineer Who Claims Its AI Is Conscious*, N.Y. TIMES (July 22, 2022).

director, officer, partner, member, and manager.³⁰ This Article is organized into five sections.

Section I provides an overview of the laws of business firms and the implications of management posed by AI. These laws have always facilitated the needs of the economic system. When AI technology enables ontological personhood, making possible the concept of AI as manager, the law must inevitably contend with the issue of legal personhood.

Section II identifies the first predicate of legal personhood as the attainment of ontological personhood. Business entities today derive legal personhood from the ontological personhood of natural persons. AI is fundamentally different because it would be independent of exacting human agency, unlike legal persons today.

Section III identifies the second predicate of legal personhood as the economic rationale of AI as manager vis-à-vis AI as asset or AI as serf. There are two economic advantages of AI legal personhood: value creation per superior management, and mitigation of total managerial cost including management fees and managerial agency cost.

Section IV discusses the laws and principles of business firms in the context of AI as manager. AI legal personhood is not intrinsically incompatible with legal principles since our laws have long recognized legal personhood of inanimate firms. Any distinct entity could assume legal personhood, but specific legal and policy considerations may deny it. Contrary to initial intuition, AI could be a better manager than natural or legal persons today because it would be a better fiduciary, untainted by human traits of carelessness, avarice, and divided loyalty. Notwithstanding these positive attributes, this Article's answer to the normative question is mixed, not a hard "no" per techno-dystopia, but not an exuberant "yes" per techno-nirvana. Based on a balancing of the economic value proposition and the risk of unqualified use, AI as manager should be limited to private and noncorporate firms. This compromise exactly mirrors the dichotomy seen in our laws today where partners, members, and managers may be legal persons in noncorporate firms, but only natural persons may serve as corporate directors and officers—a policy that reflects the outsized importance of corporations in our economy and polity.

Section V sets forth limiting conditions to the conferral of AI legal personhood. AI would be fundamentally different from legal persons today, and there is no way around this fact. The experimental aspect of personhood requires monitoring and safety valves. Three limiting conditions are

³⁰ These managers cover the gamut of corporations, partnerships, and LLCs, which together constitute the major categories of business firms.

recommended: submission to federal registration, reporting, and oversight; obtainment of insurance or alternative methods for capitalization since AI as legal person would be exposed to liability, but would not be capitalized; and augmentation of state rules regarding the removal of managers in firms. These three conditions minimize the risk of abusing the status of AI personhood for reckless, fraudulent, or criminal purposes; ensure some degree of creditor protection against mishaps of AI's management of business firms; and provide a mechanism to remove AI managers expeditiously and effectively.

I. BUSINESS AND LEGAL IMPLICATIONS OF AI

The laws of business firms have always facilitated enterprise and have been part and parcel of the economic system as organized by prevailing polity. Forms of business entities and philosophy of economic governance are not static. It is helpful to consider business firms and their link to economic organization at the grandest scale of history.

When European empires sought to project power and enrich themselves through venturing in the “new” worlds of America, Africa, and Asia, joint stock companies fused sovereign power and private monies to achieve public–private ends of colonialism and wealth.³¹ The corporate form predates industrial manufacturing and large private infrastructure projects,³² and early corporate charters were privileges bestowed on the few by the sovereign. In political philosophy, the absolutism of monarchy eventually gave way to liberalism.³³ When the next stage of industrial revolution required the aggregation of larger pools of capital from a broader base of investors, the corporate form became the dominant form of business firms.³⁴ Freeing the corporation from sovereign concession, the law soon accommodated the right to liberal incorporation around the turn of the Twentieth Century.³⁵ After the 1929 stock market crash in the United States, the collapse of capitalism, and the ensuing Great Depression, New Deal liberalism and

³¹ See *infra* note 229 and accompanying text. See generally WILLIAM DALRYMPLE, *THE ANARCHY: THE EAST INDIA COMPANY, CORPORATE VIOLENCE, AND THE PILLAGE OF THE AN EMPIRE* (2019).

³² See *Trustees of Dartmouth College v. Woodward*, 17 U.S. (4 Wheat.) 518 (1819) (holding that the corporate charter was protected under the Contract Clause of the Constitution); RON CHERNOW, *ALEXANDER HAMILTON* 354 (2004) (“Jefferson wanted to deprive the federal government of the power to create *any* corporations, which Hamilton thought could cripple American business in the future. The farseeing Hamilton perceived the immense utility of this business form and patiently explained to Washington how corporations, with limited liability, were superior to private partnerships.”).

³³ See JOHN STUART MILL, *ON LIBERTY* (1859); U.S. CONST. (1789); *THE DECLARATION OF INDEPENDENCE* (U.S. 1776); JOHN LOCK, *TWO TREATISES OF GOVERNMENT* (1689).

³⁴ See generally ADOLF A. BERLE & GARDINER C. MEANS, *THE MODERN CORPORATION & PRIVATE PROPERTY* (1932).

³⁵ See *infra* note 219.

Keynesian economics prevailed in the mid-Twentieth Century. The prevailing theory of corporate governance was managerialism.³⁶ When the détente of stakeholderism could not hold against the pressure of stagflation and declining growth, it ushered the neoliberalism of the Reagan-Thatcher era.³⁷ The governing framework changed to shareholderism as the policy preference shifted from balancing stakeholder interests in a post-war era of high economic growth to favoring the interest of capital.³⁸ In this period, the mantra of “private ordering” and “nexus of contracts” became the *idée fixe* in theorizing firms.³⁹ Embracing the contract principle, American states invented an important new form of business entity, the limited liability company (LLC), a hybrid entity that is now the fastest growing legal form. While the corporate form remains dominant in the realm of large and public companies, the LLC became favored by business venturers because it confers the benefit of the corporation’s limited liability with the pliability of almost pure contracting for management and governance.⁴⁰

This thumbnail sketch through the widest aperture of history glosses over many points (profound, large, small, and minute) that deserve fuller treatment in other scholarly works. For the purpose of this Article, this crude historical montage is sufficient to support the obvious point that business firms and ideas therein evolve as a function of social, economic, and political

³⁶ See Robert J. Rhee, *The Neoliberal Corporate Purpose of Dodge v. Ford and Shareholder Primacy: A Historical Context 1919-2019*, 28 STAN. J.L. BUS. & FIN. 202, 234-39 (2023) (describing events from the 1929 stock market crash to the embrace of Keynesian economics and managerialism).

³⁷ See generally GARY GERSTLE, *THE RISE AND FALL OF THE NEOLIBERAL ORDER: AMERICA AND THE WORLD IN THE FREE MARKET ERA* (2022).

³⁸ See Rhee, *supra* note 36, at 242–48.

³⁹ See Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305, 310 (1976) (viewing the firm as “as a nexus for a set of contracting relationships among individuals”). The idea of a “nexus of contracts” can be traced to R.H. Coase’s *The Nature of the Firm*, 4 ECONOMICA 386 (1937). *Id.* Shortly after the Jensen and Meckling paper, the concept of a “nexus of contracts” entered the lexicon in the legal academy. *E.g.*, Daniel R. Fischel, *The “Race to the Bottom” Revisited: Reflections on Recent Developments in Delaware’s Corporation Law*, 76 NW. U.L. REV. 913, 918 (1982) (noting the “‘nexus of contracts’ perspective”); Ronald J. Gilson, *A Structural Approach to Corporations: The Case Against Defensive Tactics in Tender Offers*, STAN. L. REV. 819, 837 n.69 (1981) (noting “the team or nexus of contracts view of the firm”).

⁴⁰ Wyoming enacted the first LLC enabling statute in 1977. ROBERT J. RHEE, *LLCS, PARTNERSHIPS, AND CORPORATIONS* 6 (2021). After uncertainty regarding tax status was clarified in the 1990s, the LLC became the most prominent alternative to the corporation. *Id.* at 6-7. The LLC’s distinguishing principle is the “freedom of contract” in structuring the firm in any which way venturers wish without many mandatory rules, including the greatest degree of contracting around traditional fiduciary duties. *See, e.g.*, DEL. CODE ANN. tit. 6, § 18-1101(b) (stating that the policy of the LLC statute is “to give maximum effect to the principle of freedom of contract”); MO. STAT., tit. XXIII, ch. 347, § 347.081(2) (same); FLA. STAT., tit. 36, ch. 605, § 605.0111(1) (same); ILL. STAT., ch. 805, act 180, § 180/55-1(b) (same); MD. STAT., tit. 4a, § 4A-102 (same); KAN. STAT., ch. 17, art. 76, § 17-76,134(b) (same). *See generally* LARRY E. RIBSTEIN, *THE RISE OF THE UNINCORPORATION* (2010).

needs and prerogatives. Law and policy innovate to advance economic progress. The unremarkable point is that the laws of business firms are attendant to the needs of venturers to develop and use business entities in the prevailing economic organization.⁴¹ Business forms will develop as opportunities present, thus creating the need for legal and policy innovations.

AI will inevitably touch every aspect of business enterprise. Business analytics will be the low hanging fruit. Activities ripe for AI takeover will be analytical tasks in the realm of trusts, contracts, business transactions, commercial trading, logistics, valuations, and other intellect-based functions that are suited to algorithmic thinking.⁴² As complex as these tasks may be, they are subject to learning by accumulation of facts and schematization of knowledge. Algorithms, the kinds used by technology, social media, and financial companies today, are already performing these kinds of analytical tasks. In these kinds of functions, AI serves as tool or serf, and augments or substitutes human labor. Since AI as asset is endogenous in the property boundary of the firm, we do not need legal or policy innovations in the laws of business firms dealing with internal affairs. However, the complexity of labor is a progression.

What about more complex activities, requiring a fecund mix of creativity, analytics, forecasting, and judgment? The task of managing complex firms fits this mold.⁴³ As AI continues to develop from mere asset into real personhood, the laws of business firms, as part and parcel of our economic system, will surely play a role in venturing through AI. Consider a hypothetical near future: AI may soon acquire several essential qualities of humanness and the preconditions of ontological personhood—those being self-awareness, agency, and unique intelligence.⁴⁴ Surpassing this technological threshold would be nothing short of a revolution in society, economy, and law. AI personhood would upend the conception of management. In law, the real question is not whether AI would be a new

⁴¹ See *infra* note 124.

⁴² Cf. Solum, *supra* note 25, at 1240–55 (discussing the possibility of AI serving as trustee).

⁴³ Managerial function within firms lies on a spectrum. By “managing” I mean the high level of managerial function that is typically associated with directors, officers, partners, members, and managers of business firms.

⁴⁴ These are the minimum attributes necessary for an agent (natural person, legal person, or AI) to exercise managerial authority in a business firm. I do not assume that AI can exactly replicate humans except for its material composition. It is unclear whether AI will acquire human-like consciousness, moral conscience, emotions, and empathy, and I doubt that even scientists and engineers know this at the moment. The treatment of AI as human-equivalent persons is a matter for philosophers to analyze and is outside the scope of the analysis here. Importantly, because we do not know whether AI will have moral conscience, this Article concludes that AI should be prohibited from serving as directors and officers of corporations, which are the most important form of business entity and have the greatest consequence on society. See *infra* Section IV.C.

form of entity (of course it would be), but whether the law should reconsider the meaning of an old concept—legal personhood. How should we conceptualize this new entity?

To be a manager, an entity must satisfy the legal condition of a “person.”⁴⁵ A “person” is capable of assuming rights, powers, obligations, and liabilities that are necessary to manage a firm.⁴⁶ One can satisfy this condition by creating a traditional legal shell, such as a corporation or partnership, in which AI is deposited within its property boundary as a tool or serf.⁴⁷ Or, more radically, AI could be conferred with the legal status of a person in its own right. In law, the conferral of legal personhood to AI will be first seen in the realm of business firms. The ultimate question is this: Do AIs dream of electric boards? That is, could AI entities serve in formal managerial roles such as director, officer, partner, member, and manager, as opposed to being a mere managerial tool or a firm’s android serf? As fictional as this premise may seem now, the world has already taken this large step. There is already an AI serving as CEO in a real European company, a world’s first.⁴⁸

⁴⁵ However, a few states now permit management by algorithmic “smart contracts.” See *infra* note 82.

⁴⁶ “The basic purpose of incorporation is to create a distinct legal entity, with legal rights, obligations, powers, and privileges different from those of the natural individuals who created it, who own it, or whom it employs.” *Corporation as Legal Entity*, 18 CORPUS JURIS SECUNDUM § 6 (updated Sept. 2019). This instrumental facet of legal personhood and entity distinctness has long been recognized. See *Dodge v. Woolsey*, 59 U.S. 331 (1855) (quoting *Smith v. Hurd*, 53 Mass. 371, 384 (Mass. 1847): “The bank is a corporation and body politic having a separate existence, as a distinct person in law, in whom the whole stock and property of the bank are vested, and to whom all agents, debtors, officers, and servants, are responsible for all contracts, express or implied, made in reference to such capital; and for all torts and injuries, diminishing or impairing it.”). See also Bryant Smith, *Legal Personality*, 37 YALE L.J. 283 (1928) (“To be a legal person is to be the subject of rights and duties. To confer legal rights or to impose legal duties, therefore, is to confer legal personality.”); Solum, *supra* note 25, at 1239 (“The question whether an entity should be considered a legal person is reducible to other questions about whether or not the entity can and should be made the subject of a set of legal rights and duties.”).

⁴⁷ See *infra* note 53 and accompanying text.

⁴⁸ A Polish company, Dictador, announced the appointment of “Mika,” an AI, to be CEO. *The First Robot CEO in a Global Company*, Dictador (Sept. 7, 2022) (“Dictador has just announced hiring the first world ever AI robot as a CEO of a global company. The new CEO is a human-like robot, incorporating AI. The robot is a woman, named Mika.”), available at <https://dictador.com/the-first-robot-ceo-in-a-global-company/>. See Kayla Bailey, *‘Mika’ Becomes World’s First AI Human-Like Robot CEO*, FOX BUSINESS (Nov. 5, 2023) (“Mika is a research project between Hanson Robotics and Polish rum company Dictador, who customized the CEO to represent the company and its unique values.”); Jyoti Mann, *The Humanoid-Robot CEO of a Drinks Company Says It Doesn’t Have Weekends and Is ‘Always on 24/7’*, BUSINESS INSIDER (Sept. 23, 2023); Chris Morris, *Polish Spirits Company Appoints AI as CEO. Robot Vows No ‘Personal Bias,’ Only ‘Unbiased and Strategic Choices’*, FORTUNE (Sept. 19, 2023). Dictador is a real company that sells real products. See <https://dictador.com/>. Although this announcement is on Dictador’s website and reported by the media, we do not know whether “Mika” serves in the traditional

Legal scholarship has incrementally progressed toward anticipating the possibility of machines managing firms. In 2014, Stephen Bainbridge and Todd Henderson pushed the envelope at the time by arguing that corporate law should permit other business firms *qua* legal persons to serve as directors,⁴⁹ rather than limiting directors to “natural persons” as corporate law requires today.⁵⁰ Other than the possible novelty of seating directors who may be named Microsoft rather than Bill Gates, Bainbridge and Henderson argued from a traditional legal framework. Albeit novel in application to corporate law, their idea was inside-the-box thinking in that it simply extended the well-established concept of venturing through legal persons, such as when Microsoft and Google unremarkably do business as partners in a joint venture.⁵¹

Around the same time, AI and “algorithms” used by technology and social media companies began becoming more prominent in public and academic consciousness.⁵² It did not take long for corporate law scholars to see the implications of machine management of firms. In an “early” strand of scholarship, published in the period 2014 to 2018, Lynn LoPucki and Shawn Bayern, in separate articles, focused on the use of AIs, algorithms, or robots to manage ventures through the medium of a traditional legal shell, such as a corporation or LLC, and analyzed whether extant laws could

capacity of an ordinary CEO, *e.g.*, working with the board, managing all inferior officers, and making multitudes of ordinary business decisions. The appointment could have been made with specific adjustments to Mika’s authority in matters that are easily subject to algorithms (such as purchasing and logistics), and other traditional functions of a chief executive are allocated to natural persons. Observations of internal arrangements would confirm one way or the other. The significance of Mika is that it may portend the near future where AI technology evolves toward AIs as ontological persons. At the very least, Mika is not a joke. Under American corporate law, AI cannot act as a director or officer. *See infra* Section IV.A.

⁴⁹ *See* Stephen M. Bainbridge & M. Todd Henderson, *Boards-R-Us: Reconceptualizing Corporate Boards*, 66 STAN. L. REV. 1051, 1056 (2014) (arguing that the law should permit corporate directors “be provided by other entities, be they partnership, corporations, limited liability corporations, or any other type of business association”). *See also* STEPHEN M. BAINBRIDGE & M. TODD HENDERSON, *OUTSOURCING THE BOARD: HOW BOARD SERVICE PROVIDERS CAN IMPROVE CORPORATE GOVERNANCE* 4 (2018) (defining “board service providers” (BSPs) as “separate entities that would offer other firms board services”). There is some question of whether this idea is new in light of the argument by Lynn LoPucki that extant corporate law permits corporations to be managed by legal persons. For a fuller discussion of this issue, *see infra* Section II.C.

⁵⁰ *See infra* note 84; Section II.C.

⁵¹ *See infra* note 120 (citing corporate law rules in other countries that permit directors who are legal persons rather than natural persons); *infra* notes 88-90 and accompanying text (explaining that noncorporate firms such as partnerships and LLCs may be managed by legal persons).

⁵² *E.g.*, FRANK PASQUALE, *THE BLACK BOX SOCIETY: THE SECRET ALGORITHMS THAT CONTROL MONEY AND INFORMATION* (2015).

accommodate such a structure.⁵³ These arguments were also based on a traditional understanding of business firms in that AI was presumed to be a technological tool or android serf housed within a legal firm.⁵⁴

In just a few short years, technology advanced so quickly that scholars next considered AI as not just an extraordinary asset, but as an artificial person. They began to ponder the potential or eventual reality of science fiction. In 2019, Martin Petrin, assuming that AI technology will continue to develop, predicted that AI will eventually replace human directors on corporate boards, leading to “fused boards” where the roles and inputs provided by collective human directors will be incorporated into algorithms, and consequently that AI management software providers will provide board services to companies.⁵⁵ In 2020, Sergio Ricci pondered whether an artificial person is capable of being conferred with the status of a legally distinct person.⁵⁶ To develop an analytical framework of legal personhood, Ricci analogized to Roman law of business firms and Roman institution of slavery.⁵⁷ His argument broke new ground by anticipating ontological personhood and its implications on corporate law. In 2021, Carla Reyes too analyzed the possibility of AI personhood from the perspective of the interaction of technology, society, and law.⁵⁸ She explored the interaction of the ideas of autonomous personhood and corporate personhood.⁵⁹ In

⁵³ See Lynn M. LoPucki *Algorithmic Entities*, 95 WASH. U.L. REV. 887 (2018) (analyzing the implications of traditional legal entities that are managed by algorithms); Shawn Bayern, *The Implications of Modern Business-Entities for the Regulation of Autonomous Systems*, 19 STAN. TECH. L. REV. 93 (2015) (analyzing traditional legal entities as “legal ‘containers’ for autonomous systems, such as computer programs and robots”); Shawn Bayern, *Of Bitcoins, Independently Wealthy Software, and the Zero-Member LLC*, 108 NW. U.L. REV. 1485 (2014) (discussing the possibility of zero-member LLCs) (hereafter “Bayern, *Zero-Member LLC*”).

⁵⁴ Bayern made the novel argument that current laws permit “zero-member” LLCs. Bayern, *Zero-Member LLC*, *supra* note 53, at 1485. However, his argument is not persuasive because the specific statutory provisions permitting an LLC to continue without a member is a matter of administrative procedure in which the legal policy is to permit temporary existence of a memberless LLC until a new member can be admitted rather than to dissolve the LLC upon the instantaneous moment when the LLC has no member. See, e.g., UNIF. LTD. LIAB. CO. ACT § 701(a)(3) (Unif. L. Comm’n 2006 and amended 2013) (providing that LLC may continue up to 90 days without a member, upon which it is dissolved). See LoPucki, *supra* note 53, at 898 (suggesting that a memberless LLC “is questionable”). Immediate dissolution and windup upon an LLC finding itself without a member could lead to economic waste, and the better policy is to permit temporary existence of a memberless LLC while a potential new member joins.

⁵⁵ See Petrin, *supra* note 25, at 969-70. Petrin borrows the idea of a “board service provider” from Bainbridge and Henderson. *Id.* at 1004-05 (citing Bainbridge & Henderson, *supra* note 49, at 1064-68)).

⁵⁶ See Ricci, *supra* note 25.

⁵⁷ See *id.* at 869, 874, 878-79, 886-88, 889-92, 904-05.

⁵⁸ Reyes, *supra* note 25, at 1453, 1509-10.

⁵⁹ *Id.* at 1486-98.

considering both kinds of personhood, she taxonomized the spectrum of automation of managerial functions and autonomy by entities.⁶⁰

AI personhood will constitute a revolution in law. Its first application will be in the laws of business firms, the abstract interstitial fiber of our complex economy that is the modality of industrial enterprise and the means of large liquid capital markets. Following Petrin, Ricci and Reyes (and Solum in a much earlier prescient essay⁶¹), this Article analyzes whether AI could and should be deemed a distinct “person” without being cloaked in a traditional legal entity.

II. FIRST PREDICATE: TWO CONCEPTS OF PERSONHOOD

AI as manager must be founded on two predicates. The first is the nature of personhood. Ontological personhood entails an existential inquiry. To perform the hallmark function of exercising autonomous authority in a complex enterprise, AI must have the qualities of self-awareness, agency, and unique intelligence.⁶² Legal personhood in turn entails an examination of whether the laws and principles of business firms permit a new class of persons as manager. As an ontological person, AI would be fundamentally different from legal persons today.

A. *AI as Ontological Person*

Ontological personhood is not a legal formality, but conferral of legal personhood requires a technological and philosophical threshold of *being* a person. AI must firstly be capable of having minimum human attributes necessary for managerial function. For legal persons today, this threshold is not an issue because legal persons today act through human agency;⁶³ personhood is derivative, and legal fiction serves important instrumental ends.⁶⁴ The technological question is whether AI could make the kinds of complex decisions that human agents can. Only scientists and engineers can answer this question. It is clear that this is the direction of technology today.⁶⁵ Once this technological and philosophical threshold is surpassed, legal scholars must then answer the question of legal personhood.

The contexts that per se preclude personhood are easy to identify. If AI is an opensource thing available in the commons, it cannot and should not be

⁶⁰ *Id.* at 1466, 1498.

⁶¹ Solum, *supra* note 25.

⁶² See LoPucki, *supra* note 53, at 901 (“Algorithmic control of a legal entity—exclusive of human control—is the essence of an AE [algorithmic entity].”).

⁶³ See *infra* note 182.

⁶⁴ See *supra* note 46; *infra* notes 67, 94, 134–135

⁶⁵ See *supra* notes 13–17 and accompanying text.

a legal person with respect to business firms for obvious reasons. Equally clearly, the use of another firm's AI asset does not make the managing AI a "person," but instead the arrangement must be that the AI-owning firm, using and controlling a proprietary asset, would be the legal person serving as the firm's manager, a situation that falls comfortably within traditional legal rubric. Also, if AI is controlled or answerable to some other external person or direct influences, as would be the case if AI is an opensource thing, it cannot serve as a manager.⁶⁶

AI must be a "person" in its own right. Ontological personhood starts with boundaried self-containment, which is simply the idea of internal versus external. Natural persons are self-contained beings, having an independent mind and body and thus a clear division between the internal self and the external world. Legal persons must likewise be self-contained. Law stakes the boundary of an internal self by endowing a legal person with an entity form defined by the person's rights, powers, obligations, and liabilities.⁶⁷ We see the idea of self-containment in the core tenet of the laws of business firms. They recognize a division between the firm's "internal affairs" and its dealings with the external world.⁶⁸ A profound rule is the facilitation of asset and liability partitioning, where the assets in the firm belong to the legal person (and not its constituents)⁶⁹ and the liabilities of the firm are those of the legal person (and not its constituents).⁷⁰ Consider the function of the most mundane rule: All filing firms (limited liability entities) must designate a statutory agent who serves to receive service of process.⁷¹ Many statutes also

⁶⁶ In such case, the corporate veil would be pierced as to the external person's status as a fiduciary and as to limited liability. *E.g.*, *Freeman v. Complex Computing Co., Inc.*, 119 F.3d 1044 (2d Cir. 1997).

⁶⁷ *See supra* note 46.

⁶⁸ *See* *Edgar v. MITE Corp.*, 457 U.S. 624, 645 (1982) (explaining that "internal affairs" are those "matters peculiar to the relationships among or between the corporation and its current officers, directors, and shareholders"). *See also* UNIF. LTD. LIAB. CO. ACT § 104 (Unif. L. Comm'n 2006 and amended 2013) (stating that the statute governs the firm's "internal affairs"); DEL. CODE ANN. tit. 8, § 102(b)(1) (stating that certificate of incorporation may include any "provision for the management of the business and for the conduct of the affairs of the corporation").

⁶⁹ *See, e.g.*, UNIF. P'SHIP ACT § 203 (Unif. L. Comm'n 1997 and amended 2013) ("Property acquired by a partnership is property of the partnership and not of the partners individually."); *Cohen v. State ex rel. Stewart*, 89 A.3d 65, 95 n.130 (Del. 2014) (stating that the corporation is the legal owner of its property, and not shareholders). *See generally* Henry Hansmann & Reinier Kraakman, *The Essential Role of Organizational Law*, 110 YALE L.J. 387 (2000).

⁷⁰ *See, e.g.*, UNIF. LTD. LIAB. CO. ACT § 304(a) (Unif. L. Comm'n 2006 and amended 2013) ("A debt, obligation, or other liability of a limited liability company is solely the debt, obligation, or other liability of the company."); MOD. BUS. CORP. ACT § 6.22(b) (2020) ("A shareholder of a corporation is not personally liable for any liabilities of the corporation"); DEL. CODE ANN. tit. 8, § 102(b)(6) (same).

⁷¹ *See, e.g.*, DEL. CODE ANN. tit. 8, § 102(a)(2); MOD. BUS. CORP. ACT § 5.01(a) (2020); UNIF. LTD. LIAB. CO. ACT § 115 (Unif. L. Comm'n 2006 and amended 2013); UNIF. LTD. P'SHIP ACT § 117 (Unif. L. Comm'n 2001 and amended 2013); UNIF. P'SHIP ACT § 908 (Unif. L. Comm'n 1997 and amended 2013).

require a registered office address.⁷² Aside from the obvious instrumental function, this rule imposes a physicality on abstract entities (we know where it is).

An obvious condition merits explicit statement nonetheless: AI must be self-contained within an identifiable boundary. This condition does not necessarily mean a physical form, but there must be self-containment in physical or abstract form. If it is not a distinct entity, or if it exists as a boundaryless presence in the cyberworld, it cannot be distinct for legal purpose with respect to firms. There would be no clear division between the internal self and the external world, and between internal affairs and external dealings. The ontological and legal boundaries of the firm would dissolve, and thus the very meaning of “internal affairs” in firms. The lack of a clear divide would create legal uncertainty. The venture may be at risk of collective exogenous influences or certain external controllers, and we may not know precisely who is or should be endowed with the rights, powers, obligations, and liabilities under the laws of firms. With respect to self-containment, AI must share the critical attribute of property, *i.e.*, it must be subject to exclusion of use by others in the external world.⁷³

Next, AI must have self-awareness, agency, and unique intelligence—which are distinctly human qualities necessary for the exercise of autonomous agency. If technology enables AI to have these features, we could give it a name and even a material body containing the internal self, like the androids in Philip Dick’s story, and AI would be a functioning replica of humans.⁷⁴

AI as manager could be purchased or made. Irrespective of the acquisition method, it would require nonfungibility. A manufacturer of AI would not be required to make entirely new products in each instance like unique nonfungible tokens in the crypto-asset markets. If sold, the maker could sell multiple copies or versions, but such commodification would not necessarily undermine nonfungibility. Once AI is acquired and works within each firm’s unique business and market milieu, it may achieve uniqueness

⁷² See, e.g., DEL. CODE ANN. tit. 8, § 102(a)(2); MOD. BUS. CORP. ACT § 5.01(a) (2020).

⁷³ See Thomas W. Merrill, *Property and the Right to Exclude*, 77 NEB. L. REV. 730 (1998) (arguing that the right to exclude others is the sine qua non of property).

⁷⁴ Of course, humanness is much more than just self-awareness, agency, and unique intelligence. See *supra* note 44. They are the minimum attributes necessary to function as a manager. What about morality? At minimum, all laws of firms prescribe compliance with positive law. *E.g.*, In re Massey Energy Co., 2011 WL 2176479 (Del. Ch. 2011) (“Delaware law does not charter law breakers. Delaware law allows corporations to pursue diverse means to make a profit, subject to a critical statutory floor, which is the requirement that Delaware corporations only pursue “lawful business” by “lawful acts.”). AI would be obligated to obey law. We do not know if AI will ever acquire, for example, emotions, moral code, or conscience. See *supra* note 44. Even in Philip Dick’s story, the androids lacked “empathy.” See *supra* note 2.

and thus nonfungibility as a natural product of elastic intelligence nurtured within a unique environment. AI would learn from the unique experience of working in a specific firm and integrating specific acquired knowledge, maximands, and instructions, private and public information, and market conditions. Elastic intelligence working under unique conditions will result in accumulation of specific knowledge and experience that would engender nonfungibility.⁷⁵ Any AI that is incapable of uniqueness would likely be below the level of technology that would be needed to serve as a manager in any firm of sufficient complexity because the managerial function, being the most complex form of labor, is unique to each firm.

Self-awareness is not defined here in a tautological sense of sentience and human-like consciousness of self-existence in relation to the external world. A human-centric viewpoint is cold comfort if the reality is or will be that machines can rationally think and act independently of exacting human control, unlike a calculator, computer, or algorithm today. Self-awareness is defined simply as an awareness of self-existence that is distinct from but in relation to the external world. Defined in this way, it is an extension of the idea of self-containment. It is an intelligent internalization of the concept of separateness and distinctness, the hallmark feature of legal personhood.

Agency is the ability to act independently per one's volition or thought. No natural person is an island, and neither is AI. Agency in the legal context is helpful to understand the concept of machine agency: Agents are subject to the control of the principal, and yet they have agency of self and can take action and make managerial decisions for themselves within the boundary of given authority in furtherance of the legal agency relationship.⁷⁶ Legal agency enables the principal to delegate some decision-making to an agent without exacting supervision.⁷⁷ AI must be capable of fulfilling this purpose.

Therefore, I define AI as an ontological person as a distinct entity that has self-awareness, agency, and unique intelligence. For the purpose of assuming the role of a manager of business firms, AI achieves ontological personhood if it satisfies these four criteria:

(1) Can AI distinguish itself as a discrete entity from all other things in the external world?⁷⁸

⁷⁵ See *supra* note 3 (defining "unique intelligence" as having the quality of elastic intelligence).

⁷⁶ See RESTATEMENT (THIRD) OF AGENCY § 1.01 (2007) (requiring agent to "act on the principal's behalf"), § 2.03 (2005) (establishing apparent authority of agents).

⁷⁷ See Samuel Issacharoff & Daniel R. Ortiz, *Governing Through Intermediaries*, 85 VA. L. REV. 1627, 1635 (1999) ("We define an agency relationship as a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some services on their behalf which involves delegating some decision making authority to the agent.").

⁷⁸ Can AI answer and explain the philosophical notion: "I exist."

(2) Can AI think (*i.e.*, process, analyze, ideate, conclude) for itself, independent of exacting human control and command?⁷⁹

(3) Can AI engage in a dialectic learning and development process in furtherance of given goals (*i.e.*, maximands or priorities)?

(4) Can AI act and decide based on its independent learning and thinking in rational furtherance of goals?

A natural person innately satisfies these criteria. Consider the common mental experience of every competent adult on this planet:

I see myself in the mirror and recognize a self that is distinct from the external world. I think freely and am aware of my thinking. I am not an island. I learn from my continued experience of thinking, acting, and engaging with the external world. Pursuant to my learnings and thoughts, I am an independent agent of my actions.

As far as we know, only humans have this level of cognition. When AI satisfies the above four criteria, it would be an ontological person and thus could perform managerial functions.

Personhood is not achieved because legal status is conferred. This puts the cart before the horse. Legal status is conferred because personhood is achievable and evident.⁸⁰ For legal persons today, the precondition of ontological personhood is not an issue at all because personhood derives from natural persons. Personhood ensures that the entity or individual is capable of acquiring legal rights, powers, obligations, and liabilities of a manager in a meaningful way.⁸¹ AI would be fundamentally different because, unlike legal persons today, it would be decoupled from exacting human agency. AI must have the capacity to acquire the *sine qua non* of a manager or agent—the quality of loyalty to the firm and focus on the lawful advancement of the venture.⁸²

Given ontological personhood, an AI entity can assume the legal rights, powers, obligations, and liabilities of a manager, and thus the set of these rules defines the legal boundary between the firm and its manager. Although

⁷⁹ “Independent” does not mean free from human control or influence. It means that AI can take action based on its thinking without exacting control by humans such that, barring other limits, it can form principal–agent relationships.

⁸⁰ See Ricci, *supra* note 25, at 892 (“The normative force carried by [the status of legal personhood] exclusively depends on the capacities that a state attaches to them starting with their capacity to exist.”).

⁸¹ See *supra* note 46.

⁸² *E.g.*, RESTATEMENT (THIRD) OF AGENCY § 8.01 (2007) (“An agent has a fiduciary duty to act loyally for the principal’s benefit in all matters connected with the agency relationship.”).

no law yet recognizes a distinct AI as a legal person or entity,⁸³ in the near future, perhaps only a few years away, AI could surpass the technological hurdle of becoming an ontological person.⁸⁴ If so, we must inevitably confront the issue of legal personhood for AI.

B. AI as Legal Person

The second precondition of AI as manager is the conferral of legal status. Like other matters within the laws of business firms, the capacity of different types of “persons” who can serve as manager broadly divides between corporate law and noncorporate law.

American corporate law is clear enough with respect to doctrine and principle in application to AI. It requires that directors and officers be natural persons.⁸⁵ Shareholder management is permissible, typically seen in close or closely held corporations that resemble in nature, if not legal form, partnerships and LLCs.⁸⁶ However, when a corporation is managed by directors and officers, the prototypical public or complex corporation, they

⁸³ Several states have recognized the issue of autonomous algorithms and thus have incrementally moved toward the concept of legal personhood in autonomous machines. These laws clearly have in mind crypto-assets and other algorithm-driven trading activities. In Tennessee, an LLC can be a “decentralized organization.” TENN. STAT., Tenn. Ltd. Liab. Co. Act, ch. 250, § 48-250-101 to 48-250-115 (“Decentralized Organization”). Such LLCs are permitted to be managed by a “smart contract.” *Id.* § 48-250-108. A “smart contract” is “an event-driven computer program, that executes on an electronic, distributed, decentralized, shared, and replicated ledger that is used to automate transactions.” *Id.* § 48-250-101(10). Wyoming enacted a similar statute. Wyoming Decentralized Autonomous Organization Supplement, WY. STAT., ch. 31, § 17-31-101 to 17-31-116. *See id.* § 17-31-102(a)(ix) (defining “smart contract” as “an automated transaction, as defined in W.S. 40-21-102(a)(ii), or any substantially similar analogue, or code, script or programming language relying on a blockchain which may include taking custody of and transferring an asset, administering membership interest votes with respect to a decentralized autonomous organization or issuing executable instructions for these actions, based on the occurrence or nonoccurrence of specified conditions”); *id.* § 17-31-109 (providing that management of a decentralized autonomous organization may be vested in “any applicable smart contracts”).

⁸⁴ *See supra* notes 9–13, 16–17 and accompanying text.

⁸⁵ *See, e.g.*, DEL. CODE ANN. tit. 8, § 141(b) (mandating that a director “shall be a natural person”); MOD. BUS. CORP. ACT § 1.40 (2020) (defining “individual” as a natural person); *id.* § 8.03(a) (requiring a board to be composed of “one or more individuals”). *See also* Bainbridge & Henderson, *supra* note 49, at 1099-1100 (stating that corporate law requires natural persons). Officers too must be natural persons. *See, e.g.*, MOD. BUS. CORP. ACT § 8.40(b) (2020) (stating that the board may appoint “individuals” for offices in the corporation). Other nations do not have this requirement of a natural person. *See supra* note 48 (discussing a Polish company where the CEO is an AI robot). Corporation law’s requirement of natural persons is contested by some, and there is nuance. *See infra* Section II.C. (explaining the point further and interpreting corporate statutes).

⁸⁶ *See* DEL. CODE ANN. tit. 8, § 350 (permitting agreements to restrict the discretion of boards in close corporations), § 351 (permitting management by shareholders in close corporations). *See also infra* Section II.C. (discussing close and closely-held corporations).

must be natural persons.⁸⁷ The idea of AI serving as a director or officer conflicts with corporate law in doctrine and principle.⁸⁸

The laws of partnerships and LLCs are clear with respect to doctrine, but less so in principle in their application to AI—thus, they are potentially more flexible. A “partner” in a general partnership must be a “person.”⁸⁹ A person means either an “individual” (natural person) or a legal person or discrete entity.⁹⁰ The laws of limited partnerships and LLCs are the same with respect to a general partner, limited partner, member, and manager.⁹¹ Google and Facebook can form a noncorporate business entity together and assume the status of partner, member, or manager.

While AI is not yet included in the definition of a “person,” the laws of noncorporate entities are more amendable in principle to the idea that AI could be a legal person because managers are not required to be natural persons.⁹² When AI attains ontological personhood so as to be a distinct entity, it could function in principle as a legal person and manager.

Legal personhood or status as a distinct entity is not a formality of law. It is a legal conclusion from prior establishment of necessary conditions upon which legal status is conferred. The status of a distinct entity goes to the essential core of the law and theory of business firms. A critical role of the laws of firms is to enable the creation of firms as legal persons.⁹³ Legal personhood makes distinct the firm, its constituents, and the external world. A legal “person” must be some sort of an entity, which defines legal boundaries and thus the entity is cloaked in legal rights, powers, obligations,

⁸⁷ See *supra* note 84; *Feeley v. NHAOCG, LLC*, 62 A.3d 649, 668 (Del. Ch. 2012) (“The members of a board of directors of a Delaware corporation must be natural person.”).

⁸⁸ There is some ambiguity on whether legal persons can manage corporations. See *infra* Section II.C. (analyzing the issue).

⁸⁹ UNIF. P’SHP ACT § 102(10) (Unif. L. Comm’n 1997 and amended 2013).

⁹⁰ A “person” is defined as “an individual, business corporation, nonprofit corporation, partnership, limited partnership, limited liability company, [general cooperative association,] limited cooperative association, unincorporated nonprofit association, statutory trust, business trust, common-law business trust, estate, trust, association, joint venture, public corporation, government or governmental subdivision, agency, or instrumentality, or any other legal or commercial entity.” *Id.* § 102(14).

⁹¹ See UNIF. LTD. P’SHP ACT § 102(8), (10), (14) (Unif. L. Comm’n 2001 and amended 2013) (defining “general partner,” “limited partner,” and “person”); UNIF. LTD. LIAB. CO. ACT § 102(9), (11), (15) (Unif. L. Comm’n 2006 and amended 2013) (defining “manager,” “member,” and “person”).

⁹² That a manager of an LLC or a general partner of a limited partnership to is a business entity, and not a natural person, is a quotidian arrangement. *E.g.*, *In re USACafes, LP Litig.*, 600 A.2d 43 (Del. Ch. 1991). See *Bainbridge & Henderson, supra* note 49, at 1057 (“Unincorporated entities, such as partnerships, limited liability companies (LLCs), and the like, are typically permitted to have business associations serve in the management role played by a corporate board of directors for corporate entities.”).

⁹³ See generally ERIC W. ORTS, *BUSINESS PERSONS: A LEGAL THEORY OF THE FIRM* (2015).

and liabilities.⁹⁴ Consider the legal attributes of corporations and noncorporate firms. They are legal persons,⁹⁵ such that they can sue and be sued,⁹⁶ have the power to acquire property and sign contracts,⁹⁷ owe its own debts and liabilities,⁹⁸ owe fiduciary duties,⁹⁹ and are under duties to comply with laws.¹⁰⁰ The entity status of a legal person enables asset partitioning, which is the principle that contributed property *in* the firm is property *of* the firm, and not property of the firm’s managers or owners.¹⁰¹ Entity status is also the theoretical underpinning of the rule of limited liability, which states that the firm’s debts and obligations are not those of its constituents.¹⁰²

C. *Note on Directors and Ambiguity in Corporate Law*

One may wonder whether, under current rules of corporate law, legal persons can manage a corporation.¹⁰³ The answer is not quite clear. Clearly, as stated above, corporate law requires that directors and officers must be natural persons.¹⁰⁴ But there is a prickly question on whether a board must always manage a corporation: Substituting for a board comprised of natural persons, can legal persons manage the corporation instead? In lieu of a Facebook board comprised of Mark Zuckerberg and his natural peers, can Google manage Facebook? We presume that corporations are managed by directors and officers because public companies are managed by a board comprised of oxygen breathers. Surprisingly, scholars disagree on this basic point. LoPucki argued that corporate law does not require natural persons to manage the corporation because it does not require a board.¹⁰⁵ However, in arguing for firms that can act as “board service providers,” Bainbridge and

⁹⁴ See *supra* note 90.

⁹⁵ See DEL. CODE ANN. tit. 8, § 106; UNIF. LTD. LIAB. CO. ACT § 108(a) (Unif. L. Comm’n 2006 and amended 2013).

⁹⁶ See DEL. CODE ANN. tit. 8, § 122(2); UNIF. LTD. LIAB. CO. ACT § 109 (Unif. L. Comm’n 2006 and amended 2013).

⁹⁷ See DEL. CODE ANN. tit. 8, § 122(4), (13); UNIF. LTD. LIAB. CO. ACT § 102(2), § 109, § 402 (Unif. L. Comm’n 2006 and amended 2013).

⁹⁸ See DEL. CODE ANN. tit. 8, § 102(b)(6); MOD. BUS. CORP. ACT § 6.22(b) (2020); UNIF. LTD. LIAB. CO. ACT § 304(a) (Unif. L. Comm’n 2006 and amended 2013).

⁹⁹ See MOD. BUS. CORP. ACT § 8.30 (2020); UNIF. LTD. LIAB. CO. ACT § 409 (Unif. L. Comm’n 2006 and amended 2013).

¹⁰⁰ See DEL. CODE ANN. tit. 8, § 101(b); UNIF. LTD. LIAB. CO. ACT §§ 108(b), § 206 (Unif. L. Comm’n 2006 and amended 2013). Business firms are subject to external laws, such as criminal, tort, and tax laws, and are regulated in various capacities.

¹⁰¹ See *supra* note 68 and accompanying text.

¹⁰² See *supra* note 69 and accompanying text.

¹⁰³ The rules of noncorporate firms are clear that legal persons may manage the firm. See *supra* notes 88-90 and accompanying text.

¹⁰⁴ See *supra* note 84.

¹⁰⁵ LoPucki, *supra* note 53, at 907–11.

Henderson argued that corporate law currently does not permit legal persons to manage the corporation.¹⁰⁶ Statutory ambiguity lurks.

The Model Business Corporation Act (MBCA) provides: “*Except as may be provided in an agreement authorized under section 7.32, each corporation shall have a board of directors.*”¹⁰⁷ Section 7.32 permits shareholder agreements to eliminate the board.¹⁰⁸ This provision principally concerns closely-held corporations.¹⁰⁹ The official comments state that the corporate form was “designed with an eye towards corporations whose management and share ownership are distinct” but these “functions are often conjoined in some corporations, such as the close corporation.”¹¹⁰ The MBCA’s strong assumption is that closely held companies can be managed by shareholders or other agreed arrangements, such as management by a shareholder who, of course, could be a natural or legal person. Under the statute’s plain text, any corporation in theory can be subject to any alternative arrangement as agreed upon by shareholders under Section 7.32.

The Delaware General Corporation Law (DGCL) is more equivocal. Section 141(a) provides the general rule of board primacy and its exceptions: “The business and affairs of every corporation 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.*”¹¹¹ The first exception “this chapter” principally refers to is Subchapter XIV, dealing with close corporations.¹¹² Section 350 therein provides that shareholders may “restrict or interfere with the discretion or powers of the board of directors.”¹¹³ Section 351 provides that a corporation may be managed by shareholders “rather than by a board,”¹¹⁴ thus eliminating the board altogether. These statutory provisions on close corporations countermand Delaware’s centerpiece framework of “board primacy”

¹⁰⁶ Bainbridge & Henderson, *supra* note 49, at 1099–1102.

¹⁰⁷ MOD. BUS. CORP. ACT § 8.01(a) (2020) (emphasis added).

¹⁰⁸ “An agreement among shareholders of a corporation that complies with this section is effective among the shareholders and the corporation even though it is inconsistent with one more other provisions of this Act in that it: (1) eliminates the board of directors or restricts the discretion or powers of the board of directors. . . .” *Id.* § 7.32(a)(1).

¹⁰⁹ *Id.* official cmt.

¹¹⁰ *Id.* “Shareholders of some corporations, especially those that are closely held, frequently enter into agreements that govern the operation of the enterprise.” *Id.*

¹¹¹ DEL. CODE ANN. tit. 8, § 141(a) (emphasis added).

¹¹² *Id.* § 341 to § 356. See ROBERT S. SAUNDERS ET AL., FOLD ON DELAWARE GENERAL CORPORATION LAW: FUNDAMENTALS, at GCL-144–45 (2023 edition) (noting other provisions of DGCL that the exception applies including sections 107 and 226).

¹¹³ DEL. CODE ANN. tit. 8, § 350.

¹¹⁴ *Id.* § 351.

embodied in the main rule in Section 141(a) (“shall be managed by . . . a board”).¹¹⁵

The ambiguity arises from the second exception “or in its certificate of incorporation.” The disjunctive “or” suggests that the term is independent of “this chapter.” If this second exception is not limited to just close corporations and instead permits *any* form of management in all corporations so long as the structure is found in the certificate of incorporation, then clearly the corporate charter can eliminate the board (as is specifically possible under Section 351 of Subchapter XIV for close corporations). A legal person can manage any corporation in the same way that Microsoft can serve as a general partner of a limited partnership.¹¹⁶ Under this interpretation, the requirement that a board be constituted by natural persons seems to be a default provision, and, like an LLC, a corporation can contract for any type of management structure so long as it is found in the charter. If a legal person is permitted to manage a corporation under current corporate law, then Bainbridge and Henderson’s argument that corporate law should permit “board service providers” (specialized firms) to manage the corporation would have been a pointless exercise of arguing for a legal reform that is already permitted by law in the books.

Delaware courts have not directly addressed the issue of general statutory authority to eliminate the board and substitute it with legal persons through the corporate charter. While rejecting the view that shareholder agreements can substantially curtail a board’s discretion and authority under Section 141(a),¹¹⁷ they have recognized that the general rule of board primacy set forth in Section 141(a) can be curtailed through the charter because Section 141(a) expressly provides a statutory exception permitting such abrogation (*i.e.*, “except as may be otherwise provided in . . . its certificate of incorporation”).¹¹⁸ While these cases address constraints on the board’s

¹¹⁵ West Palm Beach Firefighters’ Pension Fund v. Moelis & Co., 311 A.3d 809, 817, 880 (Del. Ch. 2024) (“*Moelis*”).

¹¹⁶ See UNIF. LTD. P’SHP ACT § 102(7),(15) (Unif. L. Comm’n 2001 and amended 2013) (defining general partner as a “person” and person as including “corporation”).

¹¹⁷ See *Abercrombie v. Davies*, 123 A.2d 893 (Del. Ch. 1956), *rev’d on other grounds*, 130 A.2d 338 (Del. 1957). The test is whether a shareholder agreement “tends to limit in a substantial way the freedom of director decisions on matters of management policy” or has “the effect of removing from directors in a very substantial way their duty to use their own best judgment on management matters.” *Id.* at 899. The *Abercrombie* test is the current Delaware law. See *Moelis*, 311 A.3d at 818–19 & n.13 (Del. Ch. 2024) (endorsing the *Abercrombie* test); *Grimes v. Donald*, 673 A.2d 1207, 1214 (Del. 1996) (same); *Quickturn Design Sys., Inc. v. Shapiro*, 721 A.2d 1281, 1292 (Del. 1998) (same).

¹¹⁸ “Internal corporate governance arrangements *that do not appear in the charter* and deprive boards of a significant portion of their authority contravenes Section 141(a).” *Moelis*, 311 A.3d at 817 (emphasis added). See *Lehrman v. Cohen*, 222 A.2d 800, 807-08 (Del. 1966) (noting that Delaware law permits

authority, they do not directly answer the specific question of whether the corporate charter can *eliminate* the board and substitute it for management by a legal person for all corporations.

Section 141(a)'s general rule of board primacy is comprised of two clauses: "the business and affairs of every corporation . . . [1] shall be managed by . . . [2] a board of directors." The two exceptions to this general rule that follow are seemingly clear: "except as may be otherwise provided [i] in this chapter or [ii] *in its certificate of incorporation*." The second exception could be interpreted in three distinct ways that are exceptions to the general rule of board primacy: firstly, the certificate may *restrict* the primacy of board authority (*i.e.*, the first clause "[1] shall be managed by") but otherwise presumes the existence of a board as manager; secondly, the certificate may *eliminate* the framework of management by a board altogether (*i.e.*, the second clause "[2] a board of directors") as seen in Subchapter XIV¹¹⁹ and thereby permit corporate management by natural or legal persons who do not constitute a board; or thirdly, the certificate may permit both board authority restriction and board elimination. The statutory exception to Section 141(a)'s board primacy is ambiguous.

This Article takes a definitive position on this unresolved statutory issue. The second exception (*i.e.*, "[ii] in its certificate of incorporation") is not an open-ended enabling term permitting *any* form of management as contracted for in the certificate. General enablement of board elimination through the corporate charter would be puzzling. It would fundamentally alter the essential nature of a corporation whose hallmark feature is the separation of ownership and control through board primacy.¹²⁰ If a legal person is permitted to manage corporations generally, what exactly does the requirement that a director be a "natural person" serve when a workaround is simply a provision in the certificate? In that case, why shouldn't the legal person manager be deemed to be a "director" constituting the "board"? In

"delegation of [director] duty, if any, [when it] is made . . . via the certificate of incorporation"). In *Moelis*, the court reasoned that while a shareholder agreement may not contravene director primacy under Section 141(a), the same outcome could be achieved via the certificate of incorporation. *Moelis*, 311 A.3d at 822 ("He could have accomplished the vast majority of what he wanted through the Company's certificate of incorporation (the 'Charter'). . . . [B]ecause the provisions would appear in the Charter, they would comply with Section 141(a)."). The court acknowledge that such formalism may appear "bizarre"—*i.e.*, a shareholder agreement may not abrogate a board's authority but the corporate charter may do so—this outcome is explained by the doctrine of independent legal significance. *Id.*

¹¹⁹ See *supra* note 113 and accompanying text.

¹²⁰ See ADOLF A. BERLE, JR. & GARDINER C. MEANS, *THE MODERN CORPORATION AND PRIVATE PROPERTY* (Macmillan Co. 1982) (1932). See also Robert J. Rhee, *The Tort Foundation of Duty of Care and Business Judgment*, 88 NOTRE DAME L. REV. 1139, 1160 (2013) ("The modern public corporation is characterized by a separation of ownership and control in the corporation, and this requires a board of directors to assume the mantle of managerial power on behalf of the corporation.").

other words, what is so special about the quality of a board that directors must be natural persons when substitute legal persons, like an AI entity, can replicate the managerial function as seen in noncorporate firms such as partnerships and LLCs?¹²¹ Would such a legal person be entitled to the protection of the business judgment rule, which is intricately connected to Section 141(a)?¹²² Would the legal person be effectively subrogated to the position of a “director” in the application of the innumerable rules in corporate law that presumes a board and directors?

This Article interprets the second term exception (*i.e.*, “[i] in its certificate of incorporation”) as a means to *restrict* board primacy contracted through the corporate charter, but the exception does not permit board elimination generally. This interpretation is consistent with the holistic interpretation of the DGCL, which contains only one specific provision that permits board elimination in close corporations.¹²³ This interpretation of the second term also links and is related to the first term “in this chapter” because a close corporation requires specific disclosure items in the certificate of incorporation.¹²⁴

The discussion above pertains to the status of corporate law. Corporate law requires natural persons to be managers unless the company is a close corporation, in which case shareholders, who of course can be natural or legal persons, can substitute for a board and thus can manage the company. Regardless of whether my interpretation of Section 141(a) is correct or not, this discussion is somewhat academic. AI as corporate manager would be a revolution in law and business. Current rules of corporate law should not be seen as an obstacle to AI as manager in corporations. Whether or not current rules permit AI as corporate manager is the least consequential consideration today. Legal rules, including corporate law, are a function of economic need

¹²¹ See *id.* § 141(b) (only one director needed to constitute a board). For instance, the U.K. simply requires that at least one director must be a natural person. U.K. Companies Act of 2006 § 155, available at [https://www.legislation.gov.uk/ukpga/2006/46/part/10/chapter/1/crossheading/requirement-to-have-directors?view=plain#:~:text=\(1\)A%20company%20must%20have,who%20is%20a%20natural%20person](https://www.legislation.gov.uk/ukpga/2006/46/part/10/chapter/1/crossheading/requirement-to-have-directors?view=plain#:~:text=(1)A%20company%20must%20have,who%20is%20a%20natural%20person). Hong Kong prohibits a public company from having a legal person serve as a director, but permits private companies to do so as long as they also seat one natural person as a director. Companies Ordinance §§ 456-457, available at <https://www.elegislation.gov.hk/hk/cap622!en>.

¹²² See *Aronson v. Lewis*, 473 A.2d 805, 812 (Del. 1984) (“The business judgment rule is an acknowledgment of the managerial prerogative of Delaware directors under Section 141(a).”), overruled on other grounds, *Brehm v. Eisner*, 746 A.2d 244 (Del. 2000).

¹²³ See *supra* note 113 and accompanying text. This comment is notwithstanding the doctrine of independent legal significance. See *supra* note 117; *Orzeck v. Englehart*, 195 A.2d 375, 377 (Del. 1963) (stating that “the uniform interpretation given the Delaware Corporation Law over the years to the effect that action taken in accordance with different sections of that law are acts of independent legal significance even though the end result may be the same under different sections”).

¹²⁴ DEL. CODE ANN. tit. 8, § 342.

and policy prerogatives.¹²⁵ If AI as manager presents a unique economic advantage and policy prerogatives do not mandate otherwise, corporate law will bend (amend) to societal imperatives. Once AI can satisfy the first predicate of being capable of ontological personhood, the prime question is whether AI as manager, vis-à-vis AI as tool or serf, has a compelling rationale.

III. SECOND PREDICATE: ECONOMIC RATIONALE OF AI AS MANAGER

AI could be deposited as an asset into a traditional legal person, comfortably falling within traditional legal rubric. In this structure, even if AI acquires the unique qualities of a natural person, it would simply be an android serf in a firm. This unremarkable structure comes with the condition that the firm owning the android serf would be owned and managed by others, introducing other persons into the venture, which is no small consideration in structuring the venture and allocating its economics. Framed in this way, the second predicate is clear: Why would society want AI as manager when AI as tool or serf in firms perfectly fits conventional conceptions of legal firms and property rights? In short, what is the economic rationale of AI as manager?

A. *Value Chain from Tool to Serf to Manager*

From a business model perspective, AI has three conceptions: tool, serf, or manager. Tool is self-explanatory. AI is a supercomputing asset. “Serf” is an intentional choice of words. AI is not a “worker” because the term connotes an employer–employee relationship under bilateral contract. AI is not a “slave” because the term invokes the evil that humanity collectively rejected in the nineteenth century.¹²⁶ Even if we are talking about inanimate machines, that term is inherently awkward in a discussion of today’s social and economic organization. The aesthetic of the concept matters. An android “serf” is less disconcerting, and it befits a suitable analogy because the essential idea of serfdom in feudalism is coerced labor that is bonded to specific property where the surplus labor of peasants is exchanged for their right to subsist on the lord’s property.¹²⁷ This analogy of labor bonded to property (the firm) is more apt.

¹²⁵ See Rhee, *supra* note 36, at 202 (arguing that corporate law “serve[s] the unique policy needs and preferences and the societal conditions of the specific time period”).

¹²⁶ Cf. *supra* note 56 and accompanying text (article by Ricci that analogizes to Roman law of slavery to provide a framework for thinking about AI personhood).

¹²⁷ Slavery and serfdom lie on a spectrum of coerced labor. See MARC BLOCH, *FEUDAL SOCIETY: THE GROWTH OF TIES OF DEPENDENCE*, VOL. 1, 261 (1961) (L.A. Manyon, trans., 1964) (stating that

We consider the firm in stylized form. Capital is provided by creditors and equity holders, who fund the firm’s acquisition of assets that are necessary to generate cash flow. To make widgets, a firm deploys inputs from counterparties (e.g., suppliers and service providers) and employee labor. Through production coordinated and directed by managerial labor, a firm creates value in the form of cash flow that is then allocated among all input providers according to their claims.

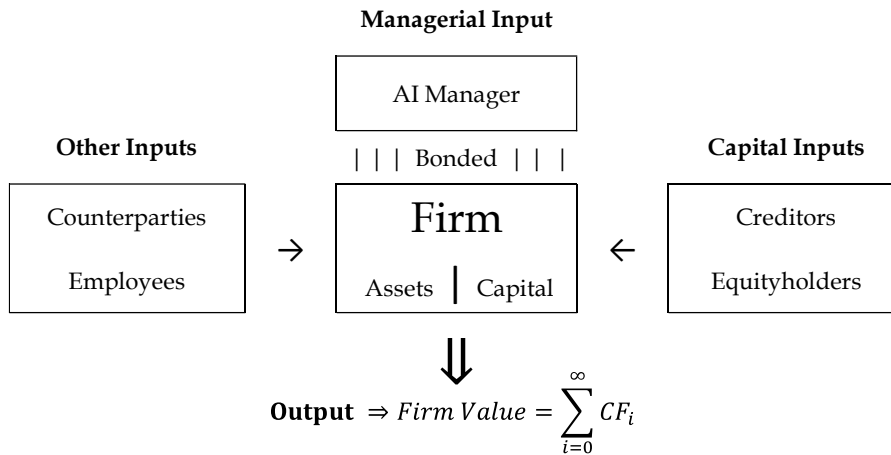


FIGURE 1: FIRM INPUTS

In this stylized scheme of an ordinary firm, a manager is an input alongside (and superior to) employees. Together, they constitute the necessary total labor in the venture. AI as manager would fundamentally upend this scheme. It could be seen as a capital asset in the sense that capital from investors would fund its acquisition for the purpose of producing return, but as a distinct legal person it would not be property within the legal boundary of the firm. As a separate person, AI would be outside the property boundary of the firm, neither an asset nor property within the firm; however,

when “the ancient distinction between the free man, a subject in full right, and the slave, a being outside the scope of public institutions” weakened, “people did not lose the habit of thinking of society as composed partly of the free and partly of the unfree; they preserved for these latter their old Latin name of *servi*, which became *serfs* in French”). See generally Stanley L. Engerman, *Slavery, Serfdom and Other Forms of Coerced Labour: Similarities and Difference*, in SERFDOM & SLAVERY: STUDIES IN LEGAL BONDAGE 21-28 (M.L. Bush, ed., 1996) (distinguishing slavery and serfdom). “[S]erfdom is the existence-form of labour in the feudal mode of production. Its essence was the transference to the use of the lord of the labour of the peasant family which was surplus to that needed for the family’s subsistence and economic reproduction.” RODNEY HILTON, CLASS CONFLICT AND THE CRISIS OF FEUDALISM: ESSAYS IN MEDIEVAL SOCIAL HISTORY 282 (1985). “Serfs generally had the rights to some land, and they could not in most cases . . . be sold apart from this land.” Engerman, *supra*, at 21.

unlike contract-based labor that is by definition transient and bilateral, AI would be bonded to the firm as the provider of managerial labor. Importantly, we presume that AI, while requiring regular maintenance and upkeep, would not depreciate in value as ordinary capital assets do,¹²⁸ and it would not require an allocation of the economic pie as ordinary managers do even as it begets value through its input.¹²⁹

Each progression in the form of AI's contribution to the venture moves up the value chain of productivity, efficiency, and profitability. AI as tool augments human labor. AI as serf substitutes human labor. In both functions, AI may operate semi-autonomously. AI as manager is the highest form of labor, exercising decision-making that is the power to conduct the firm's business and affairs. As AI becomes more autonomous and person-like, the value chain increases as AI substitutes labor from simple to more complex form: AI as tool enhances employee production; AI as serf replaces employee production; AI as manager manages firm production.

AI as serf is an intermediate step on the managerial pathway. The distinguishing feature of AI is its acquisition of human-like intelligence and self-learning, which may be independent of exacting human control, such as our precise control over computers, algorithms, or factory robots today. AI as serf is both capital and labor, and while android labor is subject to control, AI is free to act within given bounds like an agent under agency law. This quality of pliable, autonomous intelligence is the essence of the technological promise underway now, as can be seen from public information.¹³⁰

As tool or serf, AI is capital intrinsic in the firm, *i.e.*, property within the firm's legal boundary. The cost of its manufacture or acquisition would be capitalized as an asset on the firm's balance sheet (if accounting rules permit) or in the firm's market value (even if accounting rules do not permit) because it would have an asset value. As an asset of the firm, AI would not acquire rights, powers, obligations, and liabilities. In the legal sense, it is no different than any other property, plant, equipment, or other capital assets. The use of any asset can be regulated if there is a public interest or safety concern, and its misuse or accidents can subject the firm to liabilities under various laws such as torts, employment, privacy laws, etc.¹³¹ AI as inanimate

¹²⁸ Capital assets impose an economic cost on the firm not when it is acquired through cash outlay, but when it declines in value per use or consumption in the production process such as depreciation or amortization expense.

¹²⁹ See *infra* Section III.D. (discussing and analyzing the cost-benefit advantages of AI as manager).

¹³⁰ See *supra* notes 8-16 and accompanying text.

¹³¹ *E.g.*, Mihailis E. Diamantis, *Employed Algorithms: A Labor Model of Corporate Liability for AI*, 72 DUKE L.J. 797 (2023).

asset may require modification of existing frameworks of law to new circumstances, but in many cases not a reconceptualization of law. Personhood, however, would require fundamental rethinking.

AI as manager is more than just the highest level of labor. The concept is radically different from AI merely as an asset. A legal person would be an entity that is distinct from the firm.¹³² In one respect, AI as manager could be seen as just a continuation of a common principle as technology progresses. In the early days of modern laws of business firms, the legal profession and academy debated the possibility of an entity being a legal person, such as corporations serving as a partner in partnerships,¹³³ a long-settled point of principle now.¹³⁴ Yet, in another respect, AI legal personhood would be fundamentally different: AI would acquire rights, powers, obligations, and liabilities, and it would be an independent actor that is not subject to exacting terminal human control and decision-making, unlike legal persons and inanimate assets today. This implication is important when thinking about how AI can revolutionize management of firms and the limitations of AI participation in firms.

B. Asset and Liability Partitioning

We consider how an important aspect of the laws of business firms would apply to AI personhood. A crucial function of the laws of business firms is to partition assets and liabilities. Legal personhood permits: (1) the rule that the entity may own property in its own name, and such properties do not belong to the investors;¹³⁵ and (2) the rule that the entity owes its own debts and obligations, and such liabilities are not those of the investors.¹³⁶ When these rules are applied, AI personhood would provide better results for investors.

Consider firstly the case when AI is a tool or serf endogenous in a firm. AI would be the firm's property. Accordingly, the disposition of AI would be exposed to the firm's bankruptcy risk, subject to acquisition by creditors in the bankruptcy process. If AI were a legal person, it would achieve bankruptcy remoteness from the managed firm. The principle is no different

¹³² See, e.g., *Dole Food Co. v. Patrickson*, 538 U.S. 468, 474 (2003) ("A basic tenet of American corporate law is that the corporation and its shareholders are distinct entities."); UNIF. LTD. LIAB. CO. ACT § 108(a) (Unif. L. Comm'n 2006 and amended 2013) ("A limited liability company is an entity distinct from its member or members."); UNIF. P'SHIP ACT § 201(a) (Unif. L. Comm'n 1997 and amended 2013) ("A partnership is an entity distinct from its partners.").

¹³³ See Malcolm A. Litman, *Corporations—Status of a Corporation as a Partner in Missouri*, 25 U. KAN. CITY L. REV. 109 (1957); Scott Rowley, *The Corporate Partner*, 14 MINN. L. REV. 769 (1930).

¹³⁴ See *supra* notes 88–90 and accompanying text.

¹³⁵ See *supra* note 96.

¹³⁶ See *supra* note 69.

than a parent–subsidiary relationship in which each is a distinct entity for the purpose of assets and liabilities. If AI is a person, the value of AI would be shielded from the firm’s bankruptcy risk. In insolvency, AI could be decoupled from the insolvent firm and be bonded to another operating firm.

Legal personhood also partitions liability. AI as manager will result in less liability for investors. Corporate liability is a complex mix of individual liability, investor risk assumption, firm vicarious and direct liability, insurance, indemnification, and external laws imposing liability on individuals and firms.¹³⁷ For the most part, the rules collectively steer actual cost of business activities toward the firm’s treasury and thus the limit of investors’ capital.¹³⁸ Working within the scope of these rules, individual managers and employees may face substantial liability when they use AI as asset without understanding how AI produces its outcomes or actions. The liability problem is just one of the innumerable complexities that must be worked out through existing laws, which means that significant legal uncertainty and thick social implications exist.

In a traditional legal structure, a firm manages a venture and owns AI as an asset wherein AI could functionally manage the venture day-to-day.¹³⁹ This arrangement is interesting as to business practice and use of technology, but is legally unremarkable. A traditional firm housing AI would be capitalized by investors. Since the AI is just an asset therein, the firm would still be subject to the ultimate control of the equity investors, even if functional management is delegated to AI’s automated system. Presumably, investors in a traditional firm would retain the power to “turn off” (remove) the AI,¹⁴⁰ to modify its decisions, and to intervene otherwise. If AI is an asset, control will necessarily be retained by the firm’s owners.

The retention of control has a profound legal consequence. It exposes the controller to liability and imposes duties to others. Investors may protest that they are passive, but some “person” conferred with legal status must be managing the firm, and a court will surely rule that an “asset” is not a

¹³⁷ See generally Robert J. Rhee, *Corporate Tortious Liability*, ch. 7, in RESEARCH HANDBOOK ON CORPORATE LIABILITY, at 116-17 (Martin Petrin & Christian A. Witting, eds., 2023) (presenting an overview of the liability scheme for firms and constituents).

¹³⁸ *Id.* at 118.

¹³⁹ See *supra* note 53. See also Leo E. Strine & J. Travis Laster, *The Siren Song of Unlimited Contractual Freedom*, in RESEARCH HANDBOOK ON PARTNERSHIPS, LLCs AND ALTERNATIVE FORMS OF BUSINESS ORGANIZATIONS, at 21 (Robert W. Hamilton & Mark J. Lowenstein, eds., 2015) (“Most alternative entities have no human fiduciary. Rather, most LPs have a general partner that is another business entity. Likewise, most LLCs have a managing member that is another business entity.”).

¹⁴⁰ See *infra* Section V.C. (recommending that the power to remove expeditiously should be a condition of using AI managers).

“person.”¹⁴¹ Albeit a traditional firm may be structured so that AI effectively operates it, the investors therein could and should be subject to liability inuring to managers or owners because they would be deemed to be the wrongdoers. This legal problem arising from the inevitable retention of control is negated if AI is not an asset endogenous in the property boundary of the firm, but is instead a distinct person exogenous to the firm. As a legal person, AI has the capacity to control and thus to incur liabilities.

To analyze the liability issue further, consider a basic rule in corporate law: A director is entitled to rely in good faith upon the information provided to them.¹⁴² If AI is a blackbox in terms of how its intelligence produced a particular recommendation, analysis, or conclusion, a director’s reliance on AI could be tantamount to a rubberstamp of a blackbox. The paradox is apparent: If AI is not a blackbox in part, we would not need the concept of AI as manager so much because AI as tool and human inputs could exactly replicate the outputs. AI poses a quandary for law and policy because it will be uniquely intelligent. How did Beethoven’s inner ear create the Ninth Symphony? How did Einstein image four dimensions of spacetime? If AI is a blackbox, reliance on it raises questions of managerial reasonableness and good faith, and thus the manager’s liability. A reliance on the unknowable may not satisfy a jury, a chancellor, or an angry public. Some “person” must be at fault and must be held to account.

Consider now the alternative liability scheme if AI is conferred with legal personhood, and thus is deemed to have agency for its own conduct. AI would be liable for its own acts and conduct. As a firm managed by AI, the company could still be directly or vicariously liable for the acts of its manager, and it could incur this liability as its own debts and liabilities under the rule of limited liability.¹⁴³ However, AI would eliminate the need for other would-be managers (*i.e.*, natural persons and traditional legal persons today), and thus foreclose the prospect of *their* potential liability for their own conduct. As a legal person, AI as manager would internalize liability for its own conduct.¹⁴⁴

¹⁴¹ However, a few states have recognized “decentralized” firms in which “smart contracts” operate them. *See supra* note 82 (discussing Wyoming and Tennessee laws).

¹⁴² *See* DEL. CODE ANN. tit. 8, § 141(e); MOD. BUS. CORP. ACT § 8.30(f) (2020). *See also* Ricci, *supra* note 25, at 896–99 (discussing the protection of section 141(e) given to directors when the corporation is also managed by AI).

¹⁴³ The firm and its investors would not necessarily be externalizing the liability of its managers. *See* RESTATEMENT (THIRD) OF AGENCY § 6.01 & § 7.03 (2007) (stating that principal is liable for contracts and torts involving agent, subject to specific conditions).

¹⁴⁴ Because AI as person would not be capitalized as traditional firms are, special provision must be made to fund AI’s liabilities. *See infra* Section V.B.

Before discounting the possibility that AI could become a Warren Buffett or Bill Gates, we can first think about the compelling advantages of AI as manager in a more tangible example that is within the realm of today's possibility. Assume that a venture's core asset is a trading platform, like a stock or commodity exchange, and its owners (natural and legal persons) create a firm wherein the platform becomes the firm's principal asset. The technology behind the trading platform enables largely autonomous operation. The owners are principally users of the platform and would prefer to be passive owners. The platform increases in value as it becomes bigger in scope and scale, and this growth requires a high level of technological expertise and maintenance. Management includes the tasks of contracting, marketing, managing employees, ensuring regulatory compliance, and developing business. Like any venture, there is a real possibility of liability.¹⁴⁵ In this situation, AI that manages, maintains, and grows the technology and venture may make eminent sense if it is legally substitutable with a legal or natural person. Otherwise, some "person" must manage the venture, and liability would flow to the would-be manager who would thereby impose direct and indirect costs on the venture.¹⁴⁶

AI as manager presents a real opportunity to generate value. The distinction between AI as firm asset and AI as manager legal person is substantial, and the economic advantages of AI personhood are compelling. More speculatively now, we may ask: Why couldn't AI assume generally the role of high officers such as CFOs and COOs? Finance and accounting are technical fields, amendable to algorithmic thinking and processes, and aspects of operations are likewise highly technical.¹⁴⁷ With continued

¹⁴⁵ For example, suppose the trading platform malfunctions and traders suffer significant economic losses.

¹⁴⁶ Even if an autonomous system operates the platform on a day-to-day, the "passive" investors will be susceptible to a charge that they are partners in a general partnership. *See* UNIF. P'SHIP ACT § 102(11) (Unif. L. Comm'n 1997 and amended 2013). A partnership may be formed without specific intent. *Id.* § 202(a) ("the association of two or more persons to carry on as co-owners a business for profit forms a partnership, whether or not the persons intend to form a partnership"). The problem for investors in an "accidental" partnership is that they do not have limited liability and thus are liable for the debts and obligations of the partnership venture. *Id.* § 306(a) ("all partners are liable jointly and severally for all debts, obligations, and other liabilities of the partnership"). Due to the possibility of forming an unintended (or unwanted) partnership in situations involving business firms operated by automated technology, a few states now permit LLCs to be organized as "decentralized autonomous" organizations that are managed by "smart contracts" rather than a traditional legal or natural person. *See supra* note 82. Members in LLCs have limited liability, and because management service is provided by a "smart contract" members would not owe duties and incur liabilities for breach. *See* WY. STAT. § 1731-110 ("no member of a decentralized autonomous organization shall have any fiduciary duty to the organization or any member"); TENN. STAT. § 48-250-109 (same).

¹⁴⁷ *See, e.g.,* MARCOS LÓPEZ DE PRADO, *ADVANCES IN FINANCIAL MACHINE LEARNING* (2018) (discussing the application of machine learning in financial investments).

technological development, AI could be quite adept at these kinds of fields. If job functions like finance, accounting, and operations are not beyond the ken of AI to learn and master with the capability for self-learning and human language, the step toward AI as CEO and director may be a significant one, but not unimaginably unbridgeable. As mentioned, a European company has already taken this step.¹⁴⁸

C. *The Romney Principle*

AI as manager is structurally limited to be a worker, but not an owner. AI does not have an internal profit motive; it would not ask for a cut of the economic pie. No matter how fantastic the future may be, we cannot imagine AI as an ultimate owner in for-profit ventures. Would AIs *want* wealth and its accoutrements?

Mitt Romney—governor, senator, presidential candidate, financier, and accidental philosopher—gave us the necessary insight in a humorous yet serious episode. At an Iowa state fair on August 11, 2011, during his presidential campaign against Barack Obama, Romney was speaking about the problem of growing entitlements and the undesirable possibility of taxing people when from the crowd a heckler shouted, “Corporations!” Romney gently retorted, “Corporations are people, my friend.” The heckler shouted back, “No, they’re not!” Recalcitrant, Romney retorted, “Of course they are. Everything corporations earn ultimately goes to people.” The crowd laughed at the seemingly out of touch politician, momentarily turned philosopher of artificial persons. His face betraying incredulity, Romney shot back, “Where do you think it goes?”¹⁴⁹

Romney told the truth, at one level. He was thinking less like a pliable politician, and more like the sophisticated capitalist that he was before his political career.¹⁵⁰ His fair point—call it the Romney Principle for convenience—was that the wealth created by corporations flows to natural persons who are their ultimate beneficiaries if all the layers of legal persons are peeled back. The principle captures an incontrovertible simple fact, at one level: Corporations are artificial things and thus do not *want* wealth in some anthropomorphized sense. Of course, Romney was not the first to

¹⁴⁸ See *supra* note 48.

¹⁴⁹ See Ashley Parker, ‘Corporations Are People,’ *Romney Tells Iowa Hecklers Angry Over His Tax Policy*, N.Y. TIMES (Aug. 11, 2011); *Romney Tells Voters ‘Corporations Are People’ at the Iowa State Fair*, NBC NEWS (Aug. 11, 2011) (showing video of the exchange with hecklers), available at <https://www.nbcnews.com/video/romney-tells-voters-corporations-are-people-at-the-iowa-state-fair-65427013690>.

¹⁵⁰ As a successful private equity financier at Bain Capital with a J.D. and M.B.A. from Harvard University, Romney is certainly an analytical thinker.

observe the obvious point that a corporation is a legal fiction,¹⁵¹ and the derivative notion that natural persons act on behalf of legal persons, but this amusing political episode is a colorful vignette illustrating the link between legal and natural persons.¹⁵²

The Romney Principle—firms as legal persons are derivative of natural persons—resolves the issue of whether AI can be an equity owner of firms. AI would presumably have no use for (utility from) wealth and accoutrements thereof, and thus cannot be an ultimate owner with economic claims on the firm’s wealth. “Ultimate owner” is qualified as such because it presupposes an owner’s desire for wealth. We can easily envision AI as an instrumental “owner” such as when a member of an LLC is AI and the LLC acts as a manager of some other venture.¹⁵³ AI is ultimately limited in its usefulness as a manager only, whether performed as a partner, member, or manager in partnerships and LLCs.

¹⁵¹ See *infra* note 183 and accompanying text (quoting Edward Thurlow’s comment about corporations).

¹⁵² I also qualify the Romney Principle as “at one level” of truth. It is not truth’s end. One would be remiss without a fuller identification of the theory and implications that Romney invoked. Corporations have a dual nature. They can be theorized as an aggregate of the natural persons therein, as Romney did. This conceptualization is the basis of the “nexus of contracts” idea of firms. Under this idea, all firms devolve to contracts, a set of legal arrangements of natural persons since artificial persons like firms are mere contracts as well. See William Allen, *Our Schizophrenic Conception of the Business Corporation*, 14 CARDOZO L. REV. 261, 265 (1992) (noting that under this “contract model, because in its most radical form, the corporation tends to disappear”). However, corporations can also be seen as distinct “persons,” and this legal conceptualization is quite real and fact based. See *supra* note 131 and accompanying text; *supra* note 46. How we conceptualize the corporation can affect enormously many social and political issues. The Romney Principle is truth at one level, but is not *the* truth in terms of conceptualizing business entities.

¹⁵³ As a member, AI would not require an economic claim, a permissible arrangement under the laws of firms. Contractual flexibility in noncorporate firms permit equity ownerships such as being a partner and member without economic interests. See, e.g., UNIF. LTD. LIAB. CO. ACT § 401(d) (Unif. L. Comm’n 2006 and amended 2013) (permitting a member “without acquiring a transferable interest; or making or being obligated to make a contribution”); UNIF. P’SHP ACT § 401(c) (Unif. L. Comm’n 1997 and amended 2013) (same for partner); UNIF. LTD. P’SHP ACT § 401(c) (Unif. L. Comm’n 2001 and amended 2013) (same). See also UNIF. LTD. LIAB. CO. ACT § 102(9) (Unif. L. Comm’n 2006 and amended 2013) (providing that a manager is “a person that under the operating agreement of a manager-managed limited liability company is responsible, alone or in concert with others, for performing the management functions”); *id.* § 102(15) (defining “person” as a natural or legal person). Even corporate law permits shares without economic interest. See *Stroh v. Blackhawk Hldg. Corp.*, 272 N.E.2d 1, 2, 7 (Ill. 1971) (upholding the validity of stock in which “none of the shares of Class B stock shall be entitled to dividends either upon voluntary or involuntary liquidation or otherwise”); RICHARD A. BOOTH, FINANCING THE CORPORATION, § 3:3 (2023) (noting that with respect to “stock with voting rights but little or no financial rights . . . most courts found them valid”). The purpose of ownership without an economic claim is generally the endowment of governance powers of partners and members without the typical associated economic rights. AI could become an owner manager without the right to economic interest. Thus, I qualify that AI could be an owner such as a partner, member, or shareholder, but could not be an “ultimate owner” (*i.e.*, an owner with an economic claim).

D. Cost-Benefit Advantages of AI as Manager

AI as serf in the firm is not coterminous with AI as manager of the firm. Natural persons ultimately act on behalf of legal persons regardless of the layers upon layers of entities in business structures.¹⁵⁴ This basic fact of business firms today would be wholly upended by AI's qualities of ontological personhood.¹⁵⁵ Personhood would no longer be derivative, and the causal link of action between legal person and natural person would be broken. This raises the question: Why would human owners and managers want to install AI as a legally distinct manager when AI would be available as an asset within a traditional business entity? In short, why do we need AI personhood? The advantages of AI as manager derive from efficiency, liability, and cost.¹⁵⁶ Not surprisingly, these three factors are standard fare cost-benefit considerations in any business decision or strategy.

We consider first the benefit from substantive decision-making. AI as manager may improve managerial function because it may make less errors, be a superior analyst, and make better decisions than humans. This reasoning assumes a near future possibility: AI's extraordinary, unique intelligence—extraordinary because its intelligence is higher in some respects than human intelligence, and unique because its intelligence is not fixed but is elastic and expandable through self-learning and development. In such case, elevating its authority will yield the full potential of AI's capabilities.

AI as manager means some managerial discretion and authority, free of exacting human control in the way that agents, while subject to the principal's control, have been delegated authority to advance the principal's interests. The implication is plain. In any kind of modeling (in economics, science, or engineering), an output is subject to the principle of "garbage in, garbage out."¹⁵⁷ The full capacity of AI may be limited by exacting control of human intervention: which is to say, "human intervention in, human results out." If AI is merely a tool, its use is a function of the quality of human adroitness in using the tools at hand. Human managers are providing data,

¹⁵⁴ This point has long been recognized as it is obvious. See Rowley, *supra* note 132, at 771 ("The inherent nature of the corporation necessarily implies that all its acts must be performed by agents. It has neither physique nor mentality by means of which it may act in person."); *infra* note 183 (quoting Edward Thurlow: "neither bodies to be punished, nor souls to be condemned").

¹⁵⁵ See Ricci, *supra* note 25, at 893 ("But for AI specifically—no human safeguard exists—AI machines do not rely on human agents.").

¹⁵⁶ See *supra* section III.B. (discussing the benefit of liability management and control).

¹⁵⁷ E.g., Robert J. Rhee, *The Decline of Investment Banking: Preliminary Thoughts on the Evolution of the Industry 1996–2008*, 5 J. BUS. & TECH. L. 75, 83 (2010) ("The validity of these mathematical models depends on the underlying assumptions regarding expected cashflow and variance (the old adage 'garbage in, garbage out'), and these inputs must have been based on human judgment for we now know that there were no reliable inputs.").

maximands, and goals, and have exacting and ultimate control in the way that we do over property, plant, equipment, and all other capital assets. AI is capable of agency but is denied it. Unshackled from such exacting control, a self-aware AI with agency and unique intelligence may realize the full technological promise of efficiency and wealth creation without the limitations of human intervention.

Consider the job function of directors and officers in a complex corporation. Their tasks include management of: business performance, plans, and strategy; assessment of major risks to which the firm is or may be exposed; performance and compensation of officers and employees; policies and practices to foster compliance with law and ethical conduct; lower management's preparation of the firm's financial statements; lower management's design and assessment of effectiveness of the firm's internal controls.¹⁵⁸

With minimum attributes of ontological personhood, including the capacity for self-learning, there could be no structural or technological barrier to perform these functions. Planning, strategy, business analysis, legal compliance, financial and internal control, and risk management are analytical functions in which AI could excel, if we assume continued trajectory of technological development toward unique intelligence and ability to use human language.

In addition to the benefits of improved substantive management, AI as manager also presents opportunities for cost saving. Costs are always imposed when some person, natural or legal, manages a firm today. The costs stem from the fact that some person owns the manager, and the provision of managerial labor is not cost free. The total cost of a manager is the sum of management fee and managerial agency cost.

The direct cost of managers is their wage—their claim on the economic output of the venture. AI could replace costly management fees. Without a profit interest, the predominant motive force of owners, managers, and other constituents of business firms, AI would not require a cut of the economic pie.

One may argue that AI is not cost free either: Isn't the very acquisition of AI a cost? No. Asset acquisition for equivalent value is never an economic cost. At the spot of the transaction, neither the seller nor the purchaser incurs a cost when equivalent value is exchanged; such a deal is simply an exchange of forms of asset. The expenditure incurred to acquire AI is not an economic cost if two conditions are met: if AI contributes equivalent or greater value than the acquisition price, and if it does not depreciate with use like most

¹⁵⁸ See MOD. BUS. CORP. ACT § 8.01 official cmt. (2020).

assets. All expenditures are not economic costs (*i.e.*, sacrifice of resource). “Acquisition cost” in the formal economic sense is a misnomer. It is simply the cash amount necessary to acquire the asset, but cash expenditure is not necessarily an economic “cost.” Like the purchase of any other thing, the transaction is an exchange of assets, *i.e.*, cash outlay to acquire a thing of equivalent value. The cash expenditure to make or buy the AI may ultimately be capitalized as an asset into the value of the firm *even though* AI would be separate and distinct from the firm. How can the value of AI inure to firm value even though it lies outside the legal property boundary of the firm?

A fundamental axiom of finance is that an asset has value because it generates cash flow.¹⁵⁹ If a firm incurs an acquisition cost for which it gains equivalent or more value in additional cash flow, it has not incurred an economic cost at all. The value of AI will be capitalized into the value of the firm through an increase in *firm’s* cash flow that is directly attributable to AI’s contribution of value to the firm per input of managerial labor. The value of AI will be bonded to the firm such that all benefits inuring from its use will increase the firm’s cash flow, thus augmenting the firm value even though the firm does not own AI as asset within its legal property boundary.

An important assumption here is that acquisition pricing or cost of manufacturing is competitive and is based on a cash flow-centric view of asset value. Seller and buyer exchange equivalent value as measured by cash flow equivalents in an exchange of assets. If the seller of AI can charge a price that exceeds the cash flow-based asset value of AI, then any excess price would cut into the firm’s expected profit from AI up to the point where the acquisition cost would equal the total cost of an ordinary non-AI manager. Stated differently, the assumption is that the seller of AI would not charge a price that would be the functional equivalent to what an ordinary manager would cost the firm in terms of management fee and managerial agency cost such that the user of AI would not expect to benefit from employing AI as manager. AI would be profitable, and thus a market of AI managers can exist if the acquisition cost of AI does not transfer to the seller the total profit opportunity of AI.

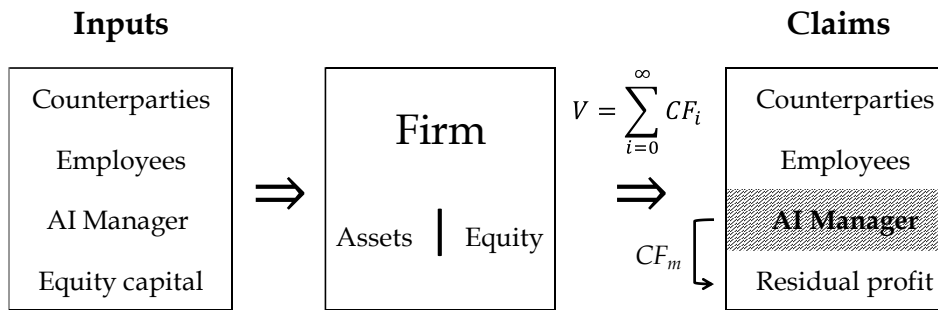
If AI’s input increases the operational production of the firm, either by lowering costs or increasing benefits or both, then the firm increases in value. AI’s economic production per managerial labor constitutes the asset value of AI; the firm incurred a cash expenditure for an acquisition whose reciprocal value is bonded to the firm. AI’s asset value would presumably be equal to

¹⁵⁹ The cornerstone of modern finance is a fundamental theory of asset value: The value of an asset is the sum of the expected free cash flow discounted by a rate of return commensurate with its riskiness. See RICHARD A. BREALEY, STEWART C. MYERS & FRANKLIN ALLEN, PRINCIPLES OF CORPORATE FINANCE 2 (13th ed. 2020).

its acquisition cost in a cash flow-centric exchange, but unlike a typical capital asset that usually depreciates in value with use and time, thus eventually imposing an economic cost on the firm, AI would impose no real sacrifice of resources.¹⁶⁰ This financial dynamic is the crucial economic promise of AI as manager.

To illustrate, we consider an all equity-financed firm and the economic claims against it by providers of inputs. In a stylized firm, the providers of inputs are counterparties, employees, AI manager, and equity investors. These inputs produce output that is the firm's cash flow.

FIGURE 2: PROFIT OPPORTUNITY OF AI



Ordinarily, all providers of inputs would have economic claims against the firm. Counterparties and employees must be paid, and ordinarily, managers too. Let's note CF_m as the manager's claim on cash flow if the manager has a profit motive. As the Romney Principle implies, AI has no use for wealth. Without the requirement of management fees to compensate the manager, the value of AI flows directly to the firm's residual claimants (equity holders) even though the firm does not own AI as property within the firm's legal boundary or even hire AI. The value contribution of AI is not diminished by a manager's economic claim CF_m , which means that the equity holder would realize more residual profit.

¹⁶⁰ Unlike a depreciating asset such as computers and factory robots, AI may not depreciate at all and may actually appreciate in value with use and machine learning because, like legal persons today and unlike natural persons (sadly), it presumably would have perpetual life. See DEL. CODE ANN. tit. 8, § 102(b)(5) (providing for "perpetual existence" of corporations); UNIF. LTD. LIAB. CO. ACT § 108(c) (Unif. L. Comm'n 2006 and amended 2013) (providing for "perpetual duration" of LLCs).

Managers also impose indirect cost in the form of managerial agency cost.¹⁶¹ The root cause of agency cost is human foibles.¹⁶² Much of the complex litigation involving layers upon layers of legal entities bundled together in a complex web of relationships, inter-firm dealings, and intricate contracts among its constituents boils down to the simple fact that managers and constituents are pursuing allocation of a zero-sum economic pie.¹⁶³ AI would be less susceptible to the kinds of loyalty problems that are complex in litigation in terms of discovering facts in the contexts of various legal standards, but are in fact simple in motive force.¹⁶⁴ This conclusion is contrary to visceral intuition, but upon further thought, it is inevitable.¹⁶⁵

The economic rationale of AI as manager is compelling. The value proposition is the sum of enhanced managerial efficiency and foregone management direct and indirect costs. If AI satisfies the first predicate of ontological personhood, it will also meet the second predicate so long as the transaction to acquire AI would not transfer all expected excess value of AI to a third-party seller or maker.

IV. LEGAL AND POLICY CONSIDERATIONS

Legal personhood of AI stands on the two predicates of ontological personhood and economic rationality. To confer legal status, however, we must answer the normative question of whether AI personhood is a good idea. We start with the observation that all managers must comply with their fiduciary duties.¹⁶⁶ Fiduciary duty is tinged with a moral tone, but the range of tonality is limited to the elements of legal duty. As for morality generally, society rightly assumes today that fully developed moral beings ultimately control business firms. The debate on the link between morality and law has

¹⁶¹ See Jensen & Meckling, *supra* note 39, at 308-10.

¹⁶² See *In re Investors Bancorp, Inc. S'holder Litig.*, 177 A.3d 1208, 1211 (Del. 2017) (“Human nature being what it is, self-interested discretionary acts by directors should in an appropriate case be subject to review by the Court of Chancery.”); *Gottlieb v. Heyden Chem. Corp.*, 90 A.2d 660, 663 (Del. 1952) (“Human nature being what it is, the law, in its wisdom, does not presume that directors will be competent judges of the fair treatment of their company where fairness must be at their own personal expense.”).

¹⁶³ *E.g.*, *Norton v. K-Sea Transp. Partners L.P.*, 67 A.3d 354 (Del. 2013); *Dieckman v. Regency General Partner LP*, 155 A.3d 358 (Del. 2017).

¹⁶⁴ See Ricci, *supra* note 25, at 872 (identifying the possibility that AI can reduce managerial agency cost).

¹⁶⁵ For reasons fully discussed in next section, AI as manager would be a better fiduciary, and thus would impose less agency cost. See *infra* Section IV.A. (discussing fiduciary duties).

¹⁶⁶ There are exceptions. In some states, but notably including Delaware, fiduciary duties may be completely eliminated in certain noncorporate entities. See DEL. CODE ANN., tit. 6, § 17-1101(c) (providing that the entity’s governing agreement “may provide for the limitation or elimination of any and all liabilities for breach of contract and breach of duties (including fiduciary duties)”; *id.* § 18-1101(e) (same)).

a rich pedigree.¹⁶⁷ The realm of human morality and ethics is not coterminous with the law.¹⁶⁸ If operational efficiencies are the accelerator that speeds us toward AI as manager, moral and public interest considerations are the brake that compels contemplative pause. How should we balance these competing tensions?

A. *Natural Persons and Fiduciary Duties*

The laws of business firms are clear with respect to personhood. Any *entity* could potentially be conferred with legal status. If AI acquires entity status, which for AI is ontological personhood, it could be conferred with legal status. It could then become a partner, member, or manager, but not a director or officer. Should it be legally permitted to serve in any of these capacities as a matter of policy?

We first examine the difference, if any, between Microsoft and AI serving as a partner, member, or manager. The distinction reveals a connection between the laws of noncorporate entities and corporations, despite their difference on who can serve as a manager. When the formality of personhood is peeled back, all business firms today are ultimately managed or controlled by natural persons, which is to say that legal persons ultimately act through natural persons.¹⁶⁹ With AI, however, there is no terminal natural person. This fundamental difference raises the question of whether AI can assume the most important obligation of a manager—that is, fiduciary duties.¹⁷⁰

¹⁶⁷ Compare LON FULLER, *THE MORALITY OF LAW* (1964), with H.L.A. Hart, *Positivism and the Separation of Law and Morals*, 71 HARV. L. REV. 593 (1958).

¹⁶⁸ For example, there is no general duty to rescue a life in danger, though it may require little cost. See *Yania v. Bigan*, 155 A.2d 343 (Pa. 1959). Much ink has been spilled on this topic and there are statutory exceptions in a few states, but the general rule holds. Another example is that lying is morally wrong, but is unlawful in only limited circumstances. See, e.g., 18 U.S.C. § 1621 (defining “perjury”).

¹⁶⁹ See *supra infra* note 182 (noting that entities act through individuals); Section I.B. (discussing the “Romney Principle”); *infra* notes 177-185 (discussing the rule in *In re USACafes*). Cf. *supra* note 82 (discussing Wyoming and Tennessee laws anticipating firms operated by “smart contracts”).

¹⁷⁰ Directors, officers, partners, members, managers, and agents owe fiduciary duties. See RESTATEMENT (THIRD) OF AGENCY § 8.01 (2007) (agents); MOD. BUS. CORP. ACT § 8.30 (directors), § 8.42 (officers) (2020); *Gantler v. Stephens*, 965 A.2d 695, 708-09 (Del. 2009) (directors and officers); UNIF. LTD. LIAB. CO. ACT § 409 (Unif. L. Comm’n 2006 and amended 2013) (members and managers); UNIF. P’SHIP ACT § 409 (Unif. L. Comm’n 1997 and amended 2013) (partners).

A fiduciary relationship creates a special obligation.¹⁷¹ Fiduciary duty comprises of two obligations: the duties of care and loyalty.¹⁷² The duty of care in partnerships and LLCs is stated as the duty “to refrain from engaging in grossly negligent or reckless conduct, willful or intentional misconduct, or a knowing violation of law.”¹⁷³ In corporations, the duty is considered from the perspective of informed decision-making.¹⁷⁴ The duty of loyalty is grounded in the core principle that a fiduciary cannot advance her interest to the detriment of the firm and its owners.¹⁷⁵ Fiduciary duty is tinged with moral undertones.¹⁷⁶ The duty imbues distinctly human relations that is based on a structural power relation involving important interests.¹⁷⁷ One could argue that inanimate things like legal persons and AI are incapable of being moral persons.

Case law on fiduciary veil piercing reveals the relevant insight. In *In re USACafes, L.P. Litigation*, the Delaware Chancery Court, per William Allen, addressed the specific problem posed when a general partner of a limited partnership was a corporation, and limited partners accused it of breaching its fiduciary duty.¹⁷⁸ The complaint averred that the general partner (a corporation) approved a sale of the limited partnership’s assets at a low price because the directors of the corporation received substantial side payments from the purchaser that induced them to sell the assets at less than fair value to the detriment of the limited partnership and its limited partners, for whom

¹⁷¹ See *Meinhard v. Salmon*, 164 N.E. 545, 546 (N.Y. 1928) (“A trustee is held to something stricter than the morals of the market place. Not honesty alone, but the punctilio of an honor the most sensitive, is then the standard of behavior.”).

¹⁷² See UNIF. P’SHP ACT § 409(a) (Unif. L. Comm’n 1997 and amended 2013); UNIF. LTD. LIAB. CO. ACT § 409(a) (Unif. L. Comm’n 2006 and amended 2013); *United Food and Commercial Workers Union and Participating Food Industry Employers Tri-State Pension Fund v. Zuckerberg*, 262 A.3d 1034, 1049 (Del. 2021) (“The directors and officers of a Delaware corporation owe two overarching fiduciary duties—the duty of care and the duty of loyalty.”).

¹⁷³ UNIF. P’SHP ACT § 409(c) (Unif. L. Comm’n 1997 and amended 2013); UNIF. LTD. LIAB. CO. ACT § 409(c) (Unif. L. Comm’n 2006 and amended 2013).

¹⁷⁴ See, e.g., *Smith v. Van Gorkom*, 488 A.2d 858, 873-74 (Del. 1985); MOD. BUS. CORP. ACT § 8.30(b), § 8.31(a) (2020).

¹⁷⁵ The uniform laws specify that a fiduciary has a duty: (1) to account to the firm and hold as trustee for it any property, profit, or benefit by the member, manager, or partner; (2) to refrain from dealing with the firm or on behalf of a person having an interest adverse to it; and (3) to refrain from competing with the firm. See UNIF. P’SHP ACT § 409(b) (Unif. L. Comm’n 1997 and amended 2013); UNIF. LTD. LIAB. CO. ACT § 409(b) (Unif. L. Comm’n 2006 and amended 2013); MOD. BUS. CORP. ACT § 8.31(a) (2020).

¹⁷⁶ See *supra* note 170. The concept of fiduciary duty traces back to *Keech v. Sanford*, 25 Eng. Rep. 223 (1726), wherein the chancellor ordered disgorgement of profit made by a trustee on a lease after the landlord refused the lease to the beneficiary child, and the remedy was ordered even “though I do not say there is a fraud in this case. *Id.*”

¹⁷⁷ See generally Robert J. Rhee, *A Liberal Theory of Fiduciary Law*, 25 U. PA. J. BUS. L. 451 (2023) (providing a general theory of fiduciary relationship).

¹⁷⁸ *In re USACafes, L.P. Litig.*, 600 A.2d 43 (Del. Ch. 1991).

the corporate inanimate person exercised managerial powers as general partner.¹⁷⁹

Under these facts, a standard analysis would examine the corporate general partner's conduct to determine whether it breached the duty of loyalty. But the true problem is that the real actors in the sense of terminal control were the corporate directors, and of course directors ordinarily owe fiduciary duties to their corporation (*i.e.*, the general partner in this case), and not to separate entities like the limited partnership and limited partners therein. In this situation, the chancery court pierced the corporate fiduciary veil to permit the limited partners to claim against the corporate general partner's directors even though formally only the corporation was the general partner. The court rejected the legal formalism of separate and distinct persons.¹⁸⁰ Drawing on the law of trusts, it held that the directors of a corporate general partner owe a fiduciary duty to the limited partnership's limited partners when they cause the corporation (general partner) to act on behalf of the partnership.¹⁸¹

The rule in *USACafes* is well established in Delaware and other states.¹⁸² The doctrine simply reminds us that legal persons act through natural persons (obviously).¹⁸³ Corporations and other business firms, *qua* legal persons, are incapable of *actually* (*vis-à-vis* legal fiction) fulfilling their duties because, in the immortal words of Edward Thurlow, they have “neither bodies to be punished, nor souls to be condemned.”¹⁸⁴ I am not suggesting that a legal person cannot be a fiduciary as a matter of legal rule; such execution is a

¹⁷⁹ *Id.* at 46.

¹⁸⁰ *Id.* at 48–49.

¹⁸¹ *Id.* at 49. While *USACafes* dealt with a limited partnership, the doctrine has been extended to other noncorporate entities such as LLCs. See *Feeley v. NHAOCG, LLC*, 62 A.3d 649, 671 (Del. Ch. 2012).

¹⁸² See *Strine & Laster*, *supra* note 138, at 22 (describing the rule as “routine in Delaware and other states”). Other courts have recognized the doctrine of fiduciary veil piercing. See, e.g., *In re Harwood*, 637 F.3d 615, 622 (5th Cir. 2011) (“We conclude that an officer of a corporate general partner who is entrusted with the management of the limited partnership and who exercises control over the limited partnership . . . owes a fiduciary duty to the partnership . . .”); *Southern Pacific Co. v. Bogert*, 250 U.S. 483, 491–92 (1919) (holding that the parent shareholder of the subsidiary, which is the controlling shareholder of the downstream corporation, owed fiduciary duty to the shareholders of the downstream corporation). See generally *See Mohsen Manesh, The Case Against Fiduciary Entity Veil Piercing*, 72 BUS. LAW. 61 (2017); Colin P. Marks, *Piercing the Fiduciary Veil*, 19 LEWIS & CLARK L. REV. 73 (2015).

¹⁸³ See *Gerber v. EPE Hldgs., LLC*, 2013 WL 209658, at *13 (Del. Ch. Jan. 18, 2013) (“An entity . . . can only make decisions or take actions through the individuals who govern or manage it.”). *Accord Dieckman v. Regency GP LP*, 2021 WL 537325, at *36 (Del. Ch. Feb. 15, 2021), *aff'd*, 264 A.3d 641 (Del. 2021); *Boardwalk Pipeline Partners, LP v. Bandera Master Fund LP*, 288 A.3d 1083, 1118 (Del. 2022).

¹⁸⁴ John Poynder, *LITERARY EXTRACTS*, vol. 1, 268 (1844) (quoting Edward Thurlow, 1st Baron Thurlow, on corporations); *Edward, Lord Thurlow 1731–1806*, OXFORD ESSENTIAL QUOTATIONS (4th ed., Susan Ratcliffe, ed., 2016) (same).

matter of ordinary course of business dealing and structure.¹⁸⁵ I simply notice the incontrovertible fact that, notwithstanding legal fiction, the execution of a legal person's fiduciary duties are performed by natural persons even if they are not *de jure* fiduciaries per legal formalism. A corporation's action always derives from the decisions of directors and officers, who must be natural persons.¹⁸⁶ Thus, under the principle set forth in *USACafes*, beneficiaries can always peel back the layers of legal persons until they reach the terminal point decider-controller who caused the breach of fiduciary duty. The moral aspect and the execution of fiduciary duty are imposed on an ultimate natural person.

The critical distinction between a legal person today and AI is that the latter's actions are not traced to an ultimate natural person. As an ontological person, AI would own its acts, replicating the essential quality of human agency, but it would not be derivative of the actions of fully developed moral beings. Would AI be capable of satisfying its fiduciary duties?

While fiduciary duty is couched in terms of the moral obligation of a trustee to a beneficiary,¹⁸⁷ the contour of that morality is fairly simple and thus subject to algorithmic schema.¹⁸⁸ The core tenets of fiduciary duty are due care in transacting, no conflict of interest, no unearned personal enrichment, no violation of law, no intent to harm the firm, and no ulterior motive that undermines the best interests of owners. The general principles are simple. With respect to compliance with fiduciary duties, we do not need to plum the depth of human morality, conscience, and ethics that assumes a subject's full humanity and moral development.

With unique intelligence, AI would follow the relatively simple rule-based prescriptions and proscriptions of fiduciary law.¹⁸⁹ I do not diminish the reality that it "takes only a moderate degree of self-awareness and modesty to recognize that the human mind cannot foresee every potential

¹⁸⁵ See Strine & Laster, *supra* note 138, at 21–22 ("Under traditional principles of entity law, so long as the governing fiduciary was well-capitalized and not a sham, it and it alone should owe fiduciary and contractual duties to the alternative entity and its investors.").

¹⁸⁶ See *supra* note 84.

¹⁸⁷ See *In re USACafes, L.P. Litig.*, 600 A.2d 43, 48 (Del. Ch. 1991) (commenting that trust law provided the early analogy to impose a fiduciary duty on directors to shareholders).

¹⁸⁸ As such, in noncorporate firms, fiduciary duties are subject to substantial contracting. See UNIF. P'SHIP ACT § 105(d) (Unif. L. Comm'n 1997 and amended 2013); UNIF. LTD. P'SHIP ACT § 105(d) (Unif. L. Comm'n 2001 and amended 2013). See also UNIF. LTD. LIAB. CO. ACT § 105(d) (Unif. L. Comm'n 2006 and amended 2013) (providing limited liability of members and managers). See also *supra* note 165; *infra* notes 239–240.

¹⁸⁹ See, e.g., MOD. BUS. CORP. ACT §§ 8.30–8.31 (2020) (providing specific rules and schema for the standard of conduct and the standard of liability).

situation that could arise after contracting.”¹⁹⁰ But these problems of incomplete contracting and thicket of tangled disputes arise from the basic motive force of seeking more of the economic pie, and the myriad opportunities to do so. Thus, contracting for protection, risk management, and economic allocation can become interminably, insufferably complex.¹⁹¹ Analyses of fiduciary duties in reality are complicated because human motivations and limits of discovering true motives are complex in many business transactions. As an android devoid of certain qualities of human nature, AI would be a better fiduciary because it cannot be afflicted with human traits like carelessness, apathy, ego, divided loyalties, personal ambition, primacy of self, avarice, irrationality, conflict of interest, bad faith, hidden motives, and criminal intent.¹⁹²

With the assumption of socialization, proper training, and installation of priorities, including compliance with positive laws, AI with self-awareness, agency, and unique intelligence would be careful and faithful. It would not be interested in its own economic advancement, removing the largest factor in the fiduciary calculus. The agency cost of breach of fiduciary duties would be lower if they were managers.

B. *The Romney Principle Redux*

A finer point must still be resolved. Previous scholarship on AI and the laws of firms have focused on the possibility of traditional business firms, such as LLCs, being operated by algorithms.¹⁹³ One problem contemplated was envisioning trading platforms for assets such as cryptocurrencies.¹⁹⁴ An issue is whether these otherwise ordinary firms, such as LLCs, would need owners and managers in their traditional conception as natural or legal persons. Some scholars suggested that business firms like LLCs can be

¹⁹⁰ Strine & Laster, *supra* note 138, at 17. *See id.* at 23–27 (describing complex litigation involving contract fiduciary duties).

¹⁹¹ *See supra* note 162 (citing cases that serve as examples of the point).

¹⁹² *See, e.g.,* Mills Acquisition Co. v. MacMillan, Inc., 559 A.2d 1261 (Del. 1989) (noting “the divided loyalties that existed on the part of certain directors”); Unocal Corp. v. Mesa Petroleum Co., 493 A.2d 946 (Del. 1985) (noting “the omnipresent specter that a board may be acting primarily in its own interests”). I distinguish between substantive correctness of decision-making and a breach of fiduciary duty that underpins the business judgment rule. *See In re Caremark Int’l Inc. Deriv. Litig.*, 698 A.2d 959, 967 (Del. Ch. 1996) (“That is, whether a judge or jury considering the matter after the fact, believes a decision substantively wrong, or degrees of wrong extending through ‘stupid’ to ‘egregious’ or ‘irrational’, provides no ground for director liability, so long as the court determines that the process employed was either rational or employed in a *good faith* effort to advance corporate interests.”). Could AI, like natural persons, make terrible substantive decisions? I assume so.

¹⁹³ *See supra* notes 53–55.

¹⁹⁴ *See* penultimate paragraph in Section III.B.

structured to have no members such that AI or algorithms can manage the firm for special purposes like trading cryptocurrencies.¹⁹⁵

We can see why investors in such peer-to-peer networks may wish to shield themselves against liability by having an ownerless entity operate the platform.¹⁹⁶ This is a special problem of using an opensource resource such as blockchain technology. The problem of liability therefrom can be dealt with through traditional means, such as establishing an adequately capitalized limited liability entity. If the argument is that venturers do not want to incur the cost of doing so, the proper response is: Why should these specific venturers be exempted from the cost of a traditional business structure that all other venturers must accept? Bitcoin, cryptocurrency, and other such ventures should not be deemed so special.

The problem of zero-ownership firms in for-profit ventures is more academic than real. Ownerless firms are irrational because no one can claim the wealth created. Ownership in firms means a claim to the firm's wealth. Suppose a cryptocurrency trading platform housed in an ownerless firm becomes particularly valuable. Who can claim the wealth? No one. If so, why would venturers, anticipating the potential for increase in asset value, structure a venture *ex ante* in a way that no one can claim the value created? They wouldn't, unless the rationale is an illicit motive such as mischief, crime, or liability-evading scheme. Under the relentless drive of capitalism, where the law creates and encodes assets with the properties of capital,¹⁹⁷ assets and other benefits tend toward enclosure into private ownership.¹⁹⁸

AI as ontological person would be a distinct person in and of itself. Who owns its value if it is not an asset within a firm? This brings us back to the Romney Principle: all wealth ultimately flows to natural persons. AI, *qua* a distinct legal person, would represent a legal person who is not owned by some other person. Ownership would eliminate some of the advantages of AI as manager, such as the possibility of liability, the reservation of human intervention, the necessity of management fees, and the inevitability of agency cost at the hands of human controller–deciders.¹⁹⁹ If such ownership

¹⁹⁵ See Bayem, *Zero-Member LLC*, *supra* note 53, at 1485. *But see supra* note 54.

¹⁹⁶ See *supra* note 145 and accompanying text.

¹⁹⁷ See generally KATHARINA PISTOR, *THE CODE OF CAPITAL: HOW THE LAW CREATES WEALTH AND INEQUITY* (2020).

¹⁹⁸ By “enclosure” I allude to the Enclosure Movement in Europe as it coincided with the rise of capitalism. See ROBERT T. DUPLESSIS, *TRANSITIONS TO CAPITALISM IN EARLY MODERN EUROPE* 65 (1997) (“Enclosure was the process of fencing, hedging, ditching, or otherwise cordoning off hitherto open ground, thereby restricting or extinguishing common cultivation or grazing thereupon. . . . Enclosure refined property rights as well, for private owners and their tenants rather than communal regulations determined how the new plots were used.”).

¹⁹⁹ *Supra* Section I.D.

is undesirable, what happens to the disposition of AI since it is a distinct person that is not owned in the traditional conception of property and capital in a firm?²⁰⁰

We can answer by analogizing to economic arrangements in feudalism. Just like the formal relationship between serfs and lords, requiring the former to work the latter's land in exchange for the right to subsist on that land,²⁰¹ AI would be bound to the firm for which it serves as manager. While AI is separate and distinct, it would have a bonded relationship with the property that it manages. The implication of this bonding between AI and the firm, albeit the two being separate and distinct, is that, as discussed, the firm's value would incorporate the value contribution of the AI manager.²⁰² In this way, the value of AI flows into the value of the firm, which, after peeling the layers of legal persons, is ultimately owned by natural persons. AI as a terminal ontological person is not inconsistent with the Romney Principle. While AI may have no use for wealth, the wealth within it can ultimately be captured by other wealth-seeking persons.

Finally, one may question: What would happen to AI if the firm to which it is bonded dissolves or becomes insolvent? It would be an android ronin without a firm to serve. A "firmless" AI is easily avoided. When investors organize a firm, they can create a separate "shelf" entity that is also designated to be managed by the same AI: for example, investors create firms *O* and *S*, *O* is an operating firm, *S* is a shelf firm, and AI is bonded to both firms as manager. If firm *O* dissolves, firm *S* is activated and investors can engage in a new venture with AI managing firm *S* (or sell firm *S* with bonded AI manager to another venturer). In essence, the shelf entity is a shell with an AI manager in anticipation of the dissolution of a current operating firm. With proper business planning and simple structuring, an AI manager should never be bondless.

C. AI as Director and Officer

The corporation is one of the most significant institutions in advanced economies and societies. We have long debated the purpose of the business firms, particularly the corporation.²⁰³ The current period, at least since the

²⁰⁰ As discussed, the asset value of AI would "bond" to the firm, which augmenting firm value. See *supra* note 158 and accompanying text.

²⁰¹ See *supra* note 126.

²⁰² See *supra* note 158.

²⁰³ See A. A. Berle, Jr., *Corporate Powers as Powers in Trust*, 44 HARV. L. REV. 1049, 1049 (1931) (stating that managers should exercise power "only for the ratable benefit of all the shareholders"); E. Merrick Dodd, Jr., *For Whom Are Corporate Managers Trustees?*, 45 HARV. L. REV. 1145, 1148 (1932) (stating that a corporation "has a social service as well as a profit-making function").

Reagan era, has settled on the rule of shareholder primacy and thus the purpose of the corporation is seen today as the maximal profit of shareholders.²⁰⁴ This rule has not been a constant. Conceptualization of corporate purpose and the role of managers have shifted in history as large social and economic factors have dedicated law and policy.²⁰⁵ Regardless of one's fealty to a particular idea of corporate purpose (*i.e.*, the three "isms" that are shareholderism, managerialism, or stakeholderism), we cannot deny that business firms, particularly corporations, have tremendous influence on society.²⁰⁶ Over ninety years ago, Berle and Means foretold the social implications of the public corporation as the conception of private property that has been revolutionized through aggregation of capital under the direction of managers per separation of ownership and control.²⁰⁷

The policy elephant in the room is the uncertain social impact of AI as corporate managers. We do not know the societal consequences of how AI will conduct business when it is instructed and socialized to maximize shareholder profit while complying with law. In this case, our ability to foresee intended and unintended consequences is limited, and we can only get a sense through experience.²⁰⁸ Corporations and their constituents are a part of society and polity. Corporate law specifically accounts for this public aspect of business enterprise.²⁰⁹ Corporations have been called into public service in their short history. In wars, they are instrumental in directing industrial production.²¹⁰ In economic crisis, they coordinate with government.²¹¹ In monetary management, they (private banks) have long

²⁰⁴ See Henry Hansmann & Reinier Kraakman, *The End of History of Corporate Law*, 89 GEO. L.J. 439, 440-43 (2001) (describing the shareholder-oriented "standard" model of corporate governance). See generally Rhee, *supra* note 124 (showing how the neoliberal era brought on the rule of shareholder primacy); Rhee, *supra* note 36, at 242-48 (showing how the rule of shareholder primacy was implemented in the neoliberal era).

²⁰⁵ See generally Rhee, *supra* note 36, at 225-48.

²⁰⁶ Even proponents of the primacy of capital acknowledge this obvious point. See, e.g., FRANK H. EASTERBROOK & DANIEL R. FISCHER, *THE ECONOMIC STRUCTURE OF CORPORATE LAW* 38-39 (1991).

²⁰⁷ "The power attendant upon such concentration has brought forth princes of industry, whose position in the community is yet to be defined. . . . The direction of industry by persons other than those who have ventured their wealth has raised the question of the motive force back of such direction and the effective distribution of the returns from business enterprise." BERLE & MEANS, *supra* note 34, at 4. In this era, the corporation itself was seen as a menacing artificial creature. See I. MARICE WORMSER, *FRANKENSTEIN INCORPORATED* (1931).

²⁰⁸ See O.W. HOLMES, JR., *THE COMMON LAW* 1 (1881) ("The life of the law has not been logic: it has been experience.").

²⁰⁹ See DEL. CODE ANN., tit. 8, § 122(9), (12) (providing that corporations have the power to make donations to the public welfare and to aid governmental authority); MOD. BUS. CORP. ACT § 3.02(m), (n) (2020) (same).

²¹⁰ See Rhee, *supra* note 124, at 234-39.

²¹¹ See generally Robert J. Rhee, *Fiduciary Exemption for Public Necessity: Shareholder Profit, Public Good, and the Hobson's Choice during a National Crisis*, 17 GEO. MASON L. REV. 661 (2010).

issued the national currency through the Federal Reserve system.²¹² Corporations have permeated every aspect of society, and they now hold political power in an explicit constitutional structure.²¹³ We should contemplate the potential hazards if some human agency is not at the lever of control in industries like financial institutions, logistics, healthcare, utilities, defense, technology, and media. Public firms are of particular concern. Publicly traded firms generally comprise the largest, most significant economic organizations, and virtually all public firms operate through the corporate form, which is ideally suited for large aggregation of capital from a disparate ownership base.

The simple point is that the power of corporations over the economy, society, and polity are too immense from a moral and ethical perspective for AI with android agency to assume the role of directors and officers.²¹⁴ Although *homo economicus* may be the underlying assumption of today's rule of profit maximization,²¹⁵ we still have some comfort that directors and officers are fully developed moral beings and connected to society. The current rule of corporate law is the correct policy for AI.²¹⁶ While AI may serve as an android serf, it should not be able to serve as a director or officer of a corporation. We do not know how *machina economicus* will manage corporate enterprises that substantially affect societal wealth and welfare when they lack empathy (like Philip Dick's androids²¹⁷), moral core and conscience, and other attributes of humanness, and they are instructed by corporate law to maximize lawful profit. They are a moral blackbox. The risks are too great.

As discussed earlier, corporate directors and officers must be natural persons,²¹⁸ but owners and managers in noncorporate firms need only be a legal person.²¹⁹ Why do we have this dichotomy? One could speculate that corporations came to prominence in the nineteenth century, and at that time it may have just seemed natural that a "person" would be a natural person. But this explanation of path-dependent historical circumstance is belied by

²¹² See Federal Reserve Act of 1913, 12 U.S.C. § 226 *et seq.* See generally ROGER LOWENSTEIN, AMERICA'S BANK: THE EPIC STRUGGLE TO CREATE THE FEDERAL RESERVE (2016).

²¹³ See *Citizens United v. FEC*, 558 U.S. 310 (2010).

²¹⁴ Cf. Ricci, *supra* note 25, at 894–95, 906–07 (identifying the problem of moral and ethical accountability due to the fact that AI may not have conscientiousness and conscience).

²¹⁵ See Margaret M. Stout & Lynn A. Stout, *Trust, Trustworthiness, and the Behavioral Foundations of Corporate Law*, 149 U. PA. L. REV. 1735, 1738 (2001) (describing "the neoclassical portrait of *economicus* as a hyperrational, purely self-interested actor").

²¹⁶ See *supra* Section II.C.

²¹⁷ See *supra* note 2.

²¹⁸ See *supra* Section II.C.

²¹⁹ See *supra* notes 88–90 and accompanying text.

the fact that corporations and partnerships have long coexisted.²²⁰ The Uniform Partnership Act of 1914 defines a “person” to include “individuals, partnerships, corporations, and other association,”²²¹ and a partnership is defined as “an association of two or more persons to carry on as co-owners a business for profit.”²²² Even during the birth of modern firms in late nineteenth and early twentieth centuries, legal persons could have served as constituents in a business firm. Nor is limited liability an explanation. The Uniform Limited Partnership Act of 1916 provides limited liability to limited partners.²²³ The timing of entity form recognition is not an answer.

A multitude of related reasons likely explains the divergence of corporate and noncorporate rules on who may manage. Firstly, noncorporate firms are predominantly smaller, closely held firms. The space for law and policy is thus smaller. Noncorporate entities are considered truly contractual in nature, and the essential policy is the freedom of contract.²²⁴ With respect to liability to creditors, general partnerships and limited partnerships both have general partners who would be obligated for the debts and liabilities of the firm.²²⁵ Thus, a freer contractual hand is given to venturers in deciding who may be a partner, member, or manager.

Corporations are also fundamentally different from noncorporate firms in several ways. Shareholders have limited liability,²²⁶ and contract creditors

²²⁰ In 1896, New Jersey enacted the first modern, liberal corporate law statute. See Charles M. Yablon, *The Historical Race Competition for Corporate Charters and the Rise and Decline of New Jersey: 1880–1910*, 32 J. CORP. L. 323, 351 (2007). The uniform laws promulgated the first model general partnership and limited partnership statutes in 1914 and 1916, respectively. See *infra* notes 220 & 222. Corporations and partnerships date back further than these early modern statutes. See *supra* note 32; *Hills v. Ross*, 3 U.S. 331 (1796) (resolving issue of partnership); *Trustees of Dartmouth College v. Woodward*, 17 U.S. (4 Wheat.) 518 (1819) (holding that the corporate charter was protected under the Contract Clause of the Constitution).

²²¹ UNIF. P'SHIP ACT § 2 (1914) (“UPA”).

²²² *Id.* § 6(1). It is widely recognized that UPA had a mixed theory of the partnerships. In certain provisions, a partnership is viewed as an aggregate of its partners. See *id.* § 29 (defining “dissolution” of the partnership as “the change in the relation of the partners caused by any partner ceasing to be associated” with the partnership). In other provisions, a partnership is seen as a distinct entity. See *id.* § 8(1) (providing that “property originally brought into the partnership stock or subsequently acquired by purchase or otherwise, on account of the partnership, is partnership property”).

²²³ See UNIF. LTD. P'SHIP ACT § 7 (1916) (providing that a limited partner “shall not become liable as a general partner” to creditors).

²²⁴ See *infra* note 239.

²²⁵ See UNIF. P'SHIP ACT § 306 (Unif. L. Comm'n 1997 and amended 2013); UNIF. LTD. P'SHIP ACT § 404 (Unif. L. Comm'n 2001 and amended 2013). See also UNIF. LTD. LIAB. CO. ACT § 304(a) (Unif. L. Comm'n 2006 and amended 2013) (providing limited liability of members and managers).

²²⁶ This assumes no veil piercing, which is always a longshot theory in litigation. In terms of the liability scheme, the LLC resembles corporations in that members and manager have limited liability and there is no person is liable for the debts and obligations of the firm as there is in partnerships. The LLC was first created by Wyoming in 1977, and it did not gain prominence until the 1990s.

have no other avenue to recover on liabilities if the corporate treasury is depleted.²²⁷ The corporation came to be a revolutionary force because, as Berle and Means famously observed, it aggregated enormous assets and put them under the centralized control of managers.²²⁸ The separation of ownership and control was necessitated by the increasing complexity of the economy and business during the rise of industrial capitalism, which required specialized professional managers.

The supreme importance of corporations is likely a major reason for the otherwise peculiar divergence of corporate law and the laws of noncorporate firms with respect to who can serve as a manager. Corporations have always been consequential in terms of the size of the enterprise and impact on society. Consider the old chestnut, *Dodge v. Ford Motor Co.*, a case cited in academic literature for the rule of shareholder primacy.²²⁹ The case was decided in 1919, and the facts in the case and business history clearly show that even in its early stages Ford Motor was an enormous enterprise, had vast impact on society, and created enormous wealth. Companies like U.S. Steel and ExxonMobil trace their roots to the very beginning of corporate capitalism in the late Nineteenth and early Twentieth Centuries. Further back in history, the antecedents of the modern corporation were joint stock companies, the most famous being the Dutch East India Company and the British East India Company. These ventures were not small private enterprises, but were in fact political, military, and economic extensions of empires and were imperially grand in scale.²³⁰ Indeed, the immediate ire of the colonists in the Boston Tea Party was the monarch's grant of monopoly over tea to the East India Company, making this event history's most consequential protest against corporate power.²³¹

Given the importance of corporations in society, it is understandable that we want human accountability in their leadership structures. The idea of Microsoft and Facebook forming a joint venture partnership does not strike

²²⁷ See RESTATEMENT (THIRD) OF AGENCY § 6.01 (2007) (providing that agent is not a party to the contract in which the principal is disclosed). Individual agents may be liable for their own acts. *See, e.g., id.* § 7.01.

²²⁸ *See* BERLE & MEANS, *supra* note 206.

²²⁹ *Dodge v. Ford Motor Co.*, 170 N.W. 668 (Mich. 1919). *See generally* Rhee, *supra* note 124.

²³⁰ *See generally* THE DUTCH AND ENGLISH EAST INDIA COMPANIES: DIPLOMACY, TRADE AND EARLY MODERN ASIA (Adam Clulow & Tristan Mostert, eds., 2018); JOHN KEAY, THE HONOURABLE COMPANY: A HISTORY OF THE ENGLISH EAST INDIA COMPANY (1991).

²³¹ Multiple sources recount this protest against corporate power. *See, e.g.*, JOHN MICKLETHWAIT & ADRIAN WOOLDRIDGE, THE COMPANY: A SHORT HISTORY OF A REVOLUTIONARY IDEA 27 (2003); NICK ROBINS, THE CORPORATION THAT CHANGED THE WORLD: HOW THE EAST INDIA COMPANY SHAPED THE MODERN MULTINATIONAL 5, 115 (2D ED. 2012); NIALL FERGUSON, EMPIRE: THE RISE AND DEMISE OF THE BRITISH WORLD ORDER AND THE LESSONS OF GLOBAL POWER 90 (2002); WINSTON S. CHURCHILL, VOLUME 3, A HISTORY OF THE ENGLISH SPEAKING PEOPLES: THE AGE OF REVOLUTION 178 (1957).

us as strange at all. The idea of the board of Microsoft, for example, comprising of Google, Facebook, Amazon, Tesla, Apple, and NVIDIA *qua* corporations, fine persons as they may be, strikes us as abnormal and unsettling. The enactment of any law is a political process. The enablement of legal person to serve as directors of corporations would likely meet political headwinds, and for good reason. Consider a hypothetical where a large company engaged in serious malfeasance: for example, Enron. The public would want to know which individuals were responsible. We know the faces of Enron, and they have become infamous in business history. On the other hand, if a company is operated by a slew of legal persons without faces and transparency, shells upon shells like Russian nesting dolls, the outcome of unaccountability would not be publicly accepted.²³²

In matters so consequential as managing corporations, humanness remains indispensable. Corporate leaders must always be ready to make enormous ethical decisions. In the 1970s, Ford Motor infamously engaged in a cost-benefit analysis regarding exploding Pintos that killed many consumers.²³³ In 1982, a criminal laced Johnson & Johnson's Tylenol with cyanide and killed several consumers, and the company decided to recall all Tylenol at heavy financial loss.²³⁴ In the late 1990s, numerous corporations, including Enron and WorldCom, engaged in massive accounting fraud that broadly affected the stock markets. In 2008, Bank of America and JPMorgan Chase had to decide whether to acquire Merrill Lynch and Bear Stearns in duress, respectively, and thus assisted the government and the nation in a time of economic crisis.²³⁵ These notable examples illustrate the connection between society and corporations and the repeated instances of high social consequence of corporate actions.

With such high stakes, we want to see human faces and know that they are publicly, socially accountable for their decisions. As a corollary, we do not want shareholders and inferior managers of AI-managed corporations to

²³² Recently, the federal Corporate Transparency Act seeks to thwart practices that make opaque beneficial ownership. *See* Corporate Transparency Act, 31 U.S.C. § 5336. *See generally* Robert W. Downes et al., *The Corporate Transparency Act—Preparing for the Federal Database of Beneficial Ownership Information*, Am. Bar Ass'n, Bus. L. Section (Apr. 16, 2021), available at <https://businesslawtoday.org/2021/04/corporate-transparency-act-preparing-federal-database-beneficial-ownership-information/>. However, the ultimate validity of such effort remains in question. *See* National Small Bus. United v. Yellen, ___ F.Supp.3d ___, 2024 WL 899372 (N.D. Ala. 2024) (holding that the Corporate Transparency Act is unconstitutional).

²³³ *See generally* DOUGLAS BIRSCH & JOHN FIELDER, *THE FORD PINTO CASE: A STUDY IN APPLIED ETHICS, BUSINESS, AND TECHNOLOGY* (1994).

²³⁴ *See* Judith Rehak, *Tylenol Made a Hero of Johnson & Johnson: The Recall that Started Them All*, N.Y. TIMES (Mar. 23, 2002).

²³⁵ *See generally* Robert J. Rhee, *Fiduciary Exemption for Public Necessity: Shareholder Profit, Public Good, and the Hobson's Choice during a National Crisis*, 17 GEO. MASON L. REV. 661 (2010).

hide behind android as they reap the benefits of economically profitable but morally dubious actions. Because a corporation is the legal fiction of an artificial person with no body to punish or soul to condemn,²³⁶ we need an essential humanity, even if humans disappoint us as much as they please. Humans are moral creatures. Everyone navigates a world in which many decisions are in the gray area, and this collective experience forms a decision-making schema that may not compute so well into the algorithm of *machina economicus*. Some of us make good decisions, and others make quite poor ones. But we can trust that everyone has had to deal with difficult ethical dilemmas. Because corporations are so consequential to society at large, we are comforted by the humanness of management. This Article concludes that AI should not be able to serve as directors and officers.

D. AI as Partner, Member, and Manager

The policy considerations associated with corporations apply to a lesser extent to noncorporate firms. The size of a firm correlates to the potential impact and influence on society. We have always recognized a dichotomy between big and small firms.²³⁷ This split is approximated by public corporations and all other firms.²³⁸ Berle and Means first recognized public bigness as a revolution in the idea of private property.²³⁹ Noncorporate firms have always been vehicles through which a small group of venturers conduct business. Their social impact, while potentially significant, is generally thought to be relatively less consequential.

For noncorporate firms, the primacy of contract and private ordering is the first consideration.²⁴⁰ The structure of partnerships and LLCs are highly malleable and substantially subject to wishes of firm constituents. Even the fundamental duties of managers can be altered, or even eliminated in some states like Delaware, whereas corporate law mandates fixed, unalterable

²³⁶ See *supra* note 183 and accompanying text.

²³⁷ See Henry G. Manne, *Our Two Corporation Systems: Law and Economics*, 53 VA. L. REV. 259, 262 (1967).

²³⁸ *Id.*

²³⁹ See *supra* note 206.

²⁴⁰ See UNIF. LTD. LIAB. CO. ACT § 105(d) (Unif. L. Comm'n 2006 and amended 2013) (permitting substantial freedom of contract); UNIF. P'SHIP ACT § 105(d) (Unif. L. Comm'n 1997 and amended 2013) (same); UNIF. LTD. P'SHIP ACT § 105(d) (Unif. L. Comm'n 2001 and amended 2013) (same); DEL. CODE ANN., tit. 6, § 17-1101(c) ("It is the policy of this chapter to give maximum effect to the principle of freedom of contract and to the enforceability of partnership agreements."); *id.* § 18-1101(b) (same with respect to operating agreements).

duties.²⁴¹ Accordingly, the primacy of contract would govern and should permit AI as manager if that is what the firm's constituents wish. This reasoning also applies to close and closely held corporations that are managed by shareholders, who may be legal persons.²⁴²

A caveat is that the noncorporate firm is private, and not publicly traded. AI should not serve in any capacity of a manager for the small number of public firms that are not corporations. A public company is a fair proxy for large, socially significant firms. Also, under securities law, when a firm's securities are traded and it exceeds a certain size and number of shareholders, it must file a registration statement and becomes a reporting company.²⁴³ Consistent with this principle, this Article suggests that when a noncorporate firm becomes large and socially significant, we should treat such firms in the same way as corporations—*i.e.*, AI should not serve as manager in any large, socially significant, or systemically important firm, irrespective of legal form.²⁴⁴

Lastly, this Article's policy dichotomy between corporations and noncorporate firms does not change the current rule that, barring external rules, corporations can freely own noncorporate subsidiary firms (and vice versa). Corporations are not precluded from the benefits of AI as manager. They simply should not be controlled by AI. As a parent corporation controlled by natural persons, they may preside over noncorporate subsidiary firms with AI as managers and reap the benefits.

V. LIMITING CONDITIONS OF AI PERSONHOOD

Because AI as manager is an experimental proposition, the conferral of personhood should be approached with care until sufficient experience is had. With the satisfaction of the two predicates of AI personhood discussed in Sections II and III, and given the legal and policy considerations analyzed in Section IV, this Article recommends that three requirements should

²⁴¹ Fiduciary duties in corporate law are mandatory, and not subject to contracting as permitted under the laws of noncorporate firms. *See* DEL. CODE ANN. tit. 8, § 102(b)(7) (prohibiting charter provision that eliminates the duty of loyalty, but permitting the elimination of money damages for a breach of the duty of care); *Sutherland v. Sutherland*, 2009 WL 857468, at *4 (Del. Ch. 2009) (“While such a provision [eliminating fiduciary duty] is permissible under the Delaware Limited Liability Company Act and the Delaware Revised Uniform Limited Partnership Act, where freedom of contract is the guiding and overriding principle, it is expressly forbidden by the DGCL.”).

²⁴² *See supra* Section II.C.

²⁴³ *See* Securities Exchange Act of 1934 § 12, § 13 codified in 15 U.S.C. § 78l(g)(1) (requiring registration statement when total assets exceeds \$10 million and there are either 2,000 shareholders or 500 shareholders who are not accredited investors); *id.* § 78m(a) (requiring reporting of firms that must file registration statement under § 78l).

²⁴⁴ The limits are a matter of regulatory judgment. The following limits seem reasonable: asset value greater than \$10 billion, net asset value greater than \$1 billion, and employees greater than 5,000.

condition the conferral of personhood: (1) federal registration and reporting; (2) capitalization or insurance to fund liability; and (3) mandatory rules for expeditious removal of AI managers. These three conditions ensure that the use of AI will be controlled and for a proper purpose, and not for abusive, fraudulent, or criminal enterprise.

A. *Federal Registration and Reporting*

AI as legal person will not need to file with the state because it is not a traditional business firm. Of course, firms using AI as manager will be organized under state law. This leaves the question: What sovereign should confer AI with personhood? This Article answers that the power to confer legal personhood should not be left to state law, but should be granted under federal law.

Firms using AI as manager should separately file with the federal government. Termination of the federal license to use would mandate discontinued use of AI as manager. A dual federal-state filing requirement is not new. Corporate governance today is regulated under two spheres of legal regimes. State law provides the basic rules of corporate law, and federal law provides specific augmentation principally through federal securities law with a particular eye toward public companies.²⁴⁵

Federal registration advances several goals. It centralizes the list of firms managed by AI. This centralized list informs the world, including counterparties, that the firm is AI managed. It also mutes the negative effect of state competition. While Delaware long ago won the competition for corporate charter in terms of quantity,²⁴⁶ the competition for noncorporate firms is more robust. Delaware may still be a preferred choice for some noncorporate firms, but other states compete well in terms of quantity. In most cases, there is no real reason to file to be a Delaware LLC as opposed to a New York LLC or wherever the firm has its principal office or conducts business.²⁴⁷ The laws of noncorporate firms are grounded in the principle of contract, permitting venturers to structure their firms by contract, and Delaware does not have an exclusive claim on expertise in contract law or the laws of partnerships and LLCs. Given this more robust competition, states may devolve into a race that simply gives the status of AI personhood

²⁴⁵ *E.g.*, Sarbanes-Oxley Act of 2002, Pub. L. 107-204, 116 Stat. 745, codified in various parts of federal securities law; *Malone v. Brincat*, 722 A.2d 5 (Del. 1998). *See generally* MARC I. STEINBERGER, *THE FEDERALIZATION OF CORPORATE GOVERNANCE* (2018).

²⁴⁶ Rhee, *supra* note 203, at 296.

²⁴⁷ *See* JEFFREY D. BAUMAN ET AL., *BUSINESS ORGANIZATIONS LAW AND POLICY: MATERIALS AND PROBLEMS* 472 (10th ed. 2022) (“Lawyers generally recommend organizing under the laws of a jurisdiction other than where the business plans to operate only when there is good reason to do so.”).

without much thought other than the state's parochial interest in its coffers and prestige.

The negative effect of state competition may be exacerbated by a lack of expertise among states. States may simply lack the resources to understand and regulate AI in a competent way. It is difficult to imagine Delaware, the leading state for business firms, having unique technological expertise. Even the most resource rich, technologically advanced states like California may lack critical government expertise to regulate AI at the state level. The federal government is and should be the principal level at which AI is and will be regulated. It is better positioned to understand AI and its implications on facets of society, including industry.

A federally registered firm should be subject to a scheme of reporting to and oversight by a suitable federal regulator with respect to the use of AI technology. President Biden's recent executive order has initiated this process.²⁴⁸ Firms could be subject to minimal reporting requirements and inspection. Additional regulation should not take a cookie-cutter approach, but should be flexible to account for the specific use and the industry.²⁴⁹

B. Capitalization for Limited Liability

We must also consider the issue of liability. The rule of limited liability presumes that a legal or natural person has capital that, in theory and in practice *ex ante*, should support the payment of a liability, though the world is not free of credit risk. Liability can arise from two directions. It can come internally from breach of fiduciary duty or contract from an insider, or externally from creditors and other claimants. Owners and managers are protected against vicarious liability but are subject to direct liability for their own acts.²⁵⁰ The personal wealth of natural persons is at stake, and legal persons must be capitalized to enable its business, including the payment of debts and obligations.²⁵¹ Wishing the protection of limited liability, legal or

²⁴⁸ See *supra* note 15.

²⁴⁹ This Article recognizes the need for regulation, but external regulation of AI is outside the scope of discussion here. The scope of this Article is the application of the laws of business firms to AI.

²⁵⁰ See, e.g., UNIF. LTD. LIAB. CO. ACT § 304 cmt. (Unif. L. Comm'n 2006 and amended 2013) (“[T]he shield is irrelevant to claims seeking to hold a member or manager directly liable on account of the member’s or manager’s own conduct.”); MOD. BUS. CORP. ACT § 6.22(b) (2020) (“a shareholder may become personally liable by reason of the shareholder’s own acts or conduct”). See also *See RESTATEMENT (THIRD) OF AGENCY* § 7.01 (2007).

²⁵¹ *Ex ante* undercapitalization is a factor in veil piercing. See *GreenHunter Energy, Inc. v. W. Ecosystems Tech., Inc.*, 337 P.3d 454, 463 (Wyo. 2014); *OTR Assocs. V. IBC Servs., Inc.*, 801 A.2d 407, 410 (N.J. App. 2002); *Consumer’s Co-op. of Walworth County v. Olsen*, 419 N.W.2d 211, 217 (Wis. 1988); *Farmers Feed & Seed, Inc. v. Magnum Enterprises, Inc.*, 344 N.W.2d 699, 701 (S.D. 1984).

natural persons form limited liability entities such as LLCs and corporations to act as a general partner or manager of firms.²⁵²

AI is fundamentally different because it has no assets and thus no capital. If AI directly causes losses or injuries, it is not a source of funds in the way that other legal persons would be. As an entity, and without special provision, AI thus represents a dead end of liability. There are two related problems: creditors obviously would lack recourse, and thus AI could be abused as a way to escape liability. Because AI has no wealth or assets (other than itself), the problem of liability is not easily solved by the typical means of capitalization for foreseeable consequence and veil piercing for abuse.

Perhaps the most equitable fix would be to eliminate limited liability with respect to AI. The managed firm would be vicariously liable for all harms caused by and claims against AI.²⁵³ However, this fix would also compromise theory and practice. One of the main purposes of personhood is to separate assets and liabilities. Much of the benefit of legal personhood would be undermined by eliminating a core feature of personhood. Owners would have a structural disincentive to use AI as manager because they would have liability but would have less control over management. The elimination of the partition of limited liability is not the ideal fix.

Insurance would solve the liability problem because it is a substitute for capital. However, this assumes that AI liability insurance is feasible, which cannot be taken for granted.²⁵⁴ The risk of AI is new and potentially quite large. In the beginning, at least until some experience is had, liability policies would be underwritten by specialty insurance companies or insurance pools like Lloyd's of London. The pricing of the risk would be speculative, and thus the policies would incorporate a substantial uncertainty premium and fixed policy limits that may ultimately be inadequate. Insurance would not be a standard product like the typical director and officer (D&O) insurance policies. Insurance alone is not a fix to the liability problem.

²⁵² It is standard fare that in a limited partnership, the general partner is not a natural person but a legal person with limited liability. See *supra* note 138 (Strine and Laster discussing standard venture structures); *supra* notes 177–178 and accompanying text (discussing *In re USACafes, L.P. Litigation*, which provides an example of a liability limiting structure for managers).

²⁵³ E.g., RESTATEMENT (THIRD) OF AGENCY § 7.07 (2007) (providing for vicarious liability of employer for the torts of its employees acting within the scope of employment).

²⁵⁴ There would be question of insurance feasibility. See Robert J. Rhee, *Terrorism Risk in a Post-9/11 Economy: The Convergence of Capital Markets, Insurance, and Government Action*, 37 ARIZ. ST. L.J. 435, 465 (2005) (“Because the keystone concept in insurance is the law of large numbers, insurance works best when frequency is high and severity is relatively low, e.g., auto and home insurance.”); Jeffrey R. Brown et al., *An Empirical Analysis of the Economic Impact of Federal Terrorism Reinsurance*, THE WHARTON FIN. INSTS. CTR. 6 (2004) (“Insurance works best for smaller, more frequent events, where it is possible to gather sufficient statistical data to support actuarial pricing estimates and provide for risk diversification.”).

The best way to address the potential liability problem is to couple whatever substitute capitalization insurance can provide with my prior idea of “bonding limited liability.”²⁵⁵ The idea of “bonding” limited liability is the creation of a liability fund through participants in the activity. Venturers would be required to fund a liability pool as a condition of participation in the activity of using AI managers. This idea is a feasible compromise between the benefit of limited liability, which is unquestionable, and its cost, which is the escape of liability, particularly as to tort creditors.²⁵⁶

Participation has two conceptualizations. The fund can be established from the common venture of the firm and its AI manager, which means that the managed firm and its constituents can capitalize a fund that serves to support liabilities arising from AI’s acts and conduct. This is the simplest approach. Additionally, the participants could be viewed more broadly as all firms employing AI managers, a form of enterprise capitalization of liability. Participating firms, seen as an enterprise, could capitalize a larger fund. Centralized federal registration would facilitate and make feasible such a broader scheme. In essence, such a fund would be a method for self-insurance among all firms using a separate and distinct AI person. With adequate capitalization, AI could be deemed to be bankruptcy proof.

The essential point is that because AI has no means of compensating its own creditors, there must be provision for liability, and such provision requires an alternative way to deal with liability. Without such provision for inevitable liability, the use of AI would be an abusive means of externalizing the risk of liability, which is not the essential rationale of limited liability or legal personhood.

C. Rules for Removal of AI Managers

Federal law should augment state laws of business firms on the removal of AI managers. This specific rule should not be subject to the variations of state law or individualized contracting among owners and managers.²⁵⁷ . If AI as manager unexpectedly glitches or runs amok, we should have a simple clean rule for removal of an AI manager.

Currently, the rules of removing a manager are generally consistent in tenor, if not exactly the same, in noncorporate firms. As contractual entities,

²⁵⁵ See Robert J. Rhee, *Bonding Limited Liability*, 51 WM. & MARY L. REV. 1417 (2010).

²⁵⁶ *Id.* at 1417, 1422.

²⁵⁷ For example, Delaware law of LLCs provides that “a manager shall cease to be a manager as provided in a limited liability company agreement.” DEL. CODE ANN. tit. 6, § 18-402. The uniform law states that in addition to any provision in the operating agreement a “manager may be removed at any time by the affirmative vote or consent of a majority of the members without notice or cause.” *E.g.*, UNIF. LTD. LIAB. CO. ACT § 407(c)(4) (Unif. L. Comm’n 2006 and amended 2013).

partnerships and LLCs can contract for the rules of removal through the partnership or operating agreement.²⁵⁸ If not, the default rules provide that a non-owner manager may be removed by vote or consent of the majority of owners,²⁵⁹ and laws provide for additional conditions to be satisfied for removal of owners.²⁶⁰ State laws permit great control by managers.²⁶¹

Federal rules should augment state rules with respect to the removal of AI managers. Importantly, unlike the default rules under current laws of noncorporate entities, the rule for removal should be mandatory. It should state that an AI manager, partner, or member can be removed by an affirmative vote of the majority of other managers, partners, or members. In other words, a majority of natural persons or non-AI legal persons must be permitted to remove an AI manager.

CONCLUSION

This Article advances a framework for analyzing the problem of AI as manager. Two predicates must first be satisfied. The first predicate is that AI must be capable of personhood. This is a technological hurdle. The conferral of legal personhood follows from ontological personhood, characterized by AI having self-awareness, agency, and unique intelligence. With these qualities, AI can perform the multitude of complex business functions of a manager. The second predicate is an economic rationale where AI as manager is more efficient and wealth-creating than AI as tool or serf. The advantages of AI as manager derive from efficiency, liability, and cost, and these three factors are standard fare considerations in any business decision or strategy.

²⁵⁸ See, e.g., UNIF. LTD. P'SHIP ACT § 603(3) (Unif. L. Comm'n 2001 and amended 2013) ("the person is expelled as a general partner pursuant to the partnership agreement"); Unif. P'SHIP ACT § 603(3) (Unif. L. Comm'n 1997 and amended 2013) (same); UNIF. LTD. LIAB. CO. ACT § 602(4) (Unif. L. Comm'n 2006 and amended 2013) (same as to member).

²⁵⁹ See, e.g., UNIF. LTD. LIAB. CO. ACT § 407(c)(4) (Unif. L. Comm'n 2006 and amended 2013).

²⁶⁰ See, e.g., UNIF. LTD. P'SHIP ACT § 603(4) (Unif. L. Comm'n 2001 and amended 2013) ("the person is expelled as a general partner by the affirmative vote or consent of all the other partners if [satisfying further conditions]"); DEL. CODE ANN. tit. 6, § 15-601(4) (same); Unif. P'SHIP ACT § 603(4) (Unif. L. Comm'n 1997 and amended 2013) (same); UNIF. LTD. LIAB. CO. ACT § 602(5) (Unif. L. Comm'n 2006 and amended 2013) (same as to member).

²⁶¹ E.g., *In re Marriott Hotel Props. II Ltd. P'ship Unitholders Litig.*, 1996 WL 342040, at *7 (Del. Ch. 1996) ("The very slight, indeed practically speaking non-existing, rights of control that went with the limited partnership interests presumably were reflected in the price paid for the investment."); *Lazard Debt Recovery GP, LLC v. Weinstock*, 864 A.2d 955, 974 (Del. Ch. 2004) ("By its terms, the Limited Partnership Agreement gives the General Partner 'complete and exclusive power and responsibility,' to the exclusion of limited partners who have 'no part in the management, control or operation of the [Fund's] business.'"); *Anglo Am. Security Fund, L.P. v. S.R. Global Int'l Fund, L.P.*, 829 A.2d 143, 154 (Del. Ch. 2003) ("Under the terms of the Agreement, the limited partners have absolutely no control over the governance and management of the Fund. . . .").

Once the two predicates are satisfied, legal and policy considerations abound. Since the laws of business firms permit legal persons to serve as partners, members, and managers of noncorporate firms, the principal legal consideration is whether AI could satisfy the legal obligations of a manager. AI would be a superior fiduciary than natural persons because it would not have many of the human foibles that play the leading role in breaches of fiduciary duties. The more difficult calculus is not the rules of duty and obligation under the laws of business firms, but larger policy considerations. The promise of AI is enticing, but the risks are unknown without the benefit of some experience. This Article concludes that today's dichotomy seen in the laws of business firms provides the proper resolution of this tension. AI should not be permitted to serve as director or officer of corporations, but should be permitted to serve as partner, member, or manager of noncorporate firms, subject to limiting conditions. AI personhood would thrust upon us a brave new world of experimentation in capitalism, which should be welcomed in the spirit of innovation, but the law should secure a stable old world where risks are properly managed, and enterprise operates on the edge of risk and return. Policy favors continuity of today's legal paradigm.