

Strategic Integration of Artificial Intelligence in the C-Suite: The Role of the Chief AI Officer

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July 31, 2025

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Abstract

The integration of Artificial Intelligence (AI) into corporate strategy has become critical for organizations seeking to maintain a competitive advantage in the digital age. As AI transforms business models, operations, and decision-making, the need for dedicated executive leadership to guide, govern, and orchestrate this transformation becomes increasingly evident. This paper examines emerging future scenarios across three domains: the AI Economy, the AI Organization, and Competition in the Age of AI. These domains reveal environmental, structural, and strategic tensions that existing C-suite roles struggle to resolve. In response, the paper develops a theory-informed framework for the Chief AI Officer (CAIO), outlining the distinct functions and capabilities required to guide and govern AI at scale. Drawing on illustrative cases and emerging practice, this conceptualization clarifies the CAIO's unique role within the executive landscape and presents a forward-looking research agenda. This paper advances the discourse on AI leadership by offering a theory-driven rationale for the strategic integration of AI at the executive level and by positioning the Chief AI Officer as a distinct and necessary role within modern organizations.

Keywords: Artificial Intelligence; AI Leadership; Corporate Strategy; Digital Transformation; Chief AI Officer; C-Suite

JEL Codes: G34, M15, O33, L22, L29

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“AI is everywhere, yet no one is formally responsible.”

Strategic paradox of the AI era

1 Introduction

Artificial intelligence (AI) has evolved into a central engine of innovation, operational efficiency, and competitive advantage across industries. Multimodal models, such as Google’s Gemini and OpenAI’s ChatGPT, represent the early stages of a significant shift toward AI agents capable of performing a broad spectrum of tasks, signaling a future where the boundaries of automation and digital delegation continuously expand. AI, as a meta-technology, stands out not only for its technical breakthroughs but also for its ability to spur further innovation across domains, enhancing human creativity and productivity (Suleyman, 2023). This acceleration of innovation and productivity, a constant throughout human history, is expected to drive substantial economic growth (Chui et al., 2023; Goldfarb et al., 2023).

As AI becomes essential for data analysis, automation, and decision-making (Kellogg et al., 2020; Schmitt, 2023), it challenges conventional operational and strategic paradigms. While many organizations recognize its transformative potential, most still lack a clear structure for cross-functional AI governance. This situation gives rise to a growing ambiguity in executive responsibility: although AI is increasingly integrated into the core of business models and decision systems, no traditional C-suite role is formally accountable for its orchestration across all strategic, organizational, and technical dimensions. This institutional gap calls for a new type of executive function—one capable of stewarding AI as both a technological and strategic asset.

This paper introduces the Chief AI Officer (CAIO) as a distinct executive role that addresses this leadership vacuum. The CAIO is not a mere extension of IT leadership but a strategic role that embeds AI capabilities into the firm’s governance architecture, innovation

agenda, and long-term trajectory. While roles such as the Chief Information Officer (CIO), Chief Technology Officer (CTO), and Chief Digital Officer (CDO) offer partial precedent, the general-purpose, strategy-shaping nature of AI demands a dedicated leadership function (Goldfarb et al., 2023). The CAIO, as argued here, operates not only at the technical level but also at the strategic and organizational levels—similar to the Chief Strategy Officer (CSO). This paper develops a theoretical model that explains how the affordances and constraints of AI as a general-purpose technology generate organizational tensions that current executive roles cannot resolve. In response, it conceptualizes the CAIO as a novel C-suite position and theorizes the capabilities required to align AI’s potential with strategic outcomes.

Recent developments in both the public and private sectors illustrate the real-world relevance of this role. Tech giants like Microsoft and Meta have established AI leadership functions. Microsoft’s CEO of Microsoft AI and Meta’s Chief AI Scientist underscore the importance of AI in corporate strategy. Similarly, Accenture’s appointment of a Chief AI Officer reflects the consulting industry’s response to the rising demand for AI-driven transformations. Also, according to LinkedIn, the number of companies with a designated head of AI has nearly tripled in the past five years, emphasizing the growing need for AI leadership. Finally, several governments have begun to institutionalize AI leadership by mandating the appointment of Chief AI Officers within public sector agencies, underscoring the broader imperative for formalized AI governance across both public and private domains.

This paper explores the evolving role of AI leadership in organizations undergoing digital transformation. Specifically, it examines why such leadership is essential, how environmental, structural, and strategic factors shape the emergence of formal AI executive roles, and what responsibilities a Chief AI Officer is expected to fulfill within the top management team.

Methodologically, this study adopts an argumentative and conceptual approach to explore the growing necessity of a Chief AI Officer within organizations. It draws on existing literature, theoretical frameworks, and illustrative industry examples to underscore the strategic relevance of formal AI leadership. Specifically, the paper investigates the conditions under

which AI leadership emerges, the organizational and environmental factors that shape its institutionalization, and the responsibilities such roles are expected to assume. To develop this perspective, I build on the framework proposed by [Bendig et al. \(2022\)](#), and adopt an integrative approach that incorporates insights from recent contributions such as [Muñoz and Dimov \(2023\)](#) and [Rivard \(2024\)](#). By synthesizing research across management, strategy, and information systems, the study constructs a forward-looking theoretical account of AI leadership—one that positions AI not merely as a supportive capability, but as a central axis around which organizational identities and value propositions are redefined.

A key element of this paper is the development of future scenarios grounded in present-day realities, focusing on three critical dimensions: the AI Economy, AI Organization, and Competition in the Age of AI. These explorations lay the foundation for identifying the pressures that justify the inclusion of a Chief AI Officer in top management teams, setting the stage for a comprehensive discussion on the role of the CAIO and the broader implications of executive AI leadership. By applying this forward-looking approach, I present arguments and develop theory on the emergence, scope, and strategic value of AI leadership, thereby contributing to both scholarly understanding and managerial practice. This process begins with the identification of key theories and frameworks informed by the future scenarios and leads to the extraction of theoretical constructs relevant to formal AI leadership roles.

To ground the theoretical argument in real-world developments, this study draws on illustrative examples of current CAIO appointments, role responsibilities, and emerging leadership trends. These examples underscore the strategic necessity of formalized AI leadership and provide contextual relevance to the proposed framework. Through a conceptual synthesis, five foundational pillars of the CAIO role are outlined, each linking a core executive function with its associated capabilities, thereby laying the foundation for a theory-informed perspective on AI leadership.

Thus, the core contribution of this study is the development of a theory-informed framework for understanding the Chief AI Officer as a distinct executive role that emerges in re-

sponse to the environmental, structural, and strategic tensions created by AI in organizations. It (i) problematizes existing C-suite roles, (ii) constructs an affordance–function–capability framework referred to as the CAIO Framework, and (iii) outlines a future research agenda for AI leadership. Ultimately, the paper aims to advance the field by encouraging academics, practitioners, and policymakers to transition from merely anticipating future trends to actively shaping the future through informed and strategic AI leadership ([Chatterjee et al., 2023](#); [Wenzel, 2021](#)).

2 The Emergence of AI-Driven Organizations

2.1 The AI Economy

The term "AI Economy" refers to an economic system significantly influenced or driven by the integration and utilization of AI across various sectors and industries. This encompasses the ways in which AI technologies enhance efficiency, productivity, and innovation, leading to new business models, products, and services. In the AI Economy, AI is not just a tool but a transformative force that reshapes how businesses operate, how jobs are performed, and how value is created and distributed. According to [Suleyman \(2023\)](#), AI as a meta-technology improves our way of "evolving", which is our ability and speed to create and innovate, thus driving significant productivity increase, which is followed by economic growth. This economic principle has been held for all of the history of humankind.

2.1.1 Beyond Productivity

Human productivity stands as the cornerstone for enhancing global wealth, power, and living standards, with its essence encapsulated in the efficiency and output per individual. This productivity is fundamentally driven by technological advancements. AI has emerged as a meta-technology, not merely as a significant advancement but as a force multiplier capable of self-driven creation and innovation ([Suleyman, 2023](#)). Unlike traditional technologies with

predictable input-output relationships, AI's self-learning algorithms introduce complexity and unpredictability. This shift challenges conventional management and economic models. As AI becomes more integrated into daily life, its role will extend beyond industrial and corporate settings, becoming a crucial part of our social fabric. Interacting with AI for information, entertainment, or companionship will likely become the norm, further merging the boundaries between humans and machines.

2.1.2 The Platform Transition: AI Agents

Machine learning has established itself as one of the core General Purpose Technologies of our time (Goldfarb et al., 2023). The advent of large language models is one of the most significant platform transitions in the computing history that aligns with the evolutionary trajectory of industrial revolutions (Maddikunta et al., 2022): (i) Industry 4.0 laid the technological foundation with its emphasis on automation, data exchange, and the Internet of Things (IoT), setting the stage for the integration of smart technologies. (ii) Industry 5.0 built upon this by introducing a human-centric approach, blending human ingenuity with smart systems to enhance resilience, sustainability, and personalization in manufacturing. (iii) Industry 6.0, as a concept envisions a future dominated by circular, autonomous AI factories, where AI-driven systems manage end-to-end processes with minimal human intervention, highlighting the ultimate potential of AI in industrial settings. Machine learning has evolved remarkably, progressing from a tool for decision support (Kleinberg et al., 2017) to a driver of innovation (Haefner et al., 2021) and now functioning as autonomous agents (Slumbers et al., 2023). Initially, it served to augment decision-making, analyzing data to provide insights. As it matured, machine learning became central to innovations across sectors. ML based AI systems have facilitated the development of novel algorithms (Mankowitz et al., 2023), propelled advancements in the medical and pharmaceutical domain (Jiménez-Luna et al., 2020), enhanced human creativity, and hastened the pace of scientific breakthroughs (Wang et al., 2023a). This evolution underscores the need for AI leadership and expertise

in robotics, data analytics, and digital ecosystem management. Thus, career paths in these fields are essential for navigating the complexities of an increasingly automated, AI-driven world.

2.2 The AI Organization

The contemporary firm is becoming "The AI Organization," driven by AI-enabled decision-making. This "decision factory," powered by software, data, and algorithms, marks a shift from traditional business models. To leverage AI fully, organizations need a fundamentally new operating architecture. This shift goes beyond digital transformation, evolving into what could be called the AI transformation (Lamarre et al., 2023). This specific transformation involves rearchitecting the firm to optimize data, networks, and AI. Such a restructured model enables organizations to adapt and thrive in an increasingly digital and data-driven world, ensuring they are not just participants in the AI revolution, but leading players shaping its course. Collaborative intelligence (CI) goes beyond human-in-the-loop (Grønsund and Aanestad, 2020; Boyacı et al., 2024; Wang et al., 2023b) and represents a paradigm in which human and AI systems collaborate, combining their distinct strengths to achieve superior outcomes (Schmitt, 2023). CI involves a deep integration of human creativity, emotional intelligence, and strategic thinking with the analytical prowess, speed, and scalability of AI. In environments where CI is implemented, humans and AI interact in a fluid, dynamic manner, with AI providing real-time data analysis, predictive insights, and decision-making support, while humans contribute with contextual understanding, moral judgment, and creative problem-solving (Kleinberg et al., 2017). This partnership enhances decision-making, drives innovation, and leads to more effective solutions across fields like healthcare, education, business, and technology (Mankowitz et al., 2023; Shepherd and Majchrzak, 2022). The key to successful CI lies in designing systems that augment and thus complement human capabilities, rather than replace them, fostering a situation where the collective intelligence of both humans and machines is greater than the sum of its parts (Faggioli et al., 2024; Fügenger

et al., 2022). Human–AI ensembles, when carefully designed to balance task complexity and role division, can significantly enhance decision quality and performance (Choudhary et al., 2025). This form of conjoined agency between humans and algorithms reflects emerging patterns in algorithmic work structures, where algorithms increasingly act as co-workers and collaborators across organizational settings (Tarafdar et al., 2023). Despite the strong focus on human-centric development and Human-AI collaboration (Capel and Brereton, 2023), it’s undeniable that AI and ML technologies are fundamentally labor-replacing and will inevitably disrupt labor markets (Constantiou and Kallinikos, 2015; Kellogg et al., 2020; Allen and Choudhury, 2022). This disruption stems from the intrinsic ability of AI to automate tasks, often more efficiently and with greater accuracy than human counterparts (Schmitt, 2023). As these technologies continue to advance, they are poised to transform industries, leading to significant shifts in employment landscapes (Coombs et al., 2020; Zimmer et al., 2023). While some jobs will be rendered obsolete, new ones will emerge, necessitating a reevaluation of skills and training in the workforce (Goldfarb et al., 2023). This transition presents a dual challenge: embracing AI’s efficiencies and advancements while addressing the socioeconomic impact of workforce displacement. Policymakers, educators, and industry leaders must collaborate to develop strategies that ensure a smooth transition for workers, including retraining programs and supportive policies. The goal is to harness AI in a way that complements human labor, fostering a resilient workforce ready to thrive alongside emerging technologies. This is one of the primary challenges of AI leaders. In a likely future, organizations may shift towards Multi-Agent Workflows , where humans orchestrate autonomous AI agents to optimize operations (Slumbers et al., 2023; Dennis et al., 2023). This setup envisions humans at the helm, leveraging AI for data-driven insights, automating routine processes, and enhancing decision-making. AI agents, designed to execute specific tasks with precision and speed, would work in concert under human direction, ensuring that the organization’s objectives align with strategic goals and ethical considerations. Such organizational configurations demand novel decision architectures that can accommodate

distributed, AI-augmented decision-making processes (Shrestha et al., 2019). The result is a dynamic, adaptive system where human-AI collaboration leads to greater organizational agility, innovation, and resilience. In this future, human roles will focus more on strategy, creativity, and oversight. However, due to the double-edged nature of AI (Schmitt and Flechais, 2023), organizations must be prepared to adapt to potential regulations that could shape their AI deployments, such as data privacy regulations to ensure secure and transparent handling of personal information. Regulations may also enforce guidelines around algorithmic fairness to prevent biases and discrimination in AI outputs. Furthermore, requirements for explainability could be implemented, mandating that AI systems be understandable and their decisions traceable by users (Chen et al., 2023).

2.3 Competing in the Age of AI

AI fundamentally changes how businesses operate and compete. The transition towards AI-enabled organizations is unfolding at an unprecedented pace, fundamentally transforming industries and market dynamics (Lamarre et al., 2023). This rapid evolution is intensifying competition, potentially leading to a significant concentration of power within the technology sector. Over recent decades, we have observed a substantial market shift favoring the emergence of new mega-corporations like Google, Apple, Microsoft, and Meta, largely attributed to the global scaling effects of Information and Communication Technology (ICT). The advent of artificial intelligence threatens to further amplify this trend, potentially exacerbating the concentration of technological power (Jacobides et al., 2021). However, the AI revolution also creates opportunities for smaller companies and start-ups to leverage these technologies for innovation, thereby disrupting established business models and challenging the status quo. Additionally, incumbent businesses can capitalize on AI through strategic partnerships with tech innovators, enhancing their operations, and strengthening their competitive positions in the market.

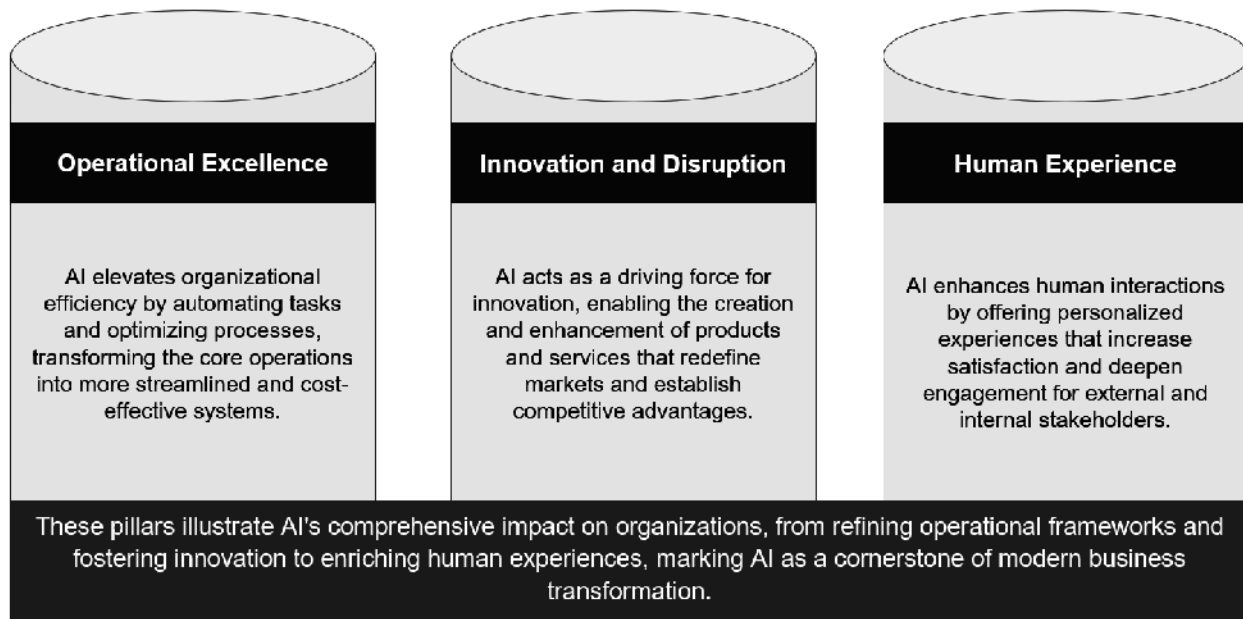


Figure 1: The Three Pillars of AI-driven Value Generation

2.3.1 The Three Pillars of AI-driven Value Generation

To drive value generation organizations should adopt a framework focused on three foundational pillars: Operational Excellence, Innovation and Disruption, and Human Experiences (Figure 1). This framework is designed to encapsulate the essential elements required for leveraging digital and AI technologies effectively. Ensuring regulatory compliance is vital across all three pillars.

- The pillar “Operational Excellence” captures AI applications focused on improving efficiency, productivity, and process optimization within an organization. AI’s role in internal operations often involves automating routine tasks, enabling employees to focus on more strategic, creative endeavors, thereby revolutionizing everything from supply chain management to human resources. This is done via process automation and data-driven decision-making and is thus primarily about enhancing the internal workings of an organization, making operations more efficient and cost-effective (Schmitt, 2023). This shift can lead to changes in workforce dynamics and demands a thoughtful approach to change management and skill development. In essence, AI’s integration into

internal operations is not just about technological upgrades but also about fostering a culture that is data-literate and adaptable (Fountaine et al., 2019).

- Externally, the role of AI in product development and customer engagement represents a leap towards disruptive innovation (Skog et al., 2018; Suleyman, 2023). This pillar “Innovation and Disruption” focuses on the use of AI for developing new products, services, and business models, as well as improving existing ones. It encompasses AI-driven research and development, product design, disruptive business models, and technological advancements. AI enables companies to develop products and services that are not only smarter and more responsive to customer needs but also capable of disrupting existing market dynamics. AI as a key driver of sustained and disruptive innovation demands a strategic vision that aligns AI capabilities with long-term business objectives (Morton et al., 2022).
- The pillar “Human Experiences” addresses AI applications that enhance the interactions between the organization and its human stakeholders – be they customers, employees, or the public. It includes personalized customer experiences, AI in marketing and sales, chatbots and virtual assistants, AI for employee training and development, and AI applications in user interface and experience. The focus here is on using AI to improve relationships, engagement, and satisfaction for both customers and employees and is largely about the idea of human AI collaboration or collaborative intelligence.

2.3.2 Strategic Partnerships, Digital Ecosystems, and Data-Driven Decisions

Strategic Partnerships, Digital Ecosystems, and Data-Driven Decisions Strategic partnerships and digital ecosystems have become key for organizations seeking to harness the full potential of AI-driven digital innovations (Bockelmann et al., 2024). These alliances enable companies to access a wider range of AI technologies, share insights, and co-innovate, thereby accelerating AI adoption and integration across sectors (Cennamo, 2019). A digital

platform creates value by enabling direct interactions among two or more sides of the platform (Leong et al., 2024). By collaborating within ecosystems, organizations can leverage complementary strengths, mitigate risks, and create more robust, innovative solutions for diverse customer needs. As AI drives organizational transformation, effective engagement in strategic partnerships and digital ecosystems is essential for staying at the forefront of innovation and enhancing competitive advantage. AI algorithms excel at processing and analyzing vast amounts of data at speeds and scales impossible for humans, which brings to organizations the ability to unlock insights from data (Veldkamp, 2023), leading to more informed decision-making (Constantiou and Kallinikos, 2015; Sturm et al., 2023). This capability allows organizations to identify patterns, trends, and correlations that would otherwise remain hidden, thus creating data-driven value propositions. As detailed in the study by (Günther et al., 2022) on the iterative process of data-driven value creation, these insights can significantly enhance everything from market strategies and customer behavior analysis to operational efficiencies and product innovation. Given the increasing reliance on data-driven decision-making within organizations, who is tasked with determining what is relevant: humans, artificial intelligence, or a combination of both (Faggioli et al., 2024)?

3 Why AI Demands Distinct Leadership

Drawing on the problematization approach proposed by Alvesson and Sandberg (2011), this paper challenges the underlying assumption that existing roles can absorb AI responsibilities and instead theorizes the need for a distinct executive function. Situating the CAIO within the broader architecture of executive leadership requires re-examining how firms structure their top management teams and integrate technology leaders into strategic decision-making. “The C-suite” refers to the top management team (TMT), a group of senior executives responsible for guiding the firm’s strategic direction and performance.¹ Technology executives—such as the Chief Information Officer (CIO) and Chief Technology

¹<https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-the-c-suite>

Officer (CTO)—have become increasingly central to TMTs. [Bendig et al. \(2022\)](#) show that environmental, structural, and strategic factors drive the inclusion of CIOs in the C-suite, based on a study of 503 large U.S. firms. These pressures can be summarized as:

- **Environmental:** Competitive and technological turbulence create a need for executive-level IT oversight.
- **Structural:** Gaps in digital expertise within top management necessitate new leadership roles.
- **Strategic:** Technology-driven business models require alignment between digital and corporate strategy.

I build on this framework to argue that similar—and arguably stronger—pressures now exist for the inclusion of a Chief AI Officer. While the rationale mirrors earlier arguments for CIO inclusion, the scope and impact of AI demand a more transformative and strategic role. According to [Wessel et al. \(2021\)](#), digital transformation is not merely an operational upgrade but a fundamental redefinition of how organizations create value and shape identity. This distinguishes it from traditional IT transformation, which focuses on enabling existing processes. As a result, the CIO—whose role historically centers on infrastructure and alignment—is increasingly overextended. Moreover, the classic notion of “business-IT alignment” is obsolete. As [Amarilli et al. \(2023\)](#) argue, technology is no longer a support function to be aligned with strategy—*AI is business strategy*. Digital technologies, especially AI, have become integral to how firms compete and innovate. As outlined in [Section 2](#), AI is emerging as the next foundational pillar of the global economy, triggering transformative shifts akin to prior industrial revolutions. The CAIO, therefore, plays a critical role not only in overseeing AI integration and governance but also in redefining the organization’s strategic trajectory. This involves a shift from using technology as a backend enabler to embedding it as a core driver of innovation, transformation, and identity. In this sense, the CAIO is not merely

enhancing existing capabilities but leading the design of a future-state organization attuned to the complexities of an AI-driven economy.

3.1 AI Is Everywhere, Yet No One Is Responsible

Artificial Intelligence is no longer a peripheral or experimental technology; it has become a foundational layer of organizational functioning. From automating back-office tasks to augmenting executive decision-making, AI systems are increasingly embedded in core value-creating activities, shifting AI from a functional tool to a strategic asset (Hillebrand et al., 2025; Kemp, 2024). This widespread diffusion of AI capabilities transforms decision environments across the enterprise, demanding a reconfiguration of traditional management and control systems (Boyacı et al., 2024; Shrestha et al., 2019).

Yet despite this ubiquity, responsibility for AI leadership remains fragmented and ambiguous. This paradox—AI is everywhere, yet no one is formally responsible—creates a governance vacuum at the highest levels of the organization. No single executive is accountable for enterprise-wide orchestration, leading to inconsistencies in deployment, duplication of efforts, and heightened exposure to regulatory and reputational risks (Raisch and Krakowski, 2021). As AI continues to permeate decision-making processes, addressing this leadership vacuum becomes an institutional imperative.

This fragmentation is particularly problematic given the distinct characteristics of AI systems. Unlike conventional technologies, AI models are dynamic, probabilistic, and often non-deterministic. They evolve through learning, exhibit opaque internal logic, and can produce emergent effects not anticipated at design time (de Véricourt and Gurkan, 2023; Logg et al., 2019). These properties introduce novel forms of ethical, operational, and reputational risk, which transcend the traditional boundaries of functional leadership and defy existing accountability structures (Raisch and Krakowski, 2021; Tarafdar et al., 2023).

Compounding these internal challenges are mounting external pressures. Regulatory initiatives—such as the EU AI Act and executive mandates in countries like the United

States—signal an institutional shift toward formalized accountability for AI. Simultaneously, stakeholders (such as investors, customers, employees) are demanding transparency, fairness, and strategic clarity in how organizations deploy AI (Dennis et al., 2023).

As AI continues to reshape competitive dynamics and accelerate organizational transformation, it becomes clear that responsibility for its deployment and governance cannot remain ad hoc or fragmented. A new leadership function is required, one that is structurally embedded in the top management team and strategically empowered to orchestrate AI across the enterprise. Before theorizing the contours of such a role, we must first assess whether existing C-suite positions are equipped to meet these emerging demands.

3.2 Problematizing Existing C-Suite Roles

Why is a CAIO required when we already have other CXOs? While executive leadership structures have evolved to accommodate technological change—evidenced by the rise of roles such as the Chief Information Officer (CIO), Chief Digital Officer (CDO), and Chief Technology Officer (CTO)—these adaptations remain insufficient for the strategic and operational demands imposed by artificial intelligence (AI). To understand the limitations of current executive structures, I problematize existing C-suite roles across three analytical dimensions: environmental, structural, and strategic.

Environmental limitations. The “AI economy” scenario signals a reconfiguration of competitive dynamics, as firms face mounting pressure to harness AI for innovation, cost-efficiency, and agility. These external shocks—technological breakthroughs, regulatory developments, and evolving stakeholder demands—require proactive and strategic leadership. Disruptive Innovation Theory (Christensen, 2016) and Competitive Dynamics Theory (Chen and Miller, 1994) emphasize the need for rapid, coordinated responses to such external pressures. Yet CIOs and CTOs, traditionally positioned as functional or support leaders, lack the institutional mandate and enterprise-wide visibility to drive adaptation at scale. Their roles remain reactive, execution-focused, and typically confined to infrastruc-

Table 1: Antecedents for Establishing a Chief AI Officer (CAIO) in the C-Suite

Dimension	Factor	Description	Theory
Environmental (AI Economy)	Technological Advancements	The development and integration of AI technologies in various sectors creates a need for specialized leadership that can effectively steer these advancements within the company. A CAIO ensures that AI technologies are leveraged in ways that maintain competitive advantage and align with external technological trends.	Disruptive Innovation Theory (Christensen, 2016), Innovation Diffusion Theory
Environmental (AI Economy)	Market Pressures	As AI becomes a cornerstone in many industries for maintaining competitiveness, a CAIO can provide the leadership necessary to navigate these pressures, ensuring that AI initiatives drive the company forward in the market.	Dynamic Capabilities (Teece et al., 1997), Competitive Dynamics Theory (Chen and Miller, 1994)
Structural (AI Organization)	AI Integration	AI technologies are not merely supportive tools but central to business operations and strategies. A CAIO ensures these technologies are integrated seamlessly across various business units, enhancing efficiency and effectiveness.	Technology Acceptance Model (Davis, 1989), Stakeholder Theory (Freeman, 2010)
Structural (AI Organization)	AI Governance	The governance of AI involves ethical considerations, regulatory compliance, and data privacy issues, which require specialized knowledge and experience. A CAIO, with a deep understanding of both AI technologies and business strategies, is well-suited to handle these complexities.	Corporate Social Responsibility (Carroll, 1991)
Strategic (Competing in the Age of AI)	AI Strategy	The strategic importance of AI in modern business models necessitates having a leader dedicated to developing and executing AI strategies. A CAIO ensures that AI initiatives are aligned with the organization's overall strategic goals and that they contribute significantly to the business's long-term vision.	Resource-based View (Barney, 1991), Strategic Alignment Model (Henderson and Venkatraman, 1993)
Strategic (Competing in the Age of AI)	Innovation and Disruption	AI has the potential to drive innovation and disrupt existing business models. A CAIO can lead the charge in harnessing AI to develop new products, services, and processes that propel the company into new markets or enhance its position in existing ones.	Disruptive Innovation Theory (Christensen, 2016), Dynamic Capabilities (Teece et al., 1997)
Strategic (Competing in the Age of AI)	Data-Driven Decision Making	Analytics and AI are critical for strategic decision-making and operational efficiency. A CAIO integrates these tools into organizational processes, fostering a data-driven culture that enhances strategic alignment, optimizes operations, and maintains a competitive edge.	Data-Driven Decision Making (Provost and Fawcett, 2013)

ture or product domains. This limitation is further compounded by the decentralization of innovation enabled by AI and no-code/low-code platforms. As business units gain the ability to develop AI applications independently, innovation becomes both democratized and fragmented. While empowering, this trend increases the risk of duplication, misalignment, and governance failures—factors that CIOs and CTOs are neither structurally mandated nor strategically positioned to resolve. The diffusion of AI innovation demands oversight beyond traditional IT boundaries, reinforcing the case for an enterprise-level role dedicated to aligning decentralized experimentation with coherent organizational goals.

Structural limitations. The integration of AI technologies challenges existing organizational configurations. The “AI organization” scenario necessitates not only enterprise-wide technical coordination but also robust governance, ethical oversight, and stakeholder legitimacy. AI systems raise novel concerns around bias, surveillance, labor displacement, and algorithmic transparency—issues that cross departmental boundaries. While the CIO may manage data systems and the Chief Ethics Officer may offer normative guidance, no single executive currently orchestrates AI across legal, operational, and ethical domains. Theoretical frameworks such as Stakeholder Theory ([Freeman, 2010](#)) and the Technology Acceptance Model ([Davis, 1989](#)) underscore the need for a structurally embedded leadership role capable of stewarding both legitimacy and adoption across constituencies. This organizational tension has already led many firms to bifurcate traditional technology leadership. The proliferation of roles such as the Chief Data Officer, Chief Transformation Officer, and Chief Digital Officer reflects an ongoing fragmentation of responsibilities previously housed under the CIO. While this evolution enhances domain specialization, it also reveals the inadequacy of existing structures to manage cross-functional challenges like AI, which simultaneously implicates data governance, compliance, innovation, and ethics. The absence of a unified, AI-specific executive mandate thus creates structural blind spots in oversight and coordination.

Strategic limitations. Perhaps most critically, AI compels a rethinking of strategic

leadership itself. The “competing in the age of AI” scenario reveals that data assets, algorithmic capabilities, and digital platforms have become primary sources of competitive advantage. AI no longer supports the business—it reshapes it. However, most executive roles are rooted in legacy distinctions between “business” and “technology,” with strategic authority concentrated in non-technical domains. As [Amarilli et al. \(2023\)](#) argue, digital strategy is no longer aligned with business strategy—it is business strategy. Yet few current roles combine deep technical knowledge with strategic foresight. The Chief Strategy Officer may set direction but lacks technical fluency; the CTO may lead experimentation but lacks the mandate for cross-functional governance and alignment. The ongoing debate around whether CIOs deserve a “seat at the strategic table” further illustrates the difficulty of elevating technology executives into core decision-making roles. While many CIOs have successfully repositioned themselves as strategic advisors, their influence remains tethered to legacy infrastructure mandates. As AI increasingly defines the boundaries of value creation and strategic positioning, it requires a new type of executive authority—one that can synthesize technical affordances with long-range organizational vision. Without this hybrid capability, firms risk underleveraging AI’s potential or misaligning it with long-term goals. Taken together, these limitations reveal a structural asymmetry in the modern C-suite: as AI capabilities expand across the enterprise, no executive role has evolved to match this growth in scope, complexity, and strategic significance.

3.3 The Executive Gap in the Age of AI

This analysis leads to a core insight: AI-specific leadership demands exceed the functional and institutional boundaries of the current C-suite. The result is an executive gap—defined as the absence of a formally recognized role that can integrate technical knowledge and strategic direction for AI at the enterprise level. I conceptualize this gap across the same three domains: environmental responsiveness, structural coordination, and strategic vision. Existing executives are mapped against each domain to illustrate their limitations, followed

Table 2: Gaps in existing C-suite roles across key AI leadership dimensions.

Dimension	CIO	CTO	CSO	CDO	CAIO
Environmental (AI Economy)	Focuses on integrating new systems; limited in shaping responses to AI disruption	Focuses on emerging technologies and product development, not macro-level AI shifts	Tracks market trends; lacks technical grounding to steer AI adoption	Focuses on digital transformation and customer experience, not AI-driven industry shifts	Interprets external AI trends and aligns firm with AI ecosystem changes
Structural (AI Organization)	Oversees infrastructure; not designed for AI governance or firm-wide integration	Leads technical teams; lacks mandate for enterprise-wide AI orchestration	Drives organizational structure; lacks focus on AI implementation	Orchestrates digital initiatives across silos; lacks authority over AI governance and infrastructure	Oversees AI integration, governance, and ethics across business units
Strategic (Competing in the Age of AI)	Aligns IT to strategy; lacks proactive AI vision	Product focus; limited in shaping enterprise AI strategy	Crafts strategic plans; may underestimate technical constraints	Drives digitalization; limited in shaping AI as a strategic asset	Orchestrates AI as a strategic asset aligned with business goals

by a proposed scope for a Chief AI Officer role.

Table 2 illustrates how current executive roles fall short across AI leadership dimensions, and how the CAIO uniquely addresses them.

In sum, AI introduces unique pressures that transcend the technical domain and permeate strategic decision-making, governance, and value creation. Existing executive roles—while foundational—are not equipped to shoulder these AI-specific demands holistically. This leadership gap is not merely functional, but structural and institutional. What is needed is a dedicated executive role that can synthesize AI’s affordances and constraints into coherent organizational action. These forces jointly shape the need for a new executive position explicitly designed to orchestrate AI at the enterprise level. The next section theorizes the structure, scope, and responsibilities of this role through the CAIO Framework.

4 The CAIO Framework: A Theory of Executive AI Leadership

To theorize the emergence of executive AI leadership, I develop a meta-framework—referred to as the CAIO Framework—that links the technological characteristics of artificial intelligence to the institutional design of a new C-suite role. This framework maps how AI-specific affordances and constraints generate new organizational demands, which define the core functions and required capabilities of the Chief AI Officer.

Real-World Adoption of the CAIO Role

This framework is supported by emerging real-world cases of CAIO adoption across the public and private sectors. Illustrative examples include IBM, SAP, NASA, and the UAE government, among others. See Appendix A for a list of CAIO appointments and responsibilities across sectors. These roles reflect a growing recognition of the need for dedicated AI leadership with enterprise-wide strategic and governance responsibilities.

4.1 Theoretical Foundations of the CAIO Role

To theorize the emergence of the CAIO, we build on—but also extend—a range of theoretical perspectives spanning innovation, strategy, and organizational design. While several frameworks have begun to integrate these perspectives ([Hillebrand et al., 2025](#)), we focus specifically on the institutional and structural implications of AI’s affordances and constraints for executive leadership. This section is structured around the three core inclusion pressures identified—environmental, structural, and strategic—that drive the emergence of technology leaders in the C-suite.

4.1.1 Environmental Pressures and the Case for AI Leadership

Environmental forces such as accelerating technological advancement, industry-wide adoption pressures, and evolving stakeholder expectations are destabilizing traditional competitive dynamics. These external pressures create challenges that existing C-suite roles are ill-equipped to address. Theoretical lenses from innovation and strategy offer partial insights but require adaptation to the unique characteristics of AI. A recent integrative framework underscores the need to synthesize disparate theoretical perspectives—such as paradox theory, resource-based views, and innovation dynamics—into a coherent understanding of AI management challenges (Hillebrand et al., 2025). Disruptive Innovation Theory (Christensen, 2016), while historically focused on product-market displacement, must now account for infrastructural and organizational disruption induced by AI systems. Unlike past innovations, AI embeds itself across workflows, decision layers, and customer interfaces simultaneously. This calls for executive roles capable of system-level orchestration — a gap the CAIO is designed to fill. Innovation Diffusion Theory traditionally focuses on adoption curves, yet in AI contexts, adoption is not merely a binary of use/non-use. The nature of how AI is integrated — e.g., as black-box automation vs. transparent, adaptive systems — varies by firm strategy and leadership vision. A CAIO shapes not just adoption timing, but adoption meaning and trajectory. Dynamic Capabilities Theory (Teece et al., 1997) highlights the importance of renewal, but AI requires meta-capabilities: the ability to govern evolving learning systems. Here, we argue the CAIO embodies a meta-dynamic capability that reorients the firm’s capacity for sensing, seizing, and transforming. Competitive Dynamics Theory (Chen and Miller, 1994) is extended in this context: rather than viewing firms as reactive combatants, AI leadership enables anticipatory positioning — reshaping competitive arenas before rivals even act. The CAIO acts not just as a sensor, but as a strategic reframer of the firm’s market moves.

4.1.2 Structural Pressures and Organizational Redesign

The structural transformation driven by AI is not confined to technological layers—it fundamentally reconfigures how organizations are governed, how work is coordinated, and how ethical accountability is distributed. Traditional leadership roles lack the mandate to manage these transformations in a coherent, system-wide manner. Technology Acceptance Model (TAM) (Davis, 1989), while foundational in understanding user-level adoption, becomes insufficient in the face of enterprise-wide AI integration. AI is not a tool to be accepted but an organizational actor with agency-like properties. This perception is reinforced by empirical findings showing that individuals often prefer algorithmic recommendations over human judgment — a behavioral tendency known as algorithm appreciation (Logg et al., 2019). We argue that the CAIO extends TAM into the domain of organizational orchestration—shaping not just perceived usefulness, but the design of sociotechnical systems themselves. This also reflects the automation–augmentation paradox, where AI systems simultaneously threaten and complement human agency, requiring leadership capable of balancing these tensions (Raisch and Krakowski, 2021). Stakeholder Theory (Freeman, 2010) provides a lens for inclusion, yet AI complicates the stakeholder landscape by introducing non-human agents, datafied clients, and algorithmic biases that ripple across stakeholder groups. Such developments challenge traditional boundaries of agency and call for new forms of conjoined agency between humans and technologies within organizations (Murray et al., 2021). The CAIO emerges as a stakeholder translator, bridging opaque technical processes with social, legal, and ethical expectations. Corporate Social Responsibility (CSR) Theory (Carroll, 1991) traditionally positions ethical action as a firm-level responsibility. In the AI context, however, ethical implications are not always visible, predictable, or easily auditable. The CAIO must navigate a new layer of moral opacity—requiring organizations to move from reactive compliance to proactive AI ethics architecture. Thus, CSR must evolve toward predictive governance, a capability uniquely housed within the CAIO mandate. Across these perspectives, the CAIO is theorized as a structural integrator—a new node in the executive

architecture that mediates between AI technologies, human actors, and governance systems.

4.1.3 Strategic Pressures and the Reframing of Firm Capabilities

Strategically, AI is not just another technology—it is a general-purpose technology that reshapes firm-level strategy formulation, resource allocation, and long-term competitive positioning. Existing strategy theories illuminate aspects of this transformation but require rethinking in light of AI’s unique dynamics. Resource-Based View (RBV) (Barney, 1991) traditionally emphasizes rare, valuable, and inimitable resources as sources of sustained advantage. AI challenges this view in two ways: first, it is increasingly commoditized (e.g., via APIs), and second, its value depends on how it is orchestrated, not merely possessed. The CAIO transforms AI from a static resource into a dynamic capability enhancer—turning commodity tools into strategic levers. This approach also builds on the idea that AI reshapes the very sources of competitive advantage, shifting the focus from possession of AI to its contextualized deployment and governance (Krakowski et al., 2023). This aligns with the notion of situated AI as a source of competitive advantage, which emphasizes the contextual orchestration of AI capabilities within firm-specific environments (Kemp, 2024). Strategic Alignment Model (Henderson & Venkatraman, 1993) emphasizes the integration of IT and business goals. Yet AI resists traditional alignment models, as it often drives emergent strategy, not just executes it. The CAIO acts as a strategic shaper, ensuring AI is not only aligned with but actively informs and evolves strategic direction. Disruptive Innovation Theory (Christensen, 2016) also applies here: AI disrupts not just markets, but internal value chains, decision hierarchies, and business logics. This creates a need for strategic sense-making and recalibration, which existing roles rarely perform at the necessary scale. The CAIO fills this void by offering institutional foresight and the authority to act on it. Data-Driven Decision-Making (DDDM) (Provost and Fawcett, 2013) is typically framed as a functional competence. We extend this by conceptualizing it as a strategic culture, where the CAIO curates decision flows, incentives, and cognitive frames that elevate data to a

strategic asset. This repositions the CAIO as a strategic architect of intelligent decision environments. Effective orchestration of such environments also hinges on decisions about the delegation of authority between humans and algorithms—decisions that can significantly affect performance and organizational outcomes (Kim et al., 2024). In aggregate, the CAIO is theorized not merely as a strategy implementer, but as a strategy reframer—a role that enables new forms of organizational intelligence and adaptive advantage in an AI-saturated environment.

4.2 Defining the AI Technology Landscape

To translate the theoretical insights from the previous section into a coherent executive function, it is necessary to first clarify what constitutes the organizational AI landscape. AI is not a monolithic technology; it is better conceptualized as a layered ecosystem of interrelated tools, systems, and infrastructures that enable a broad spectrum of capabilities and decision-making mechanisms. A useful way to delineate this landscape is to distinguish three interdependent domains in which AI manifests across modern firms.

- **AI Applications:** This layer includes the end-user solutions that directly augment or automate business functions. Examples range from recommendation engines and fraud detection systems to more recent generative AI models such as OpenAI’s ChatGPT and Google’s Gemini. These applications interface directly with organizational decision-makers, customers, or internal operations, making them the most visible form of AI integration.
- **AI Infrastructure and Platforms:** Beneath the application layer lies the enabling infrastructure that supports AI development, deployment, and scaling. This includes data lakes, AutoML platforms, orchestration frameworks, and MLOps pipelines. These technologies facilitate model training, version control, performance monitoring, and the integration of AI into enterprise systems.

- **AI Governance and Toolkits:** As AI capabilities expand, so do the requirements for responsible and compliant use. Governance tools such as model explainability techniques (e.g., SHAP, LIME), fairness and bias mitigation frameworks, and regulatory compliance toolkits form a critical domain of AI management. These technologies help firms address ethical, legal, and societal risks associated with AI use.

Despite their diversity, these technologies are bound by a common thread: they exhibit powerful affordances—such as autonomy, predictability, scalability, and adaptive learning—and impose critical constraints, including opacity, drift, and potential algorithmic bias. These technological characteristics shape not only how value is created and captured but also how risks are managed and strategic alignment is maintained. The complexity and transformative nature of this landscape underscore the need for a distinct executive function that can navigate, orchestrate, and govern AI across all levels of the organization. In what follows, I synthesize these technological characteristics into a meta-framework that links AI affordances and constraints to the emergent functions and required capabilities of the Chief AI Officer.

4.3 The Affordance–Function–Capability Framework

Figure 2 illustrates the conceptual flow from AI’s technological characteristics to the institutional emergence of the Chief AI Officer role. Rather than viewing AI leadership as an extension of existing executive positions, this framework theorizes the CAIO as a purpose-built role, structurally necessitated by the dual pressures of AI affordances and AI constraints.

AI affordances refer to the enabling characteristics of artificial intelligence, such as autonomy, predictive power, scalability, generativity, and real-time learning—that expand what organizations can achieve through automation, insight generation, and adaptive decision-making. These affordances create opportunities for innovation, efficiency, and new forms of value creation. At the same time, AI introduces significant constraints—ranging from technical opacity and robustness challenges to institutional risks related to bias, discrimination,

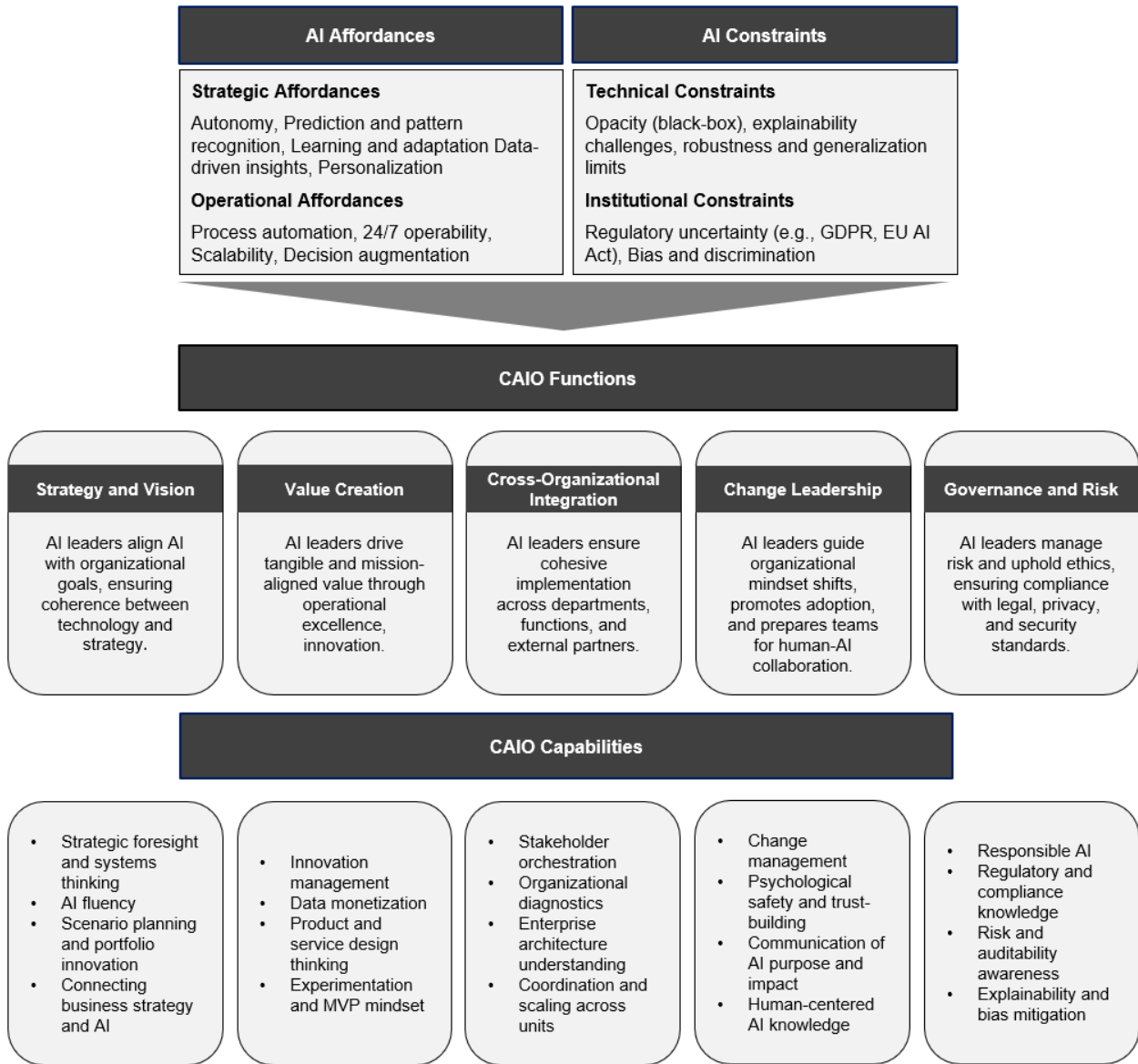


Figure 2: CAIO Framework

and regulatory uncertainty (e.g., GDPR, EU AI Act). These are not merely implementation issues; they reflect deep tensions between technological potential and organizational legitimacy.

This duality gives rise to what [Hillebrand et al. \(2025\)](#) identify as core organizational paradoxes—such as the tension between scalable intelligence and contextual judgment, or between automation and human agency. These tensions generate new demands that existing executive roles are not structurally equipped to address. Moreover, as [de Véricourt and Gurkan \(2023\)](#) argue, when humans rely on opaque algorithmic systems, they may never fully know whether those systems outperform their own judgment, introducing a new layer of epistemic uncertainty.

Affordances and constraints jointly create a distinctive set of leadership imperatives that existing executive roles (e.g., CIO, CTO, CDO) are ill-equipped to meet in full. As a result, the CAIO emerges to orchestrate AI across the enterprise by fulfilling five core functions: (1) defining *AI strategy and vision* aligned with long-term goals, (2) enabling *value creation* through innovative AI applications, (3) ensuring *cross-organizational integration* across silos and units, (4) driving *change leadership* and AI literacy, and (5) embedding robust *governance and risk* practices.

To enact these functions, the CAIO must embody a unique set of capabilities. These include deep *AI fluency* to evaluate and steer technical efforts, *boundary-spanning communication* to align stakeholders across domains, *ethical and regulatory literacy* to navigate compliance and public trust, *organizational design acumen* to restructure workflows and incentives, and the *influence and authority* to drive top-level decision-making. These capabilities position the CAIO as a meta-executive able to synthesize AI’s technical complexity with strategic foresight and institutional accountability.

4.4 Organizational Placement of the CAIO

Leadership commitment is a core ingredient for successful AI integration, making the positioning of a Chief AI Officer a strategic decision crucial for leveraging AI. Leading organizations have recognized the strategic importance of AI by establishing the role of a CAIO at high levels within their organizational structures. For instance, at Microsoft, the CEO of Microsoft AI directly reports to the Group CEO, Satya Nadella. This arrangement highlights the strategic significance of AI and ensures that AI initiatives are in sync with the company's broader strategy. At Accenture, the Chief AI Officer plays a crucial role in steering the company's AI strategies and is a member of the Global Management Committee. SAP established a CAIO role in 2024, including a new AI unit, to oversee the entire value chain for SAP Business AI—from product development and research to customer implementation. The CAIO reports directly to the CEO, ensuring AI initiatives align with the company's strategic vision and priorities. In the US, the Whitehouse instructed all federal agencies to appoint a Chief AI Officer who possesses the necessary experience, expertise, and authority to manage all AI technologies utilized by that agency. The observed practices in these organizations are supported by several well-established theories. First, AI, as a critical resource—Resource-Based View—requires strategic oversight by a CAIO to ensure it is leveraged effectively for competitive advantage. Second, Strategic Leadership Theory posits that organizational outcomes—both strategies and effectiveness—are substantially influenced by the characteristics and actions of top executives ([Hambrick and Mason, 1984](#)). By positioning the CAIO close to the CEO or top executive team, the organization ensures that AI initiatives are directly influenced by leadership and fully integrated into the company's broader strategic vision. The CAIO should be positioned at the C-level, directly reporting to the CEO or equivalent top executive, to ensure that AI initiatives are fully aligned with the organization's strategic goals and effectively integrated into high-level decision-making processes.

Table 3: Comparative overview of selected C-suite roles

Dimension	CIO	CTO	CDO	CSO	CAIO
Domain Focus	IT operations	Emerging technologies	Digitization	Competitive strategy	AI Orchestration
Scope of Influence	Infrastructure	R&D, architecture	Digital processes	Corporate direction	Firm-wide strategic and operational change
Reporting Line	CEO or COO	CIO or CEO	CEO	CEO	CEO
Primary Objective	Reliable IT	Technology enablement	Digital delivery	Long-term strategic planning	AI strategy, integration, and governance
Temporal Horizon	Short to Medium	Medium	Medium to Long	Long	Medium to Long
Key Capabilities	IT management	Technical expertise	Change management	Strategic foresight	AI fluency, orchestration

5 Discussion

This paper responds to the growing need for conceptual clarity around the types of executive leadership required to govern, integrate, and strategically leverage artificial intelligence within organizations. By developing a meta-framework that links AI’s technological properties to institutional demands, I provide a theory of executive AI leadership that culminates in the design of the Chief AI Officer role.

5.1 Theoretical Contributions

This study offers the first comprehensive theoretical account of the Chief AI Officer (CAIO) as a distinct executive role within the top management team. It addresses a critical gap in the literature by systematically examining why and how AI leadership must evolve beyond existing C-suite roles. While prior research has examined the evolving responsibilities of CIOs, CTOs, and CDOs, this paper is the first to systematically conceptualize the CAIO and articulate the environmental, structural, and strategic pressures that necessitate its

emergence. In contrast to digital or IT leadership roles, the CAIO is theorized as a response to the unique affordances and constraints of artificial intelligence—technological properties that both enable new forms of value creation and introduce new forms of risk, uncertainty, and organizational complexity. The core theoretical contribution of this study is the development of the “CAIO Framework,” which links the affordances and constraints of artificial intelligence to five executive functions and their associated capabilities: (1) Strategy and Vision, (2) Value Creation, (3) Cross-Organizational Integration, (4) Change Leadership, and (5) Governance and Risk Management. These pillars collectively define the unique institutional logic of the CAIO and offer a foundation for future research on AI leadership, organizational design, and digital governance. Building on and synthesizing insights from the AI, strategy, and information systems literatures, this study reframes AI not merely as a functional tool, but as a general-purpose transformation driver that reshapes organizational design and competitive logic. In doing so, it extends foundational theories—such as the Resource-Based View, Strategic Alignment Model, and Stakeholder Theory—into the context of enterprise-wide AI integration. The CAIO is theorized as a meta-executive—a role uniquely positioned to orchestrate AI capabilities across business units, align initiatives with long-term strategic priorities, and ensure responsible deployment at scale. Finally, this study argues that the CAIO should hold formal C-level status with a direct reporting line to the CEO, embedding AI strategy and accountability at the highest level of organizational decision-making. Given the transformative impact of AI, advocating for the highest possible placement of the CAIO is not merely a structural decision—it is a strategic imperative. This configuration is essential for navigating the complexities of AI integration and leveraging its full potential as a source of sustained competitive advantage. This study’s theoretical analysis, supported by illustrative examples from emerging CAIO roles across sectors, suggests that *the CAIO should be positioned at the C-level, reporting directly to the CEO or equivalent institutional authority in the organization.* This structure ensures that AI initiatives are fully aligned with the organization’s strategic goals and are effectively integrated into high-level

decision-making processes.

5.2 Managerial Implications

The strategic integration of AI within organizations depends on several factors, including company size, maturity, industry, the centrality of AI to the business model, and existing leadership capabilities. It is often not technology but organizational culture that poses the greatest barrier to AI integration. Thus, CAIO must have the authority and resources necessary to oversee AI technologies across the organization, ensuring AI is leveraged as a strategic asset. This includes a direct reporting line to the CEO of the organization. The CAIO should focus specifically on leveraging AI to drive business value. This includes developing AI strategies, managing AI projects, and integrating AI into various business processes. The CAIO needs a deep understanding of AI technologies and their practical business applications, which can be quite distinct from the traditional IT functions overseen by a CIO. In fact, the IT function needs to provide a robust foundational infrastructure and harmonized databases to facilitate organization wide AI capabilities. In larger organizations, where AI initiatives are numerous and complex, a dedicated CAIO can manage these effectively, ensuring integration across various functions and alignment with strategic objectives. For SMEs, the role of a CAIO might be integrated into another executive role due to resource constraints. However, also in smaller organizations, appointing a dedicated manager to oversee AI initiatives can provide critical strategic benefits. In AI startups, the CEO or CTO often takes on the responsibilities typical of a CAIO, especially in early stages. This is because startups generally have more fluid roles, and the leaders are inherently involved in integrating AI into the company's products or services. As the startup grows, the need for specialized roles can emerge. The CEO might still oversee AI strategies but could delegate specific AI-focused tasks to newly created positions or departments as the operational demands increase. For startups where AI is the core product or service, having the CEO act as the CAIO can be a strategic advantage. It ensures that the highest level of the company is directly engaged with its

main value proposition, maintaining a tight alignment between AI capabilities and business objectives. Looking ahead, the Chief AI Officer will be key in guiding organizations towards becoming fully autonomous entities. This forward-looking role involves orchestrating an AI-driven enterprise where systems and processes function independently and efficiently, driven by advanced algorithms and machine learning. The CAIO will be essential in embedding AI deeply within the organizational framework, ensuring that AI initiatives align with strategic business objectives and operate with minimal human oversight. Beyond managing technological advancements, the CAIO will also spearhead cultural shifts within the organization, fostering an environment that adapts to and supports an autonomous operational model. In this prospective scenario, as organizations evolve into AI-centric enterprises, the role of AI leadership is likely to become more distributed across various levels of the organization. In environments like fully automated factories, tech-focused executives will become increasingly vital, primarily concentrating on strategy and governance. In both the present and the future contexts, the role of AI leadership must address the Three Pillars of AI-driven Value Generation: Operational Excellence, Innovation and Disruption, and Human Experiences, while ensuring regulatory compliance. This represents a challenging balancing act that demands robust leadership capable of navigating the complexities associated with integrating these dimensions to drive organizational success.

5.3 Research Agenda

The emergence of AI as a strategic force necessitates deeper conceptual engagement with leadership structures at the top of the organization. While this paper offers a first step toward theorizing the Chief AI Officer, future research should examine how the institutionalization of such roles varies across industries, organizational cultures, and regulatory environments. As the integration of AI deepens, understanding its leadership implications will become essential.

Building on the framework developed in this study, several research avenues emerge.

First, empirical studies could investigate how firms define and operationalize the CAIO role in practice—focusing on role expectations, authority structures, and integration with existing C-suite positions. Second, cross-national and cross-sectoral comparisons may reveal important variation in how AI leadership is framed, especially in highly regulated or innovation-driven contexts. Third, longitudinal research could explore how the CAIO role evolves over time as AI capabilities mature and strategic priorities shift. Finally, future work could examine the interplay between human-AI collaboration at the executive level, including how CAIOs interact with algorithmic decision systems and AI-augmented strategic processes. Future research should address the following:

- Examining how AI adoption affects corporate dynamics and employee interactions, and identifying strategies CAIOs can use to foster a culture that embraces technological change while maintaining employee engagement and morale in automated workplaces.
- Investigating the dynamics between human and AI decision-making, exploring optimal collaboration models, and determining the appropriate level of AI autonomy in strategic decisions. Specifically, who decides what is relevant: people, artificial intelligence, or a combination of both ([Faggioli et al., 2024](#))?
- Exploring the ethical challenges of deploying AI in business, with a focus on how AI leaders can ensure responsible AI use. This includes developing universal ethical guidelines and frameworks for AI across industries ([Marabelli and Chan, 2024](#)).

The information systems, AI, and strategy communities bear significant responsibility for guiding the integration of AI and addressing its utopian and dystopian implications ([Chatterjee and Sarker, 2024](#)). It is imperative that these communities' steps forward, not only as innovators but as stewards, to ensure that AI is deployed responsibly. This leadership role involves participating in the formulation of policies and educating stakeholders about both the potential and the pitfalls of AI. The objective is clear: to harness the power of AI

in a way that amplifies human potential and addresses societal challenges. In doing so, the IS, strategy, and AI/ML communities can shape a future where AI acts as a catalyst for positive change, enriching lives while safeguarding the values that define our society.

6 Conclusion

AI strategy, governance, and operations have become foundational to modern organizations, demanding new forms of executive leadership. This paper positions the Chief AI Officer (CAIO) as a distinct and necessary C-suite role, emerging in response to environmental, structural, and strategic pressures that existing executive functions are ill-equipped to address. By developing the CAIO Framework, the paper offers a theory-driven model that links AI's unique affordances and constraints to five core executive functions: strategy, value creation, integration, change leadership, and governance. This framework clarifies why AI leadership cannot remain fragmented or be absorbed by traditional roles; it requires a dedicated executive mandate. As AI continues to reshape economies, industries, and organizational decision-making, the CAIO will play a central role in navigating this transformation. Embedding AI leadership at the executive level is no longer optional. It is a strategic imperative for future-ready organizations.

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Appendix A: CAIO Appointments and Responsibilities

Public and private organizations worldwide are increasingly recognizing the need for AI leadership. This appendix presents illustrative examples of high-level AI leadership roles across sectors, industries, and regions. The examples were compiled through a targeted review of company websites, press releases, and public reports, focusing on roles with strategic and operational responsibilities such as Chief AI Officer, Global Head of AI, and Director of AI. While the emphasis is on CAIOs, select roles like the Senior Vice President of Microsoft AI and the UAE's Minister of State for AI are included to reflect the broader evolution of institutional AI leadership. These examples are provided to support the practical relevance of the CAIO Framework developed in this paper.

Table 4 provides examples of companies across various industries that have established dedicated AI leadership roles, such as Chief AI Officers or equivalent positions, clearly illustrating the growing recognition of the importance of AI at the executive level.

The CAIO role spans various industries, including technology, consulting, insurance, e-commerce, financial services, and government sectors. The timeline of appointments shows a growing recognition of AI leadership roles, with early adopters in 2017 (public sector) and 2021 (private sector) and more recent appointments in 2024, highlighting the increasing strategic importance of AI in organizations. Notably, these roles have been established predominantly in the past years, with a strong acceleration in 2023 and 2024. The examples represent a global adoption of AI leadership, with entities from the Americas, EMEA (Europe, Middle East, and Africa), and APAC (Asia-Pacific) regions, indicating a widespread acknowledgment of its importance across different regions. A common theme among CAIO roles is the integration of AI into core strategic frameworks, with organizations embedding AI in their overall strategy, aligning AI initiatives with business goals, and driving innovation and efficiency. Many Chief AI Officers are tasked with improving operational efficiencies and enhancing customer experiences, including developing AI tools for productivity, supporting operations, and providing customer support. Ensuring responsible AI practices and governance is a priority for several organizations, reflecting the need for ethical guidelines and compliance in AI technologies. The role also often involves collaboration across various stakeholders, including internal teams, external partners, and government agencies, highlighting the interdisciplinary nature of AI leadership.

Table 4: Examples of Existing CAIO Positions and Responsibilities

Organization	Industry	Position Title	Year	Responsibilities
UAE Government	Government	Minister of State for Artificial Intelligence	2017	Enhancing government performance with AI, shaping policy, fostering growth, improving well-being
US Department of State	Government	Chief Data and AI Officer	2020	Leading data governance, advancing analytics, modernizing infrastructure, fostering a data culture
IBM	Technology	Global Chief AI Officer	2021	Developing AI strategy, managing AI teams, ensuring ethics, leading education, stakeholder collaboration
eBay	E-commerce	Chief AI Officer	2021	Developing AI tools, driving AI strategy, implementing responsible AI, fostering skills, external partnerships
Accenture	Consulting	Chief AI Officer	2023	Leading AI strategy, working with tech leaders, shaping talent, fostering innovation and governance
DELL	Technology	Chief AI Officer	2023	Optimizing operations, managing AI adoption, ensuring quality, promoting innovation, aligning leadership
Government of Singapore	Government	Chief AI Officer	2023	Leading national AI efforts, implementing AI strategy, coordinating multi-stakeholder initiatives
Fidelity National Financial	Finance	Chief AI Officer	2024	Enhancing operations, improving customer experience, maximizing AI, ensuring governance and strategy
Munich Re	Insurance	Group Chief Data and AI Officer	2024	Exploring AI risks and opportunities, improving efficiency, supporting innovation, managing resilience
NASA	Government	Chief AI Officer	2024	Aligning strategic vision, championing AI innovation, guiding responsible use, managing risk
Microsoft	Technology	EVP and CEO, Microsoft AI	2024	Advancing AI products and research, managing teams, building partnerships, integrating AI strategy
SAP	Technology	Chief AI Officer	2024	Steering AI and cloud direction, reorganizing operations, driving growth, exploiting synergies
US Department of Defense	Government	Chief Digital and AI Officer	2024	Integrating AI capabilities, accelerating adoption, enabling infrastructure, securing national interests