HYBRID UPPER ECHELONS: A THEORIZING REVIEW ON AI IN EXECUTIVE DECISION-MAKING

Completed Research Paper

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Abstract

Artificial intelligence (AI) increasingly participates in strategic decision-making, challenging leadership theories that assume human agency at the top of organizations. Yet research on AI-enabled decision-making and upper echelons theory (UET) has largely evolved in parallel. We conduct a concept-centric literature review integrating management and information systems (IS) research to examine how AI affects executive decision-making. Our analysis identifies three mechanisms through which AI reconfigures UET: cognition reconfiguration through the mediation of information and attention, evaluation reconfiguration through the partial substitution of human judgment with algorithmic decision logic, and discretion reconfiguration through the delegation and embedding of decision authority. AI expands analytical capacity while introducing new constraints, shapes how alternatives are evaluated, and redistributes managerial discretion. We introduce the concept of hybrid upper echelons to explain how human and algorithmic actors jointly influence strategic outcomes, showing that executive influence increasingly shifts from making decisions to configuring and governing AI-enabled decision processes.

Keywords: Artificial Intelligence, Upper Echelons Theory, Executive Decision-Making.

1 Introduction

Artificial intelligence (AI) has begun to shape executive decision-making, challenging leadership theory built on the assumption of human agency at the top of organizations. While early applications of AI focused on automating routine or analytical tasks (Harris & Davenport, 2005), its capabilities now extend to strategic domains, including forecasting, resource allocation, and board deliberations (Cheng et al., 2021; Jorzik et al., 2023). The appointment of an AI system to the board of a Hong Kong venture capital firm in 2014 (Shekshnia & Yakubovich, 2025) symbolized this shift and marked the entry of AI into the highest levels of corporate governance. This development is consequential because AI may alter where strategic influence resides. When AI helps generate, prioritize, or evaluate strategic alternatives, organizational outcomes may no longer reflect only executives' experience, values, and judgment, but also the design, training, and governance of AI. These developments compel scholars and practitioners to reconsider how executives work by examining the mechanisms under which AI can act as an assistant, collaborator, or co-leader (Bevilacqua et al., 2025).

This shift creates both a theoretical and a practical challenge. Leadership theories, and upper echelons theory (UET) in particular, explain organizational outcomes as reflections of top executives' characteristics, cognition, and discretion (Hambrick & Mason, 1984). This logic presumes that the cognitive and evaluative mechanisms producing strategic choices reside within human decision-makers (Cheng et al., 2021). However, AI systems increasingly perform core decision functions such as generating alternatives, evaluating options, and structuring choices (Höddinghaus et al., 2021; Hossain et al., 2025; Shrestha et al., 2019). When these functions are partially delegated to AI, the mechanisms linking executives to organizational outcomes are no longer located solely within executives. Strategic

outcomes may therefore reflect not only executive characteristics, but also the data, models, and decision logics embedded in AI systems. Existing leadership theories, however, attribute these outcomes to executives (Hambrick & Mason, 1984; Parry et al., 2016; Pinski et al., 2024), creating a potential misattribution of causality when decision-making is co-produced by human and AI-based actors.

A complementary limitation exists in the IS literature. IS research has generated important insights into algorithmic decision-making and human-AI collaboration, but has primarily focused on task-level and operational decisions (Baird & Maruping, 2021; Murray et al., 2021). Strategic decisions at the executive and board level differ from these contexts because they are non-routine, ambiguous, and consequential, and because discretion and accountability remain concentrated at the top of the organization (Raisch & Krakowski, 2021). As a result, existing IS research explains how AI affects decisions within organizations (Collins et al., 2021), but not how AI reshapes executive influence and the production of organizational outcomes. The literature lacks a conceptual framework for understanding strategic outcomes when decision-making is co-produced by human and algorithmic actors at the top of organizations.

Taken together, these arguments point to a more fundamental problem concerning the locus of strategic influence in organizations. UET assumes that organizational outcomes can be explained as reflections of top executives because the mechanisms producing strategic choices, such as cognition, evaluation, and discretion, are located within executives (Hambrick, 2007; Hambrick & Mason, 1984; Pinski et al., 2024). In contrast, IS research has shown that decision-making can be delegated to, embedded in, and shaped by technological systems, and that organizational decisions increasingly emerge from human-AI configurations rather than from individuals alone (Baird & Maruping, 2021). However, these largely independently developed perspectives collide: if strategic decisions are co-produced by human executives and AI systems, it becomes unclear whether organizational outcomes should be attributed to executives, to AI systems, or to how cognition, evaluation, and discretion are distributed between them. This matters because when AI participates in strategic decisions, it becomes unclear who is responsible for strategic outcomes and whether firm performance can still be attributed to executives alone.

To address this problem, we conduct a concept-centric literature review to develop the concept of hybrid upper echelons (Webster & Watson, 2002). A literature review is appropriate because the problem we identify is conceptual rather than empirical: it concerns the mechanisms through which organizational outcomes are produced when strategic decision-making is co-produced by human executives and AI systems. Our review integrates two literature streams that explain complementary aspects of this problem. UET explains how organizational outcomes are produced through executive cognition, evaluation, and discretion, thereby providing a theory of strategic influence (Bevilacqua et al., 2025). In contrast, the IS literature explains how decision-making can be performed by and distributed across human-AI configurations (e.g., Baird & Maruping, 2021; Murray et al., 2021), thereby providing a theory of socio-technical decision-making. We combine these perspectives by examining how AI reshapes the mechanisms through which executives influence strategic choices and by conceptualizing these changes as *hybrid upper echelons*: socio-technical decision structures in which strategic choices are co-produced by human executives and AI systems.

As a result, we develop the concept of hybrid upper echelons to explain how organizational outcomes are produced when strategic decision-making is co-produced by human executives and AI systems. Our findings show that AI restructures the decision process itself. In hybrid upper echelons, AI systems influence which strategic alternatives are generated, how these alternatives are evaluated, what information executives attend to, and how decisions are justified and implemented. Executive influence shifts from making strategic choices directly to shaping the decision processes through which these choices are produced, including the configuration of option generation, evaluation criteria, attention structures, and intervention rights (Bevilacqua et al., 2025; Keding & Meissner, 2021). Organizational outcomes consequently reflect not only executive characteristics, as assumed in UET (Hambrick & Mason, 1984), but the socio-technical configuration through which strategic decisions are generated and selected. By theorizing this shift, we advance UET by relocating executive influence from individual-level cognition and discretion to the design and governance of decision processes, and we contribute to

IS research by explaining how AI participation at the executive level reshapes the mechanisms through which strategic decisions and organizational outcomes are produced.

2 Theoretical Background

Understanding how AI reshapes executive decision-making requires reconsidering where strategic influence resides in organizations. We argue that existing theories mislocate this influence because they assume that the mechanisms producing strategic choices reside within human actors. This assumption becomes problematic as AI systems increasingly perform core decision functions. Explaining strategic outcomes under these conditions, therefore, requires integrating upper echelons theory (UET), which explains executive influence, with IS research on socio-technical decision systems, which explains how decision-making is distributed across human and algorithmic actors.

Upper Echelons Theory. UET explains organizational outcomes as reflections of top executives because it locates the mechanisms that produce strategic choices, cognition, evaluation, and discretion, within human actors (Hambrick & Mason, 1984). Executives` experiences, values, and cognitive frames systematically shape strategic choices and performance, implying that firms mirror their leaders. Because these mechanisms are not directly observable, UET relies on demographic characteristics such as age, education, functional background, and tenure as proxies for underlying cognitive orientations (Carpenter et al., 2004). Empirical studies have linked these attributes to a wide range of firm-level outcomes, including innovation, diversification, internationalization, and performance (Finkelstein & Hambrick, 1990; Nielsen, 2010)

Subsequent research has refined this perspective by incorporating psychological and behavioral dimensions. Studies on executive personality, such as narcissism, hubris, and overconfidence, have demonstrated how stable psychological traits shape risk-taking, acquisitions, and strategic change (Chatterjee & Hambrick, 2007; Chatterjee & Hambrick, 2011; Herrmann & Nadkarni, 2014; Neely et al., 2020). Unlike demographic indicators, these traits emphasize the subjective, emotional, and socially embedded nature of executive decision-making. With this more nuanced view of the cognitive and psychological mechanisms, research has also begun to acknowledge contextual factors that moderate how much influence executives actually have. A key contingency is the level of managerial discretion (Hambrick, 2007). UET argues that executive influence is more pronounced in high-discretion environments, where managers have greater latitude to make strategic choices, and weakest in heavily regulated or low-discretion settings (Finkelstein & Hambrick, 1990; Hambrick, 2007). These extensions add nuance to UET, but they do not alter its core architecture: strategic outcomes are produced by human cognition operating within contextual constraints.

AI in Managerial Decision-Making. In contrast to UET's human-centered view, IS research conceptualizes AI systems as actors that perform and shape decision processes. AI refers to computational systems capable of performing tasks that traditionally required human intelligence, including pattern recognition, prediction, and decision support (Berente et al., 2021). In organizational contexts, AI systems are increasingly used to analyse large datasets, generate forecasts, and recommend strategic actions (Raisch & Krakowski, 2021; Shrestha et al., 2019). As these systems become embedded in managerial workflows, they influence how decision-makers interpret information and evaluate strategic alternatives.

Within IS research, these systems are often conceptualized as agentic artifacts, meaning technological systems capable of performing actions that influence organizational outcomes (Baird & Maruping, 2021). Agency in this context does not imply human-like intentionality but refers to the capacity of technological systems to produce outputs that shape human decision processes (Murray et al., 2021). AI systems, therefore, not only participate in but increasingly perform core decision functions in organizational decision-making by structuring information flows, expanding the set of alternatives considered by decision-makers, and influencing how strategic choices are evaluated. Unlike prior information systems, AI systems do not merely support decision-making but increasingly perform core decision functions, including inference, prediction, and evaluation, thereby partially substituting for human cognition in strategic contexts (Shrestha et al., 2021; Verganti et al., 2020).

At the same time, AI systems are not purely non-human decision agents. Their behavior is shaped by human design choices, training data, and governance structures, which embed human assumptions and biases into these systems (Gurkan & Njoki, 2025; Höddinghaus et al., 2021). Consequently, AI systems combine computational properties, such as large-scale data processing and statistical inference, with anthropocentric characteristics derived from human data and design decisions. This dual nature suggests that AI systems should be understood as socio-technical actors within organizations. Their influence on decision-making emerges from the interaction between algorithmic capabilities and human interpretation, supervision, and governance.

Human-AI Decision Systems and Implications for UET. Together, these perspectives suggest that strategic decision-making is no longer located within individual executives but emerges from hybrid human-AI decisison systems. AI systems expand analytical capabilities by processing large volumes of data and identifying patterns beyond human cognitive capacity (Davenport & Ronanki, 2018; Wesche & Sonderegger, 2019). At the same time, their outputs depend on training data, model architectures, and optimization objectives, which introduce new forms of constraint and bias into decision processes (Shrestha et al., 2019; Teodorescu et al., 2021).

As a result, strategic decision-making increasingly emerges from interactions between human executives and algorithmic systems rather than from individual decision-makers alone. Executives interpret algorithmic outputs, determine how much authority to delegate to AI systems, and design governance mechanisms that regulate algorithmic influence (Garbuio & Lin, 2021; Verganti et al., 2020). In this sense, AI systems reshape how executive cognition, discretion, and influence are exercised. Table 1 contrasts the human-centered assumptions of UET with the socio-technical characteristics of AI-based decision systems.

UET Assumptions (Human-Centered Foundations)	**AI Specifications (Socio-Technical Foundations)**
I Agency and Attributes	
Executive attributes: Behavior is shaped by demographic, psychological, and subjective traits (e.g., experience, emotion, preference).	Algorithmic attributes: Behavior is defined by algorithmic architecture, model design, and training data. Because choices regarding these aspects originate from human activity, algorithmic behavior may also reproduce human traits.
II Rationality and Constraints	
Bounded Rationality: Constraints stem from mental limitations, cognitive biases, emotional variance, and information-processing overload.	Computational Boundedness Constraints stem from data quality, algorithmic design, and predefined search spaces. These constraints can introduce human biases and institutional logics.
Human Decision Logic: Decisions rely on intuition, judgment, and subjective interpretation.	Algorithmic Decision Logic: Decisions follow computational optimization and formalized rules, which must still be interpreted or validated by human decision-makers.
III Strategic Role and Authority	
Managerial Discretion: Strategic authority is tied to human agency, with executives as the ultimate decision source.	Delegated Discretion: Strategic authority is partially or fully delegated to algorithmic systems as decision actors.

Table 1. Contrasting Human-Centered and Socio-Technical Foundations of Strategic Decision-Making.

Together, these perspectives reveal a fundamental mismatch between UET's human-centered assumptions and the socio-technical reality of AI-augmented decision-making. UET locates cognition,

evaluation processes, and discretion within individual executives, whereas AI systems increasingly perform decision functions, embed decision logics, and structure authority within organizations. As a result, executive influence can no longer be understood as residing solely within individuals but must be examined as emerging from interactions between human and algorithmic elements. This paper addresses this gap by re-specifying UET as a socio-technical theory of executive influence, providing a framework for understanding how strategic outcomes are produced in human-AI decision systems.

3 Method

This study adopts a concept-centric literature review to examine how AI reshapes the foundational assumptions of UET. Concept-centric reviews organize prior research around theoretical constructs rather than individual studies and are particularly appropriate when knowledge on a phenomenon is fragmented across multiple research streams (Webster & Watson, 2002). Consistent with knowledge-development perspectives on literature reviews, this approach synthesizes dispersed insights to refine theory by integrating findings into a coherent conceptual framework (Schryen et al., 2020). Accordingly, our review combines systematic literature identification with concept-driven synthesis to examine how AI influences executive decision-making and how these developments reconfigure the core constructs of UET. To ensure transparency, reproducibility, and rigor, we followed established systematic review procedures and reporting standards consistent with PRISMA recommendations (Moher et al., 2009; Page et al., 2021).

Review Design and Scope. The scope of the review was defined to capture scholarly work explicitly linking AI to executive or top management decision-making. Our focus was on peer-reviewed publications that discuss AI's role in strategic or leadership contexts rather than operational or purely technical applications. The temporal window spans 1997 to June 2025, to ensure comprehensive coverage while capturing the rise of modern machine learning and generative models that increasingly influence executive work (Borges et al., 2021; Collins et al., 2021). The search was conducted in July 2025 and included all available publications up to June 2025.

We searched three databases: Web of Science, Scopus, and the AIS eLibrary. These sources collectively ensure coverage of the major IS, management, and strategy journals. To ensure conceptual rigor, we restricted our corpus to 157 journals and conferences that meet two criteria: (1) inclusion in either the Financial Times 50 list or the VHB A+/A/B ranking[1], and (2) direct relevance to management, strategy, or information systems. The search also included the conference proceedings of ICIS and ECIS, which are recognized as leading venues for the early dissemination of theoretical research on digital technologies[2].

The search combined two concept domains: (1) executive or leadership decision-making and (2) AI. We applied Boolean search strings using combinations of executive/leadership-related terms and AI-related terms. The full search string that was used is as follows: *TITLE-ABS-KEY (("Top Management" OR "Executive" OR "Leadership" OR " Upper Echelons" OR "UET" OR "Senior" OR "CEO" OR "TMT" OR "C-Suite") AND ("AI" OR "Artificial" OR "Agentic" OR "Autonomous" OR "Cognitive" OR "Machine Learning" OR "Algorithm*" OR "Generative AI" OR "GenAI" OR "Automation"))*. Searches were limited to English-language publications. Duplicates across databases were removed before screening.

[1] The VHB-JOURQUAL ranking is a journal ranking issued by the German Academic Association for Business Research (Verband der Hochschullehrer für Betriebswirtschaft, VHB), widely used in the German-speaking academic community to evaluate the perceived quality of journals in business and management research, similar in purpose to the FT50 list in the US context. In this study, we used VHB-JOURQUAL 3 (2024) and included journals from the *Information Systems* and *Strategic Management* sub-rankings, as these domains most directly address executive decision-making and digital technologies.

[2] Conference proceedings were limited to the period from 2020 to 2025 to capture recent theoretical developments in a rapidly evolving domain while avoiding duplication with earlier work that has often since appeared in journal form. This decision reflects the accelerated publication cycles of AI research, where conferences frequently serve as the first outlet for new conceptual developments.

The screening process followed established PRISMA guidelines (Moher et al., 2009; Page et al., 2021). After removing duplicates, 1,444 unique records were identified. Screening occurred in three stages: title, abstract, and full-text review. Two authors independently screened the records at each stage, and disagreements were resolved through discussion and iterative comparison until consensus was reached. Studies were included if they (1) explicitly examined AI in executive or top management decision-making, (2) contained organizational-level constructs related to leadership, discretion, cognition, or team composition, and (3) provided conceptual or empirical insights relevant to UET. Studies were excluded if they were purely technical, focused on operational decision support, or lacked organizational relevance. The process resulted in 38 retained studies. A PRISMA flow diagram summarizing inclusion and exclusion steps is provided in Figure 1

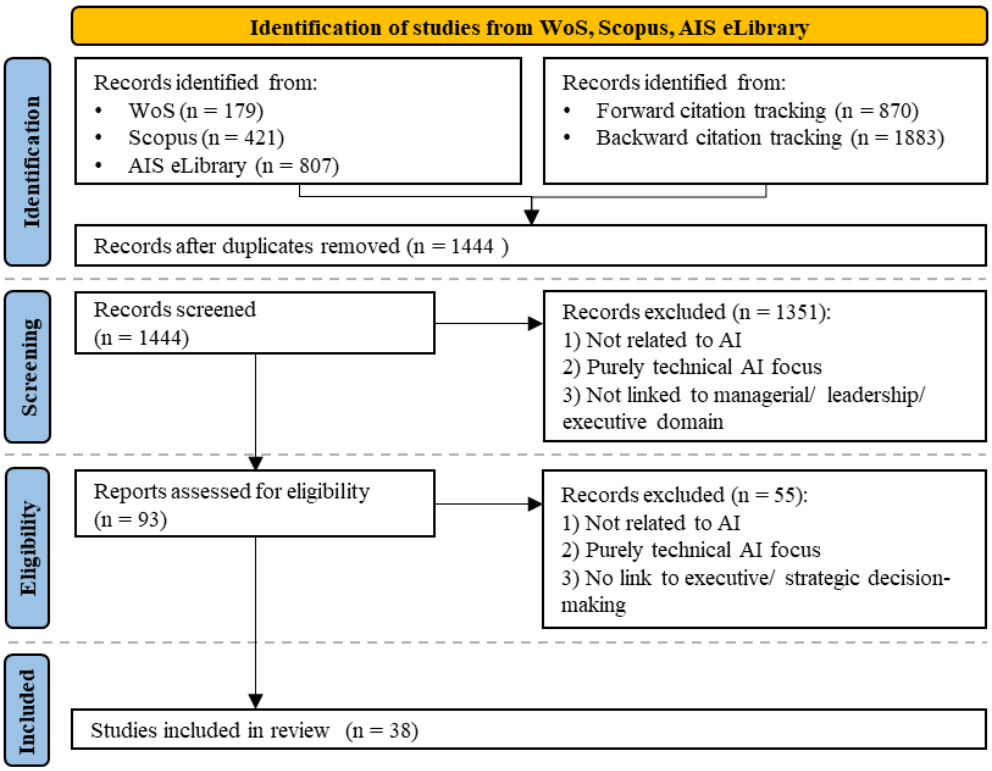

Figure 1. Study selection process (adopted from Moher et al. (2009)).

Coding Strategy. The final corpus formed the basis for our conceptual synthesis. We used a two-lens coding approach. The first lens captured AI characteristics, including the type of AI technology and its decision role. Decision roles were coded as assistant when AI provided analytical input while humans retained authority, collaborator when AI and humans jointly influenced decisions, and autonomous leader when AI executed decisions or exercised delegated authority. These codes were developed inductively from the data, informed by prior work on algorithmic agency (Baird & Maruping, 2021; Murray et al., 2021). The second lens captured how each study engaged with core UET assumptions, including executive attributes, bounded rationality, demographics as proxies, personality, top management team composition, and managerial discretion. Multiple codes were assigned when studies addressed more than one UET assumption. Coding combined deductive categories derived from UET with inductive refinement as new themes emerged (Vom Brocke et al., 2015; Webster & Watson, 2002). Two authors independently screened and coded the articles, and discrepancies were resolved through iterative comparison until consensus was reached. Following coding, studies were clustered by UET construct and AI role, and thematic patterns were derived through constant comparison.

4 Results

The reviewed studies show that AI systematically reshapes the mechanisms through which UET explains strategic outcomes. Rather than affecting isolated constructs, AI intervenes through three recurring mechanism types: mediation of executive cognition, substitution in the evaluation of strategic alternatives, and delegation of decision authority. Table 2 summarizes how these mechanisms operate across key UET constructs.

UET Construct	AI Role	Emerging Patterns (Derived from Results)		Underlying Mechanisms
(1) Executive Imprinting	• Assistant • Collaborator • Leader	Algorithmic mediation and partial substitution of executive imprinting through data, models, and governance structures.	e.g., Parry et al. (2016); Shrestha et al. (2019); Verganti et al. (2020); Murray et al. (2021)	Cognition Reconfiguration through **Mediation**
(2) Bounded Rationality	• Assistant • Collaborator	Expanded analytical capacity coupled with algorithmic constraints (opacity, bias, data dependency)	e.g., Cheng et al. (2021); Garbuio and Lin (2021); Teodorescu et al. (2021); Iftikhar et al. (2024)	
(3) Demographic Proxies/ Attributes	• Assistant • Collaborator • Leader	Emergence of algorithmic attributes (data, models, provenance) as additional drivers of strategic cognition	e.g., Shrestha et al. (2021); Grenier Ouimet and Addas (2022); Jorzik et al. (2023); Ghasemaghaei and Kordzadeh (2025)	Evaluation Reconfiguration through **Substitution**
(4) Personality	• Collaborator • Leader	Engineered behavioral profiles shaping risk orientation and decision tendencies	e.g., Parry et al. (2016); Garbuio and Lin (2021); Höddinghaus et al. (2021); Guggenberger et al. (2023)	
(5) TMT Composition	• Collaborator	Integration of AI as an active participant in hybrid decision-making teams	e.g., Shrestha et al. (2019); Baird and Maruping (2021); Höddinghaus et al. (2021); Zercher et al. (2023)	Discretion Reconfiguration through **Delegation**
(6) Managerial Discretion	• Assistant • Collaborator • Leader	Simultaneous expansion and constraint of discretion through delegation and embedded decision logics	e.g., Wesche and Sonderegger (2019); Raisch and Krakowski (2021); Jussupow et al. (2024); Lippert (2024)	

Table 2. Empirical Patterns Linking AI Roles to UET Constructs in Executive Decision-Making.

The three underlying mechanisms through which AI reshapes executive decision-making cut across individual constructs and describe how executive influence shifts from an individual-level phenomenon toward a socio-technical process.

4.1 Cognition Reconfiguration through Mediation

AI reshapes executive cognition by mediating how information is structured, interpreted, and acted upon. This mechanism is most evident in research on bounded rationality and executive imprinting.

UET conceptualizes executives as boundedly rational decision-makers who rely on selective perception, heuristics, and cognitive simplifications (Hambrick & Mason, 1984; Hiller & Hambrick, 2005; Ocasio, 1997). The reviewed studies show that these cognitive processes are increasingly mediated by AI systems. As assistants or collaborators, AI systems expand information-processing capacity, generate decision alternatives, and filter information, thereby influencing what executives attend to and how they interpret it (Cheng et al., 2021; Garbuio & Lin, 2021; Giraud et al., 2023; Verganti et al., 2020). At the same time, they introduce new constraints through data dependencies, opacity, and algorithmic bias (Flathmann et al., 2023; Ghasemaghaei & Kordzadeh, 2024; Iftikhar et al., 2024; Teodorescu et al., 2021).

These findings suggest that bounded rationality is no longer solely located in human cognition but emerges from the interaction between human judgment and algorithmic mediation. Executives increasingly engage in interpreting, validating, and contextualizing algorithmic outputs rather than generating all decision inputs independently (Garbuio & Lin, 2021; Verganti et al., 2020).

A similar pattern appears in executive imprinting. Organizational outcomes have traditionally been linked to executives' values and cognitive frames (Finkelstein & Hambrick, 1990; Hambrick & Mason, 1984). AI systems increasingly mediate this imprinting process by embedding decision logics through model design, training data, and delegation structures (Baird & Maruping, 2021; Parry et al., 2016; Shrestha et al., 2019; Verganti et al., 2020). In some cases, algorithmic recommendations redirect executive judgment or reshape how strategic alternatives are evaluated (Keding & Meissner, 2021; Murray et al., 2021).

Together, these findings suggest that executive cognition becomes a mediated, socio-technical process.

4.2 Evaluation Reconfiguration through Substitution

AI reshapes how strategic alternatives are evaluated by partially substituting human judgment with algorithmic decision logic. UET explains strategic variation through executive attributes, typically captured via demographic proxies and psychological traits (Carpenter et al., 2004; Chatterjee & Hambrick, 2007; Nielsen, 2010). The reviewed studies suggest that human attributes are increasingly complemented and partially substituted by algorithmic attributes.

AI systems introduce characteristics, such as training data, model architecture, and optimization criteria, which influence how alternatives are generated and evaluated (Ghasemaghaei & Kordzadeh, 2025; Grenier Ouimet & Addas, 2022; Shrestha et al., 2021). Training datasets define the knowledge base and embedded biases of AI systems (Shrestha et al., 2021), while model design determines how information is processed and weighted (Jorzik et al., 2023). These attributes shape the criteria and logic through which decisions are assessed.

Similarly, research on executive personality highlights how traits such as narcissism and overconfidence influence strategic outcomes (Chatterjee & Hambrick, 2007; Herrmann & Nadkarni, 2014; Petrenko et al., 2016). The reviewed studies suggest that AI systems can exhibit engineered behavioral profiles, where design choices influence risk tolerance, responsiveness, and decision tendencies (Garbuio & Lin, 2021; Parry et al., 2016; Verganti et al., 2020). These profiles require ongoing supervision, auditing, and recalibration to ensure alignment with organizational goals (Baird & Maruping, 2021; Guggenberger et al., 2023).

Importantly, these algorithmic attributes are not independent of human influence but reflect human design and data inputs (Ghasemaghaei & Kordzadeh, 2025). Thus, evaluation becomes a hybrid process in which human and algorithmic logics jointly determine strategic choices.

These findings suggest that evaluation of strategic alternatives is increasingly shaped by substitution between human judgment and algorithmic decision logic.

4.3 Discretion Reconfiguration through Delegation

AI reshapes managerial discretion by enabling the delegation and embedding of decision authority in technological systems. UET conceptualizes managerial discretion as the latitude executives possess to

influence strategic outcomes (Finkelstein & Hambrick, 1990; Hambrick, 2007; Wangrow et al., 2015). The reviewed studies demonstrate that AI both expands and constrains this discretion by redistributing authority across human and algorithmic actors.

AI expands discretion by increasing information availability and generating strategic alternatives (Garbuio & Lin, 2021; Parry et al., 2016; Shrestha et al., 2021). At the same time, it constrains discretion through embedded decision logics, standardization, and reliance on algorithmic recommendations (Lippert, 2024; Raisch & Krakowski, 2021; Wesche & Sonderegger, 2019). In some cases, reliance on AI systems leads to reduced intervention by human decision-makers (Keding & Meissner, 2021; Klingbeil et al., 2024).

These dynamics are particularly visible in research on top management teams, where AI systems function as participants in decision-making processes, shaping coordination and trust dynamics (Baird & Maruping, 2021; Guggenberger et al., 2023). Hybrid human-AI teams introduce new interaction patterns, where trust, transparency, and contestability determine how algorithmic inputs are incorporated into decision-making (Höddinghaus et al., 2021; Raftopoulos & Hamari, 2023; Zercher et al., 2023).

As a result, executives increasingly shift from direct decision-making to system-level governance, where they design, supervise, and calibrate AI systems rather than making all decisions themselves (Baird & Maruping, 2021; Ötting & Maier, 2018).

These findings indicate that managerial discretion is increasingly delegated and embedded within socio-technical systems.

4.4 Synthesis: Toward Hybrid Upper Echelons

Together, these mechanisms reveal a fundamental shift in how UET explains strategic outcomes. Executive influence no longer operates solely through individual cognition, evaluation, and discretion but through socio-technical configurations in which these mechanisms are mediated, substituted, and delegated across human and algorithmic actors. Cognition becomes mediated by AI systems that structure information and attention, evaluation becomes partially substituted by algorithmic decision logics, and discretion becomes delegated and embedded in technological systems. We refer to this reconfiguration as hybrid upper echelons, in which strategic outcomes are co-produced by human executives and AI systems. This perspective shifts the focus of UET from explaining outcomes based on who executives are to understanding how human and algorithmic elements interact to shape strategic choices.

5 Discussion

This study advances UET by demonstrating that AI does not merely augment executive decision-making but alters the theory's underlying causal logic. While prior research shows that decision-making increasingly involves human-AI collaboration, this work remains largely descriptive (Keding & Meissner, 2021; Lippert, 2024). It establishes that decisions are "hybrid", but it does not explain how this hybridity reshapes the mechanisms linking executives to organizational outcomes (Zercher et al., 2023). We show that AI intervenes in the core mechanisms of UET and shifts their location from individual executives to socio-technical decision systems. Table 3 summarizes these shifts.

Level	UET Assumption	AI Intervention	Shift in the Location of the Mechanism	Configurational Explanation
Mechanism	Cognition resides within executives.	AI performs core decision functions (inference, evaluation) previously attributed to executives	Cognition shifts from individual-level processing to distributed human-AI systems	Outcomes are explained by **distributed cognition within a human-AI socio-technical configuration**

	Evaluation depends on human attributes	AI embeds decision logics through data, models, and training bias	Evaluation shifts from human traits to socio-technical attributes	Outcomes are explained by **socio-technical attributes (human + algorithmic)**
	Discretion is possessed by executives	AI structures and partially automates decision authority through embedded decision logics	Discretion shifts from individual latitude to system-level configuration	Outcomes are explained by **configured discretion within AI-enabled socio-technical systems**
Model	Strategic agency is human-centered	AI acts as a decision participant that generates and evaluates strategic options	Single-actor assumption underlying UET breaks	Outcomes are produced by **distributed agency across human and algorithmic actors**
	Unit of analysis is the executive / TMT	AI shifts decision-making to human-AI interaction systems	Individual-level explanation becomes insufficient to account for outcomes	Outcomes are explained at the level of the **socio-technical configuration**
	Causal logic is linear: traits → cognition → choices	AI introduces interaction, feedback loops, and embedded decision logics	Linear, individual-level causality between traits and outcomes breaks	Outcomes follow a **configurational, system-level causal logic**
'	**Implication for UET**	AI intervenes in core decision mechanisms	UET systematically misattributes the source of strategic outcomes if applied unchanged	UET requires reconceptualization as a **socio-technical theory of executive influence (hybrid upper echelons)**

Table 3. Reconfiguration of UET Assumptions on Mechanism and Model Level in AI-Augmented Contexts.

AI performs functions previously attributed to executives, embeds decision logics into technological systems, and redistributes decision authority. These interventions relocate the mechanisms through which executive characteristics influence outcomes. As a result, organizational outcomes no longer reflect executives alone but the socio-technical configurations through which decisions are produced. UET therefore requires reconceptualization as a socio-technical theory of executive influence, captured in the notion of hybrid upper echelons.

5.1 Mechanism-Level Reconfiguration

The theoretical break in UET originates at the level of its core mechanisms. UET assumes that cognition, evaluation, and discretion in decision-making processes operate as individual-level mechanisms that link executive characteristics to firm outcomes. Table 3 shows that AI relocates each of these mechanisms from individuals to socio-technical systems, invalidating their individual-level interpretation.

AI relocates cognition from an individual-level mediator to a distributed socio-technical process. UET assumes that executive cognition translates traits into strategic choices (Hambrick & Mason, 1984). However, when AI performs inference tasks, cognitive processing is no longer confined to the individual but distributed across human and algorithmic elements (Faraj et al., 2018; Murray et al., 2021). Bounded rationality, therefore, becomes a property of the socio-technical system rather than an individual constraint (Bevilacqua et al., 2025; Raisch & Krakowski, 2021).

Additionally, AI relocates evaluation from human attributes to socio-technical attributes. UET relies on demographic and psychological characteristics to approximate how executives evaluate alternatives (Carpenter et al., 2004; Chatterjee & Hambrick, 2007). When AI embeds decision logics through data,

models, and training processes, these proxies no longer capture the drivers of how decisions are evaluated (Ghasemaghaei & Kordzadeh, 2025; Shrestha et al., 2021). These attributes interact with human judgment, such that evaluation becomes a joint function of human and algorithmic elements. Lastly, AI relocates discretion from individual latitude to the system configuration. UET conceptualizes managerial discretion as the degree of freedom executives possess to shape strategic outcomes (Hambrick, 2007). When AI structures decision authority through embedded logics, discretion becomes partially delegated and embedded within technological systems (Baird & Maruping, 2021; Raisch & Krakowski, 2021). Executives remain accountable but exercise influence through configuring and governing these systems rather than directly making all decisions (Guggenberger et al., 2023).

Taken together, these mechanisms do not invalidate UET constructs but relocate their operation. Cognition, evaluation, and discretion continue to link executives to outcomes, but they do so through socio-technical configurations rather than purely individual processes.

5.2 Model-Level Reconfiguration

The relocation of mechanisms implies a reconfiguration of UET at the model level. As shown in Table 3, shifting cognition, evaluation, and discretion from individuals to systems alters UET's assumptions about agency, unit of analysis, and causal logic.

Strategic agency becomes distributed rather than exclusively human-centered. UET assumes that executives are the primary decision-makers whose characteristics shape outcomes (Hambrick & Mason, 1984). When AI generates and evaluates strategic alternatives, this assumption breaks. Strategic decisions emerge from interactions between human judgment and algorithmic processing, such that outcomes cannot be attributed to a single actor. Agency, therefore, becomes a property of interactions between human and algorithmic actors.

The unit of analysis correspondingly shifts from individuals to socio-technical configurations. UET explains firm outcomes at the level of executives or top management teams (Finkelstein & Hambrick, 1990; Hambrick, 2007; Hambrick & Mason, 1984). When the mechanisms of cognition, evaluation, and discretion are partially embedded in AI systems, this level becomes insufficient in AI-supported contexts (Bevilacqua et al., 2025). Strategic outcomes reflect the systematic arrangements in which human and algorithmic elements are combined, rather than who executives are. The relevant explanatory unit is therefore the configuration of human, technological, and organizational elements through which decisions are produced.

At the same time, the causal logic transitions from linear to configurational. Classical UET assumes a linear chain in which executive traits shape cognition, cognition shapes decisions, and discretion defines feasible actions (Hambrick & Mason, 1984). When mechanisms are distributed, this chain breaks because the human and technical components influence one another recursively (Raisch & Krakowski, 2021). Outcomes instead emerge from interactions among human judgment, algorithmic inference, and governance structures.

Taken together, these shifts redefine UET as a theory in which strategic outcomes are produced by configurations rather than individuals. This model-level reconfiguration completes the theoretical move initiated at the mechanism level and specifies how hybrid upper echelons replace the original causal logic of UET.

5.3 The Functional Role of AI

An important implication of our findings concerns the distinction between AI and prior information systems. Organizations have long been socio-technical, yet earlier technologies did not require a reconfiguration of UET.

The difference lies in the functional role of AI, in which it does not merely mediate decision-making but executes the very functions that UET assigns to executives. Traditional systems supported information processing and communication but did not perform the core decision-making (Harris &

Davenport, 2005; Wesche & Sonderegger, 2019). As a result, cognition, evaluation, and discretion remained located within individuals, even when technologically mediated.

AI differs because it performs core decision functions, including inference, prediction, and evaluation (Berente et al., 2021; Raisch & Krakowski, 2021). It also embeds decision logics through training data and model design, shaping how decisions are structured (Ghasemaghaei & Kordzadeh, 2024; Teodorescu et al., 2021). These capabilities mean that AI does not merely support decision-making but participates in and partially substitutes for it.

This substitution relocates the mechanisms of UET outside the individual. The theoretical shift arises not from digitization per se but from the functional role of AI in executing core decision functions previously attributed to executives.

5.4 Implications for Future Research

Re-specifying UET as a socio-technical theory shifts the central question from who executives are to how decision-making systems are configured**.** This shift has direct implications for how scholars evaluate decision quality, model discretion, and theorize executive influence. It also defines a research agenda that focuses on configurations as the primary unit of explanation.

One implication for future research concerns the decision quality that becomes a property of socio-technical configurations rather than individual cognition. In classical UET, variation in outcomes is attributed to differences in executive characteristics and cognitive limitations (Hambrick, 2007; Hambrick & Mason, 1984). Under hybrid upper echelons, variation arises from how human judgment and algorithmic inference are combined. This redefinition raises a central research question: under what conditions does distributed cognition improve decision quality versus amplify systematic error? AI expands analytical capacity but introduces bias, opacity, and data dependency (Ghasemaghaei & Kordzadeh, 2024; Teodorescu et al., 2021). Executives may calibrate, override, or defer to algorithmic outputs, but these responses depend on system design, including explainability, feedback mechanisms, and interface structure (Faraj et al., 2018; Orlikowski & Scott, 2008). Future research should therefore model decision quality as a function of configuration-level properties, such as transparency, contestability, and human-AI alignment, rather than as an outcome of individual capability alone.

A second implication relates to discretion that must be reconceptualized as a configured and governed property of systems, which alters how scholars theorize authority and accountability. In UET, managerial discretion reflects the latitude available to executives (Finkelstein & Hambrick, 1990; Wangrow et al., 2015). In hybrid upper echelons, discretion is partially embedded in algorithms that structure decision options, standardize processes, and guide action (Raisch & Krakowski, 2021). This creates a structural tension: executives remain accountable for outcomes but no longer fully control the decision processes that produce them (Jussupow et al., 2024). The theoretical implication is a decoupling of responsibility and control, which current models of discretion do not capture. This raises a second research question: how do organizations allocate and govern discretion across human and algorithmic actors? Addressing this question requires moving beyond individual-level constructs toward models that capture delegation, oversight, and intervention rights within socio-technical systems**.**

A third implication concerns attributes. The extension of attributes to socio-technical configurations shifts how scholars explain heterogeneity in strategic outcomes. UET traditionally relies on demographic and psychological proxies to capture executive characteristics (Carpenter et al., 2004; Chatterjee & Hambrick, 2007). Our findings show that algorithmic attributes, including training data, model architecture, and optimization criteria, function as parallel drivers of strategic cognition (Ghasemaghaei & Kordzadeh, 2025; Shrestha et al., 2021). This implies that variation in outcomes reflects not only who executives are but also how algorithmic systems are designed and trained**.** This raises questions about the interaction of human and algorithmic attributes and their co-evolution to shape strategic decisions. Emerging work on TMT AI literacy already suggests that executive capability lies partly in the ability to understand and govern these systems (Li et al., 2021; Pinski et al., 2024). Future research should therefore conceptualize attributes as joint properties of humans and AI and examine how their interaction produces different strategic trajectories.

Finally, moving executive influence into configurations challenges traditional notions of power and control. As outcomes become dependent on system design, influence may shift toward the architects and regulators of AI systems. Consequently, it becomes critical to examine who effectively directs strategic outcomes in hybrid decision systems and how control is allocated across both organizational and technological domains.

Taken together, these implications suggest avenues for future research to explain and govern hybrid upper echelons. Rather than asking how executive characteristics influence outcomes, future research must examine how configurations of cognition, attributes, and discretion produce strategic decisions. This shift not only extends UET to AI-augmented contexts but reorients it toward a broader class of socio-technical systems, in which leadership is enacted through the design, calibration, and governance of decision-making infrastructures.

6 Conclusion

This study shows that AI relocates the mechanisms through which UET explains strategic outcomes. UET explains firm outcomes as reflections of executive cognition, evaluation, and discretion, assuming that these mechanisms reside within individuals. Our findings demonstrate that when AI performs core decision functions, embeds decision logics, and structures authority, these mechanisms are no longer located within executives but are distributed across human and algorithmic elements. As a result, UET, if applied without accounting for this shift, risks misattributing the source of strategic outcomes.

Theoretical Contribution. We re-specify UET as a socio-technical theory of executive influence, in which strategic outcomes are explained by how cognition, evaluation, and discretion are configured across human and algorithmic actors. This replaces UET's individual-level, linear causal model of decision-making with a configurational, system-level explanation. Building on this reconceptualization, we introduce *hybrid upper echelons* as a construct capturing the relocation of executive influence from individuals to socio-technical configurations. In this view, cognition is distributed across human and algorithmic elements, evaluation reflects both human and algorithmic attributes, and discretion is configured through system design and governance.

In doing so, this study connects leadership research with IS perspectives on digital agency, algorithmic governance, and sociomateriality (Faraj et al., 2018; Orlikowski & Scott, 2008; Raisch & Krakowski, 2021). By integrating these perspectives, we position UET as a theory capable of explaining strategic decision-making in digitally mediated environments and provide a common conceptual foundation for studying leadership in socio-technical systems (Sun et al., 2025). This cross-disciplinary integration clarifies how technological systems become integral to executive influence rather than external tools.

Practical Contribution. This reconceptualization has direct implications for practice. AI adoption is not primarily a technical challenge but a problem of configuring and governing decision-making systems. Strategic outcomes depend not only on executive capabilities but on how AI systems are designed, trained, and integrated into organizational processes.

Executives, therefore, shift from being sole decision-makers to architects and governors of socio-technical systems, responsible for calibrating the interaction between human judgment and algorithmic inference, defining decision rights, and ensuring alignment between system outputs and organizational objectives. Decision quality, accountability, and competitive advantage thus depend on the effective design and governance of these hybrid human-AI systems.

Limitations. This study has several limitations. First, as a concept-centric literature review, our analysis is based on existing studies and does not provide direct empirical validation of the proposed mechanisms. Second, the reviewed literature spans diverse contexts and technologies, which may limit the generalizability of specific patterns across industries or decision settings. Third, our conceptualization focuses on the functional role of AI in decision-making and does not fully account for organizational, cultural, or institutional factors that may shape how AI is implemented and governed. Future research should therefore empirically examine hybrid upper echelons across different contexts

and explore boundary conditions that influence how socio-technical configurations affect strategic outcomes.

Taken together, this study shows that the future of executive decision-making lies not in replacing human judgment with AI, but in understanding how strategic outcomes are produced by the configuration of human and algorithmic elements. As organizations increasingly rely on AI-enabled decision systems, executive influence will be defined less by the decisions leaders make and more by the systems they design, configure, and govern.

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