An Empirical Study of Human-AI Collaboration in Strategic Decision-Making

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Abstract

This paper investigates the integration of Artificial Intelligence (AI) into executive decision-making (EDM) and its impact on corporate strategy (CS). While AI's role in operational tasks is well-documented, its adoption at the executive level remains underexplored. This study addresses this gap by examining the challenges, Human-AI Collaboration (HAIC) models, and best practices in the use of AI for strategic decision-making. Through a survey of 50 executives, our findings indicate that AI is predominantly used as a support tool rather than an autonomous decision-maker. The study tests several hypotheses, finding support for a positive relationship between corporate AI guidelines and AI adoption in EDM, while rejecting the hypothesis that strategic alignment of AI directly predicts perceived company performance. The primary challenges to adoption were identified as a lack of trust, concerns over data privacy, and unclear regulations. This research, with its limitations, still contributes to the literature by providing empirical evidence on the current state of AI in executive-level strategic processes and offers practical recommendations for organizations aiming to leverage AI for a competitive advantage.

Keywords: *Artificial Intelligence, Executive Decision-Making, Human-AI Collaboration, Corporate Strategy, AI Governance*

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1. Introduction

Executive decision-making (EDM) and corporate strategy are undergoing a fundamental transformation due to use of artificial intelligence (AI). Organizations now have more opportunities than ever before to process vast volumes of data, identify complex patterns, and enhance their decision-making capabilities thanks to the widespread adoption of advanced AI-powered tools [1]. The integration of AI is revolutionizing strategic consulting by enabling unparalleled efficiency, tailored solutions, and data-backed insights; however, it also introduces challenges such as ethical concerns, inertia, and skills gaps [2]. Although artificial intelligence (AI) has proven helpful in enhancing operational effectiveness and risk assessment, its role in the complex and crucial area of executive decision-making remains a topic of debate. This transformation is accelerated by the development of large language models capable of learning from minimal examples, significantly enhancing their applicability in diverse strategic contexts [3].

The contemporary environment reveals a dichotomy: certain firms have completely adopted AI-driven initiatives, whereas others exercise caution, resulting in a gap between overreliance and underutilization [4]. This gap highlights a significant problem in optimizing AI's contributions while safeguarding the essential elements of human expertise and intuition [5]. Nevertheless, the increasing impact of AI, a universally recognized framework for efficiently utilizing Human-AI Collaboration (HAIC) in the development of corporate strategy (CS), remains absent.

This paper addresses the gap in the literature by exploring how executives currently utilize AI in strategic decision-making [1], the collaboration models they employ, and the challenges they encounter. The primary objective is to provide a guideline for organizations to enhance their decision-making processes through AI without marginalizing human contribution.

The central research questions guiding this paper are:

- **RQ1**: What are the key challenges organizations face in integrating AI into EDM?
- **RQ2**: What Human-AI Collaboration (HAIC) models influence EDM?
- **RQ3**: How does EDM affect CS?
- **RQ4**: What best practices can be established to optimize AI's role in strategic DM?

By answering these questions, this paper aims to provide a comprehensive overview of the current state of AI in executive decision-making and offer a framework for its effective and responsible integration.

2. Literature Review and Hypotheses Development

The fundamental basis of numerous advanced functionalities offered by artificial intelligence is rooted in deep learning. It supports the most transformative applications of generative AI, facilitating the creation of innovative data and insights that were previously impossible to achieve [6] and would have required human effort. For AI to be useful and efficient, governance of AI adoption is necessary, as well as education of human capital.

2.1 The Role of Governance in AI Adoption

Effective governance is consistently cited as a critical enabler for technology adoption within organizations. For AI, governance provides the necessary structure to manage risks, ensure ethical compliance, and build trust among users [7]. Machine Learning (ML) is particularly powerful in consulting for predictive modeling, analyzing historical data, seasonal trends, customer behavior, and market factors to deliver more accurate forecasts [2]. Industry reports, such as the PwC (2024) Global CEO Survey, reveal that while a majority of CEOs are pushing for AI adoption, they are simultaneously concerned about issues like cybersecurity and misinformation, which are fundamentally governance challenges. The presence of clear guidelines can mitigate these fears and provide a "safe" framework for experimentation and integration. When employees, and especially leaders, understand the rules of engagement with a new technology, they are more likely to adopt it. This suggests that a formal corporate stance on AI, even if general, is a prerequisite for its use in high-stakes domains, such as EDM.

H1: The presence of corporate AI guidelines is positively correlated with the use of AI in executive decision- making.

2.2 Human-AI Collaboration (HAIC) Models in Practice

The literature on HAIC proposes a spectrum of collaborative models, ranging from AI as a support tool to a fully autonomous agent [8]. However, research suggests that in complex, ambiguous environments, such as those involving strategic decision-making, humans are reluctant to relinquish full control. This reluctance is often compounded by the challenge of interpreting AI outputs, a domain where Natural Language Processing (NLP) provides the computational frameworks for machines to understand and generate human language, thereby making their reasoning more accessible [9].

Haesevoets et al. [10] argue that managerial decision-making benefits most from models where AI provides data-driven insights, but the human remains the final arbiter. This is because strategic decisions often require contextual awareness, ethical judgment, and an understanding of organizational culture—qualities that AI currently lacks. Therefore, it is expected that executives will use AI primarily to augment their own reasoning rather than to delegate the decision itself.

H2: Executives primarily use AI in a support-based role (e.g., as a support tool) rather than in a delegative role (e.g., as a direct advisor or autonomous decision-maker).

2.3 The Impact of AI on Strategic Alignment and Performance

A core principle of strategic management is that alignment among resources, actions, and corporate strategy results in enhanced organizational performance. AI, as a powerful technological resource, should be no exception. Mentzas et al. [11] argue that data-driven, collaborative human-AI decision-making is most effective when it is tightly integrated with strategic objectives. The theoretical underpinnings for this alignment are deeply rooted in statistical learning methods, which provide robust frameworks for identifying patterns and making data-driven predictions that, in principle, should enhance performance [12].

When AI tools are aligned with the company's strategy, they should, in theory, produce more relevant and impactful insights, leading to better decisions and, consequently, improved overall company performance. The perceived success of AI should therefore be linked to its strategic alignment.

H3: The alignment of AI-supported decision-making with corporate strategy is positively associated with perceived company performance.

2.4 The Practice of Validating AI and Its Effect on Outcomes

Trust remains a major barrier to AI adoption [5]. The "black box" problem, where AI's reasoning is not transparent, often leads to skepticism from users. A common behavioral response to this is to validate or "back-check" the technology's output. The McKinsey [13] report notes that only 27% of organizations carefully review AI- generated content, but suggests that this oversight is critical for mitigating risks, such as misinformation. This practice of validation, while adding a step to the process, can increase confidence in the final decision and may lead to the correction of erroneous AI suggestions, thereby improving the quality of the outcome and overall performance.

H4: Executives who back-check AI outputs report higher company performance compared to those who do not.

3. Methodology

This study employed a quantitative, exploratory research design using a structured survey. This approach was chosen to gather foundational data on a topic where empirical research is limited. This approach is consistent with established qualitative research methodologies, which

are particularly well-suited for exploring complex and evolving phenomena, providing rich and in-depth insights into human experiences and perceptions [14].

A purposive sampling method was employed to target executives in C-suite positions (e.g., CEO, COO) and board members. This ensured that participants had direct involvement in EDM. A total of 50 responses were collected, with 30 from executives who confirmed using AI in their decision-making processes. The study's sample is composed of senior executives, with the largest group being CEOs (40%), followed by COOs (17%), Board Members (17%), CFOs (13%), and CTOs (13%). The respondents represent a diverse range of industries, with Manufacturing and Healthcare being the most prominent (20% each), followed by Finance and Energy (17% each). The majority of executives (73%) work in small to medium-sized enterprises with fewer than 500 employees, while 14% are from large corporations with over 5,000 employees. Geographically, the sample is predominantly European, with 60% of company headquarters located in Europe, followed by Asia-Pacific (20%), North America (10%), Latin America (7%), and the Middle East & Africa (3%).

The survey consisted of 20 closed-ended questions divided into five sections: (1) General Information, (2) AI Adoption in the Company, (3) Impact of AI on Decision-Making, (4) Challenges and Governance, and (5) Future Perspectives.

Data analysis was conducted using descriptive and inferential statistics. Descriptive statistics were used to summarize trends in AI adoption, tool usage, and applications. Inferential statistics, including Spearman's correlation, t-tests, and ANOVA, were used to test the developed hypotheses.

This process conforms to rigorous qualitative data analysis techniques, which rely on systematic coding and iterative refinement to identify meaningful patterns within textual data [15].

4. Results and Hypothesis Testing

This section presents the data analysis and the results of the hypothesis tests. The descriptive data shows that 53% of represented companies use AI partially. Of those using AI, 75% report an improvement in performance, as shown in Figure 1.

Figure 1 Use of AI in decision making

Participants reported using various AI tools (Figure 2), including those for supply chain automation, customer insights and marketing, and talent acquisition and HR analytics (Figure 3).

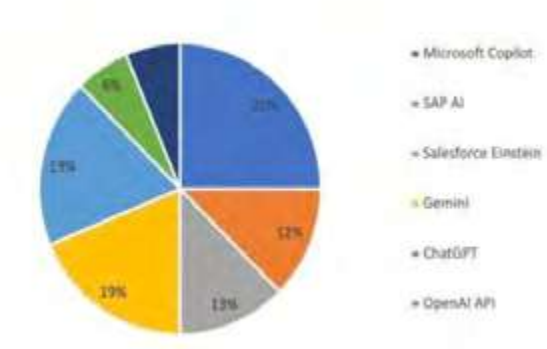

Figure 2 Used AI tools

Figure 3 AI application in decision-making

4.1 Hypothesis 1: Governance and Adoption

H1: *The presence of corporate AI guidelines is positively correlated with the use of AI in executive decision- making.*

A Spearman correlation was used to test the first hypothesis (Table 1).

		Corporation guideline for AI use	AI use in decision-making
Corporation guideline for AI use	Pearson's r	—	
	df	—	
	p-value	—	
AI use in decision-making	Pearson's r	0.548	—
	df	43	—
	p-value	<.001	—

Table 1 Spearman Correlation – Relationship Between AI Use in DM and Presence of Corporate AI Guidelines

The analysis revealed a strong, statistically significant positive correlation between the two variables, $r(43) = 0.548$, $p < .001$. This result indicates that companies where executives actively use AI in DM are significantly more likely to have formal guidelines in place for general AI usage. Thus, H1 is accepted.

4.2 Hypothesis 2: HAIC Model in Practice

H2: Executives primarily use AI in a support-based role rather than in a delegative role.

Descriptive analysis of the survey data shows that when asked about their primary use of AI, the vast majority of executive respondents selected "As a support tool." A descriptive analysis of how executives primarily use AI in their decision-making process is shown in Figure 4.

Figure 4 Primary Use of AI in the Decision-Making Process

This category received significantly more selections than "As a direct advisor" or "As an autonomous decision-maker." Specifically, the support tool role was chosen by over two-thirds of the executives using AI. H2 is accepted.

4.3 Hypothesis 3: Strategic Alignment and Performance

H3: The alignment of AI-supported decision-making with corporate strategy is positively associated with perceived company performance.

A one-way ANOVA was conducted to compare the perceived company performance between groups based on the level of AI alignment with corporate strategy. The first variable was measured as a dichotomous variable indicating yes or no. Company performance improvement was also measured as a binary variable indicating either an increase or no change in results. The results indicated no statistically significant difference in performance between the alignment groups, $F(1, 28) = 1.26$, $p = 0.27$ (Table 2). The mean difference in performance was negligible.

	Sum of Squares	df	Mean Square	F	p
Integration of AI into executive decision-making	0.311	1	0.311	1.26	0.270
Residuals	6.889	28	0.246		

Table 2 One-Way ANOVA – Effect of Strategic Alignment of AI on Perceived Company Performance

H3 is rejected. Within this sample, strategic alignment of AI does not reliably predict a higher perceived impact on company performance. Reasons could be identified in a small sample of participants.

4.4 Hypothesis 4: Validation and Performance

H4: Executives who back-check AI outputs report higher company performance compared to those who do not.

An independent samples t-test was used to compare the perceived company performance of executives who back-check AI outputs with those who do not. The analysis revealed a marginally non-significant difference, t(25.2) = -2.03, p = 0.053, as shown in Table 3.

Independent Samples T-Test

		Statistic	df	p
Company performance	Student's t	−1.91 [a]	28.0	0.067
	Welch's t	−2.03	25.2	0.053

Note. H_a $\mu_1 \neq \mu_0$

[a] Levene's test is significant ($p < .05$), suggesting a violation of the assumption of equal variances

Table 3 Independent Samples T-Test – Performance Comparison Between Executives Who Back-Check AI and Those Who Do Not

Although the result does not meet the conventional $p < .05$ threshold for statistical significance, the p-value is very close, suggesting a meaningful trend. Those executives who back-checked AI outputs tended to report better performance.

H4 is not statistically supported but shows a strong trend. The hypothesis is technically rejected based on the $p > .05$ criterion, but the result suggests a meaningful effect that may be confirmed with a larger sample size.

5. Discussion

This study examines the role of artificial intelligence in executive leadership. The support for H1 emphasizes the vital role of governance: having a corporate framework for AI promotes its use in high-stakes EDM settings, and vice versa. Yet, research also revealed a significant "governance gap," with no respondents reporting guidelines specific to executives. This indicates that current AI adoption relies on a general safety net rather than tailored regulations.

The acceptance of H2 aligns with the scholarly literature on HAIC, indicating that executives approach the use of AI with caution. They utilize it as an analytical "support tool" to enhance their decision-making, rather than entrusting strategic choices entirely to machines. This highlights both the current limitations of AI in understanding complex, non-quantifiable strategic elements and the fundamental need for human accountability in leadership.

The rejection of H3 is a particularly interesting finding. It suggests that, at this early stage of adoption, merely aligning AI with strategy does not guarantee a perceived performance boost. This could be due to several factors, including the partial integration of AI, a lack of mature processes for translating AI insights into actionable outcomes, or the possibility that executives perceive performance improvements (e.g., efficiency) that are independent of strategic alignment.

Finally, the strong trend supporting H4, while not statistically significant, points to a crucial best practice. The act of "back-checking" AI outputs appears linked to better outcomes. This reinforces the idea that the most effective current use of AI in EDM is not to trust it blindly, but to treat it as a "sparring partner"—a tool that can challenge assumptions and provide novel insights, which are then critically vetted by an experienced human decision-maker.

6. Conclusion and Recommendations

The existing literature consistently highlights AI as a transformative force in executive decision-making, offering unprecedented capabilities for data processing and insight generation. Effective AI governance, characterized by clear corporate guidelines, is identified as a crucial enabler for successful adoption and risk mitigation within organizations. Research on HAIC models indicates a prevalent preference among executives for AI to serve in a support-based role, augmenting human judgment rather than acting as an autonomous decision-maker. Despite its potential, the integration of AI faces significant challenges, including issues of trust, data privacy, and the inherent 'black box' nature of many AI systems.

Furthermore, the strategic alignment of AI with corporate objectives is posited as essential for realizing performance benefits, though empirical evidence in early adoption stages can vary. The practice of validating AI outputs has emerged as a critical best practice, fostering confidence and enhancing the quality of decisions. Overall, the literature underscores a nuanced landscape where AI's value is maximized through careful integration, robust governance, and

a clear understanding of its collaborative potential. This evolving understanding forms the basis for practical recommendations that aim to optimize AI's role in strategic leadership.

This study provides valuable empirical evidence on the nascent integration of AI into executive decision-making. It demonstrates that while executives are beginning to leverage AI, its use is largely tactical and supportive in nature. The full strategic potential of AI remains untapped, primarily due to a significant governance gap and persistent challenges related to trust and transparency.

6.1 Contribution to the Field

This research contributes to the academic literature by moving beyond theoretical discussions to provide empirical data on how AI is being used in the C-suite. By testing specific hypotheses, it confirms the critical role of governance as an enabler of adoption and identifies the cautious, support-based HAIC models currently in practice. This study thus adds to a growing body of work examining how the consulting sector is leveraging AI and machine learning, signaling a transformative shift in industry practices and creating new opportunities for delivering enhanced client solutions [16].

6.2 Practical Implications and Recommendations

For organizations seeking to leverage AI for strategic advantage, this study offers several practical recommendations:

1. **Develop a Governance Framework for EDM**: Companies where executives actively use AI in DM are significantly more likely to have formal guidelines in place for general AI usage (H2 accepted). Avoid depending only on broad AI policies. Create specific, clear rules and guidelines for using AI in strategic decision-making. This framework should address data usage, ethical considerations, accountability, and validation protocols. This framework should not only address high-level strategy but also the tactical deployment of automation tools, ensuring that their use is strategic and drives measurable business value rather than just task completion [17].

2. **Promote a Culture of Critical Evaluation**: Even though H4 was not statistically significant, the strong trend observed suggests a meaningful effect and underscores the value of back-checking. Companies should encourage leaders to treat AI as a tool for augmentation, not replacement. Implementing processes that require the back-checking and validation of AI-generated insights before incorporating them into strategic decisions is also crucial [13], [5].

3. **Invest in AI Literacy for Leaders**: Executives primarily use AI in a support-based role (H2 accepted), which implies a need for leaders to understand how to best leverage this support. Providing training and tools to help executives understand the capabilities and limitations of AI should help. A leader who understands how an AI model works is better equipped to utilize it effectively and critically evaluate its outputs [4], [18].

4. **Prioritize Explainable AI (XAI)**: Trust remains a major barrier to AI adoption. When procuring or developing AI tools for strategic use, prioritize systems that offer transparency and explainability. This is fundamental to building trust and ensuring responsible use [17], [5].

6.3 Limitations and Future Research

This study has several limitations, including a small sample size and a reliance on self-reported data from a predominantly European context. Future research should aim to address these limitations by:

- Using a larger, more globally diverse sample to enhance generalizability and provide greater statistical power.
- Employing mixed-method approaches, including in-depth interviews and case studies, to gain deeper qualitative insights into the "why" behind the observed trends.
- Conducting longitudinal studies to track the evolution of AI in EDM as the technology and its surrounding governance mature.
- Further testing and refining HAIC models in real-world executive settings to identify optimal configurations for different strategic contexts.

As AI continues to evolve, its role in shaping corporate strategy will only grow. The organizations that succeed will be those that learn to harness their power not as a replacement for human intellect, but as a powerful collaborator in the art and science of decision-making.

7. References

[1] Trunk, A., Birkel, H., & Hartmann, E. (2020). On the current state of combining human and artificial intelligence for strategic organizational decision making. *Business Research*, 13(1), 875-919. https://doi.org/10.1007/s40685- 020-00133-x

[2] Gobbo, D. (2024). The AI Revolution in Strategic Consulting: Opportunities, Challenges, and Future Trends (Graduate Thesis). Zagreb School of Economics and Management, Zagreb.

[3] Brown, T. B., Mann, B., Ryder, N., Subbiah, M., Kaplan, J., Dhariwal, P., Neelakantan, A., et al. (2022). Languagemodels are few-shot learners. Advances in Neural Information Processing Systems, 33, 1877-1901.

[4] Schmitt, M. (2024). *Strategic integration of artificial intelligence in the C-suite: The role of the chief AI officer*. ArXiv. https://doi.org/10.48550/arXiv.2407.10247

[5] Leitão, D., Saleiro, P., Figueiredo, M. A. T., & Bizarro, P. (2022). *Human-AI collaboration in decision-making: Beyond learning to defer*. ArXiv. https://doi.org/10.48550/arXiv.2206.13202

[6] Goodfellow, I., & Erhan, D. (2023). Deep Learning and Generative AI: Emerging Technologies and Applications. Springer.

[7] Papagiannidis, E., Mikalef, P., & Conboy, K. (2025). Responsible artificial intelligence governance: A review and research framework. *The Journal of Strategic Information Systems*, 34(2), 101885. https://doi.org/10.1016/j.jsis.2024.101885

[8] Hemmer, P., Westphal, M., Schemmer, M., Vetter, S., Vössing, M., & Satzger, G. (2023). Human-AI collaboration: The effect of AI delegation on human task performance and task satisfaction. *Proceedings of the 28th International Conference on Intelligent User Interfaces*, 453–463. https://doi.org/10.1145/3581641.3584052

[9] Jurafsky, D., & Martin, J. H. (2019). Speech and Language Processing. Pearson.

[10] Haesevoets, T., De Cremer, D., Dierckx, K., & Van Hiel, A. (2021). Human-machine collaboration in managerial decision making. *Computers in Human Behavior*, 119, 106730. https://doi.org/10.1016/j.chb.2021.106730

[11] Mentzas, G., Lepenioti, K., Bousdekis, A., & Apostolou, D. (2021). Data-driven collaborative human-AI decision making. In *IFIP International Conference on e-Business, e-Services, and e-Society* (pp. 120-131). Springer. https://doi.org/10.1007/978-3-030-85447-8_11

[12] James, G., Witten, D., Hastie, T., Tibshirani, R. (2021). An Introduction to Statistical Learning with Applications in R, Springer New York, NY.

[13] McKinsey & Company. (2025). *The state of AI: How organizations are rewiring to capture value*. McKinsey & Company.

[14] Flick, U. (2018). An Introduction to Qualitative Research. SAGE Publications.

[15] Miles, M. B., Huberman, A. M., & Saldaña, J. (2022). Qualitative Data Analysis: A Methods Sourcebook (4th ed.). SAGE Publications.

[16] Soni, P. (2021). AI and Machine Learning in the Consulting Sector: Current Applications and Future Opportunities. Routledge.

[17] Willcocks, L., & Lacity, M. C. (2021). Becoming Strategic with Robotic Process Automation. Springer.

[18] PricewaterhouseCoopers. (2024). *28th Annual Global CEO Survey*. PwC. https://www.pwc.com