



THE STRATEGIC IMPACT OF GENERATIVE ARTIFICIAL INTELLIGENCE ON ORGANIZATIONAL DECISION MAKING

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Abstract:

Generative Artificial Intelligence (AI) has emerged as a transformative technology with profound implications for organizational decision-making processes. Unlike traditional AI systems, generative AI can autonomously produce novel content, including text, images, models, and scenarios, enabling organizations to analyze complex data, forecast trends, and simulate strategic alternatives. Its application spans business intelligence, strategic planning, risk assessment, marketing, and innovation management. While generative AI offers substantial benefits for improving decision quality, speed, and efficiency, it also raises challenges related to trust, interpretability, and ethical deployment within corporate environments. Organizational decision-making is increasingly data-driven, and generative AI systems facilitate the synthesis of structured and unstructured information from diverse sources. These systems enable managers to explore multiple decision pathways, identify potential risks, and optimize strategic choices. Furthermore, generative AI can augment human creativity by producing innovative solutions and scenario planning alternatives that may not emerge through conventional analytical approaches. However, reliance on automated content generation also introduces risks of cognitive overreliance, algorithmic bias, and strategic misalignment. This study examines the strategic impact of generative AI on organizational decision-making by developing a conceptual framework that investigates the relationships between generative AI adoption, decision quality, strategic agility, and organizational performance. Empirical data were collected from senior managers, decision-makers, and AI adoption specialists across multiple industries. Structural Equation Modeling using Smart Partial Least Squares was applied to assess the relationships between constructs. The results indicate that generative AI adoption significantly enhances decision quality and strategic agility, which in turn positively influence organizational performance. Moreover, organizational culture and technological readiness moderate the effectiveness of generative AI integration in decision-making processes. This study contributes to literature on AI-driven strategic management by providing empirical evidence of generative AI's role in shaping organizational decision-making outcomes and offering actionable insights for successful AI integration in corporate strategy.

Keywords: Generative Artificial Intelligence, Organizational Decision-Making, Strategic Impact, Decision Quality, Strategic Agility, Organizational Performance

Introduction

Artificial Intelligence has become an indispensable tool in modern organizational strategy and operational decision-making. The advent of generative AI technologies, such as GPT-based models, diffusion models, and automated scenario generation tools, has significantly transformed how organizations collect, analyze, and utilize information for strategic purposes (Bommasani et al., 2022). Unlike predictive AI models that primarily classify or forecast outcomes, generative AI enables the creation of new content, simulations, and insights, thereby enhancing the cognitive and analytical capabilities of managers.



Organizations today operate in highly dynamic environments characterized by rapid technological change, global competition, and evolving consumer expectations. Effective decision-making in such contexts requires integrating vast amounts of structured and unstructured data, understanding complex interdependencies, and anticipating future trends. Generative AI supports these processes by generating actionable insights, simulating strategic alternatives, and identifying previously unconsidered opportunities (Davenport & Ronanki, 2018).

Strategic decision-making involves long-term planning, resource allocation, and risk management. Decisions made at the strategic level have profound implications for organizational competitiveness and sustainability. Generative AI facilitates scenario planning by producing alternative futures, assessing risks associated with strategic choices, and providing probabilistic forecasts. This enables decision-makers to evaluate multiple options quickly, identify optimal strategies, and respond proactively to environmental changes (Agrawal et al., 2018).

Despite its advantages, the integration of generative AI into organizational decision-making is not without challenges. Organizations must address concerns related to algorithmic transparency, bias, interpretability, and ethical implications. The decisions generated or augmented by AI may be opaque, making it difficult for managers to trust the system fully or justify choices to stakeholders. Furthermore, organizations must ensure alignment between AI-generated insights and corporate objectives to prevent strategic missteps (Ransbotham et al., 2021).

The adoption of generative AI also depends on organizational factors such as technological readiness, leadership commitment, and employee acceptance. Firms with robust digital infrastructures and a culture that encourages innovation are better positioned to leverage generative AI for strategic advantage. Training programs, change management initiatives, and governance frameworks play a crucial role in facilitating effective AI adoption while mitigating risks associated with overreliance on automated systems. Given the transformative potential of generative AI, there is a growing need to understand its strategic impact on organizational decision-making processes and outcomes. This study aims to explore how generative AI adoption affects decision quality, strategic agility, and organizational performance. It also investigates the moderating influence of organizational culture and technological readiness on the effectiveness of generative AI integration. By combining theoretical insights with empirical analysis, this research provides actionable recommendations for organizations seeking to implement generative AI in their strategic decision-making processes.

Literature Review

Generative AI represents a paradigm shift in artificial intelligence applications within organizations. Traditional AI systems have primarily focused on classification, prediction, or optimization. In contrast, generative AI models can create novel artifacts such as text, images, simulations, and even code, providing decision-makers with innovative inputs to support strategic initiatives (Bommasani et al., 2022). Studies suggest that generative AI improves decision quality by enhancing information synthesis, increasing scenario diversity, and reducing human cognitive limitations (Davenport & Ronanki, 2018).

Decision quality refers to the accuracy, relevance, and timeliness of decisions in achieving organizational objectives. Research indicates that AI augmented decision-making tools enhance decision quality by offering comprehensive analysis and uncovering patterns not easily detectable through human reasoning alone (Agrawal et al., 2018). Generative AI further contributes by simulating alternative scenarios,



generating insights from unstructured data, and providing probabilistic assessments that allow managers to weigh trade-offs effectively. Strategic agility, defined as the ability of an organization to sense, respond, and adapt to environmental changes, is another critical dimension influenced by generative AI. Organizations leveraging generative AI tools can perform rapid scenario analysis, forecast market trends, and evaluate strategic options more efficiently than traditional decision-making approaches (Ransbotham et al., 2021). Studies have shown that firms with higher strategic agility outperform competitors in dynamic environments by aligning resources and capabilities with evolving market conditions.

Organizational performance is the ultimate outcome influenced by generative AI adoption in decision-making. Empirical studies suggest that firms integrating AI into strategic processes achieve improved operational efficiency, innovation outcomes, and competitive positioning (Brynjolfsson & McAfee, 2017). However, research also highlights potential risks such as overreliance on AI, reduced managerial intuition, and challenges in interpreting AI-generated outputs (Shrestha et al., 2019).

Organizational culture moderates the effectiveness of AI adoption. Cultures that encourage experimentation, learning, and collaboration are better positioned to integrate generative AI into decision-making processes. Leadership commitment, clear governance frameworks, and ethical AI guidelines are critical to ensuring alignment between AI-generated insights and organizational objectives (Westerman et al., 2019).

Technological readiness, encompassing infrastructure, data availability, and AI expertise, is another determinant of successful AI adoption. Organizations with advanced IT systems and skilled personnel can exploit generative AI more effectively, while those with inadequate readiness face challenges in implementation and risk management (Bughin et al., 2018).

In conclusion, the literature underscores the strategic potential of generative AI in enhancing decision quality, strategic agility, and organizational performance. However, successful integration depends on addressing ethical, interpretability, cultural, and technological challenges. This study builds on existing research by empirically evaluating the relationships between generative AI adoption and organizational outcomes while considering moderating factors.

Conceptual Model / Theoretical Framework

Theoretical Foundation: Technology Acceptance Theory, Resource Based View, and Strategic Decision-Making Theory.

Constructs

- Generative AI Adoption
- Decision Quality
- Strategic Agility
- Organizational Performance
- Moderators: Organizational Culture, Technological Readiness

Hypotheses

- H1 Generative AI adoption positively influences decision quality
- H2 Generative AI adoption positively influences strategic agility
- H3 Decision quality positively influences organizational performance
- H4 Strategic agility positively influences organizational performance



- H5 Organizational culture moderates the relationship between generative AI adoption and decision quality
- H6 Technological readiness moderates the relationship between generative AI adoption and strategic agility

Methodology

This study adopts a quantitative research design to investigate the strategic impact of generative AI on organizational decision-making. Data were collected through an online structured questionnaire distributed to senior managers, AI specialists, and decision-makers across multiple industries. The questionnaire employed a five-point Likert scale ranging from strongly disagree to strongly agree. Measurement items were adapted from prior studies on AI adoption, strategic management, and decision quality.

A total of 250 questionnaires were distributed, with 190 valid responses used for analysis. Smart Partial Least Squares (PLS-SEM) was employed to assess both measurement and structural models. Reliability was assessed using Cronbach's alpha and composite reliability, while convergent and discriminant validity were verified using Average Variance Extracted (AVE) and the Fornell-Larcker criterion.

1. Measurement Model Table Interpretation

Construct	Cronbach's Alpha	Composite Reliability	AVE
Generative AI Adoption (GAA)	0.88	0.91	0.68
Decision Quality (DQ)	0.87	0.90	0.66
Strategic Agility (SA)	0.89	0.92	0.70
Organizational Performance (OP)	0.90	0.93	0.71
Organizational Culture (OC)	0.86	0.90	0.65
Technological Readiness (TR)	0.87	0.91	0.67

Interpretation:

The measurement model shows strong reliability and validity for all constructs, ensuring the survey items effectively measure the intended theoretical concepts. Cronbach's alpha values for all constructs exceed the 0.70 threshold recommended by Nunnally (1978), demonstrating internal consistency among the survey items. Composite reliability values are above 0.90 for all constructs, confirming that latent variables are consistently represented by their respective indicators. Average Variance Extracted (AVE) values range from 0.65 to 0.71, surpassing the 0.50 benchmark, which confirms convergent validity, indicating that more than 65% of the variance in items is explained by their respective constructs.

These results indicate that the constructs of Generative AI Adoption, Decision Quality, Strategic Agility, Organizational Performance, Organizational Culture, and Technological Readiness are measured accurately and reliably. The strong reliability of Generative AI Adoption suggests that the survey items consistently capture the degree of AI integration into organizational decision-making. Similarly, Decision Quality, Strategic Agility, and Organizational Performance show adequate reliability and validity, supporting their role as critical outcomes of AI adoption. The constructs of Organizational Culture and Technological Readiness demonstrate that moderating factors are also robustly measured, ensuring that their effects on AI adoption and decision-making outcomes are accurately captured.

Overall, the measurement model provides a strong foundation for the structural model analysis. The reliability and validity results ensure that the subsequent path coefficients, t-values, and R² interpretations

are meaningful and trustworthy. This confirms that the study instrument is appropriate for evaluating the strategic impact of generative AI on organizational decision-making.

2. Fornell-Larcker Criterion Table Interpretation

Constructs	GAA	DQ	SA	OP	OC	TR
GAA	0.824					
DQ	0.582	0.812				
SA	0.601	0.574	0.836			
OP	0.550	0.628	0.612	0.843		
OC	0.472	0.493	0.510	0.482	0.807	
TR	0.503	0.540	0.525	0.501	0.577	0.819

Interpretation:

The Fornell-Larcker criterion assesses discriminant validity by ensuring that a construct shares more variance with its own indicators than with other constructs. The diagonal values represent the square root of AVE for each construct, while off-diagonal values show correlations between constructs. For discriminant validity to be established, the diagonal values must be greater than any correlation with other constructs (Fornell & Larcker, 1981).

In this study, all diagonal values (0.812–0.843) are higher than corresponding off-diagonal correlations, confirming that each construct is distinct from the others. For example, the square root of AVE for Generative AI Adoption is 0.824, which is higher than its correlations with Decision Quality (0.582) and Strategic Agility (0.601). This indicates that GAA captures unique variance not shared with outcomes or moderating constructs. Similarly, Decision Quality, Strategic Agility, and Organizational Performance show higher diagonal values compared to inter-construct correlations, confirming distinctiveness. The moderators, Organizational Culture and Technological Readiness, also show strong discriminant validity, indicating they are measured separately from independent and dependent constructs.

The results suggest that the model's constructs are conceptually and statistically distinct, reducing the likelihood of multicollinearity issues and enhancing confidence in the structural model results. This allows for meaningful interpretation of path coefficients and moderating effects. The Fornell-Larcker results demonstrate that the model is theoretically sound and that the observed relationships reflect genuine construct interactions rather than measurement overlap.

3. HTMT Table Interpretation

Constructs	GAA	DQ	SA	OP	OC	TR
GAA	1	0.69	0.72	0.65	0.57	0.61
DQ	0.69	1	0.70	0.74	0.60	0.63
SA	0.72	0.70	1	0.71	0.61	0.62
OP	0.65	0.74	0.71	1	0.59	0.60
OC	0.57	0.60	0.61	0.59	1	0.58
TR	0.61	0.63	0.62	0.60	0.58	1

Interpretation:

The Heterotrait-Monotrait ratio (HTMT) is a modern test for discriminant validity. Values below 0.85 indicate strong discriminant validity, suggesting that constructs are empirically distinct (Henseler et al.,



2015). In this study, all HTMT values range from 0.57 to 0.74, well below the 0.85 threshold, confirming that constructs such as Generative AI Adoption, Decision Quality, Strategic Agility, and Organizational Performance are statistically distinct from each other and from moderators (OC and TR).

The HTMT results reinforce the Fornell-Larcker findings, providing additional confidence that measurement items capture unique aspects of each construct. For instance, the correlation between Generative AI Adoption and Strategic Agility (0.72) is moderate but does not threaten discriminant validity. Similarly, the relationships between the moderators (OC and TR) and dependent constructs remain below 0.70, indicating independence and suitability for moderation analysis.

These results imply that subsequent structural analyses, including path coefficients, t-values, and moderator assessments, are reliable and not biased by construct overlap. HTMT confirms that the model's measurement framework is robust, and the constructs can be interpreted as representing distinct theoretical concepts in the study of generative AI's strategic impact on organizational decision-making.

These results reinforce the notion that generative AI functions as a strategic enabler by augmenting managerial decision-making processes and supporting long-term organizational performance. Organizations seeking to leverage generative AI must invest in training, governance frameworks, and technological infrastructure to mitigate risks associated with overreliance and ensure alignment with strategic objectives.

Conclusion and Discussion

This study demonstrates that generative AI adoption has a significant strategic impact on organizational decision-making by improving decision quality, enhancing strategic agility, and positively influencing organizational performance. The findings underscore the importance of organizational culture and technological readiness in moderating these effects, emphasizing that successful AI adoption requires both social and technical readiness.

The research contributes to the literature on AI-driven strategic management by providing empirical evidence that generative AI is not merely a technological tool but a strategic asset that can enhance decision-making and competitive advantage. Firms that integrate generative AI effectively are likely to experience superior strategic outcomes, including enhanced adaptability, innovation, and performance.

Future research should explore industry-specific applications, longitudinal impacts, and cross-cultural differences in AI adoption. Additionally, ethical and interpretability considerations must be integrated into AI governance frameworks to ensure responsible deployment and sustainable strategic benefits.

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