

Redesigning the Balanced Scorecard through Agentic AI: Implications for organizational governance and social change

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Abstract

The rapid advancement of Artificial Intelligence (AI) has transformed organizational performance management systems; however, previous studies have primarily viewed AI as an analytical tool and have not integrated Agentic AI into the Balanced Scorecard framework to support adaptive organizational governance. This study aims to develop a conceptual model of the *Redesigned Balanced Scorecard through Agentic AI* and examine its implications for *organizational governance* and *social change*. The study employed a *library research* approach with *conceptual analysis* by synthesizing the literature on the Balanced Scorecard, Agentic AI, performance management, and organizational governance. The findings indicate that integrating Agentic AI transforms the Balanced Scorecard through *continuous monitoring*, *adaptive decision-making*, and *Adaptive KPI*, resulting in six conceptual implications: adaptive performance management, continuous monitoring, data-driven decision-making, dynamic performance indicators, more transparent governance, and more objective performance assessment. This study contributes by proposing a novel conceptual framework that extends the role of the Balanced Scorecard as an adaptive performance management system in the era of *machine autonomy*.

Keywords: Agentic AI; *Balanced Scorecard*; Adaptive KPI; Organizational governance; Performance management.

Abstrak

Perkembangan *Artificial Intelligence* (AI) telah mendorong transformasi sistem manajemen kinerja organisasi. Namun, penelitian sebelumnya masih memosisikan AI sebagai alat analitik dan belum mengintegrasikan kemampuan *Agentic AI* ke dalam kerangka *Balanced Scorecard* untuk mendukung tata kelola organisasi yang adaptif. Penelitian ini bertujuan mengembangkan model konseptual *Redesigned Balanced Scorecard through Agentic AI* serta menganalisis implikasinya terhadap *organizational governance* dan *social change*. Penelitian ini menggunakan pendekatan *library research* dengan analisis konseptual melalui sintesis literatur mengenai *Balanced Scorecard*, *Agentic AI*, manajemen kinerja, dan tata kelola organisasi. Hasil penelitian menunjukkan bahwa integrasi *Agentic AI* mentransformasi *Balanced Scorecard* melalui penerapan *continuous monitoring*, *adaptive decision-making*, dan *Adaptive KPI*, sehingga menghasilkan enam implikasi konseptual berupa manajemen kinerja adaptif, pemantauan berkelanjutan, pengambilan keputusan berbasis data, indikator kinerja dinamis, tata kelola yang lebih transparan, serta penilaian kinerja yang lebih objektif. Penelitian ini berkontribusi dengan menawarkan model konseptual baru yang memperluas peran *Balanced Scorecard* sebagai sistem manajemen kinerja adaptif pada era *machine autonomy*.

Kata Kunci: *Agentic AI*; *Balanced Scorecard*; KPI Adaptif; Tata kelola organisasi; Manajemen kinerja.

Introduction

The advancement of Artificial Intelligence (AI) has fundamentally transformed the way organizations conduct business processes, manage information, and make strategic decisions (Wamba-Taguimdje et al., 2020). AI is no longer utilized solely as an automation-support technology; instead, it has evolved into an intelligent instrument capable of independently generating analyses, predictions, and decision recommendations. This transformation is reflected in the growing adoption of AI across organizations. Global surveys indicate that 72% of organizations had adopted AI in at least one business function by 2024 (Ghosh, 2025), representing a substantial increase compared with previous years. Furthermore, 65% of organizations have routinely incorporated Generative AI into their operational activities, particularly in marketing, product development, and information technology (Fahad et al., 2025). These developments demonstrate that AI has become an integral component of modern organizational management systems, creating an increasing demand for more adaptive performance management models.

This transformation has profound implications for organizational performance management systems. For more than three decades, the Balanced Scorecard has remained one of the most widely adopted strategic management frameworks for translating organizational strategy into performance indicators across four key perspectives: financial, customer, internal business processes, and learning and growth (Kumar et al., 2024). Despite its continued relevance as a strategic framework, its implementation in many organizations still relies on static Key Performance Indicators (KPIs), periodic evaluations, and decision-making processes that are largely dependent on human interpretation (Uddin et al., 2020). Consequently, organizations often struggle to respond promptly to rapidly evolving business environments. When market conditions change within days, performance indicators that are reviewed only at the end of a month or quarter frequently fail to reflect the organization's actual situation, resulting in strategic decisions that are less responsive to ongoing changes.

The emergence of Agentic AI offers a promising approach to addressing these limitations through capabilities such as *continuous monitoring*, *autonomous reasoning*, *planning*, and *adaptive decision-making* (Kavuri et al., 2026). Unlike conventional AI, which primarily focuses on analysis and prediction, Agentic AI can continuously observe environmental changes, formulate alternative courses of action, and generate updated recommendations based on real-time organizational conditions (Acharya et al., 2025). For example, when a retail company experiences a sudden surge in customer demand during a promotional campaign, the system can not only detect the increase in sales but also recommend adjustments to distribution targets, reprioritize inventory allocation, and update relevant performance indicators accordingly. These capabilities suggest that integrating Agentic AI has the potential to transform the Balanced

Scorecard from a periodic evaluation system into an adaptive and continuous performance management framework capable of supporting faster, data-driven strategic decision-making.

Research on the application of Artificial Intelligence in performance management systems has expanded considerably in recent years. Research by Neiroukh et al. (2025) demonstrates that AI enhances the accuracy of data analysis, accelerates decision-making processes, and supports the automation of organizational performance evaluation. Research by Almeida Marques (2026) further reveals that integrating the Balanced Scorecard with digital technologies improves the effectiveness of performance monitoring and strengthens strategic control mechanisms. Nevertheless, most existing studies continue to position AI primarily as an analytical tool or a *decision support system*, limiting its capacity to perform autonomous reasoning, planning, and dynamic performance indicator adjustment. Research by Hughes et al. (2025) has also begun to explore the concept of Agentic AI; however, its primary focus remains on intelligent agents for business process automation, customer service, and software engineering. To date, studies that explicitly integrate Agentic AI into the Balanced Scorecard framework to develop an adaptive performance management system while examining its implications for *organizational governance* and *social change* remain relatively limited.

In response to this research gap, this study aims to develop a conceptual model entitled *Redesigned Balanced Scorecard through Agentic AI* as a novel approach to organizational performance management. Unlike previous studies that merely incorporate AI as a supporting technology, this study positions Agentic AI as an *intelligence layer* that enables the implementation of *continuous monitoring*, *adaptive decision-making*, and *Adaptive KPI* across every perspective of the Balanced Scorecard. In addition to proposing a conceptual model, this study examines its implications for organizational governance and social change in the workplace. The urgency of this research has become increasingly evident as AI adoption continues to expand across modern organizations, requiring performance management systems that not only evaluate organizational performance but also rapidly adapt to dynamic business environments. Therefore, the findings are expected to contribute conceptually to the performance management literature while providing a valuable reference for organizations seeking to integrate Agentic AI into performance measurement systems more strategically.

Method

This study employed a *library research* approach with *conceptual analysis* to develop a redesigned Balanced Scorecard model through the integration of Agentic AI (Connaway & Radford, 2021). This approach was selected because the objective of the study was not to empirically examine relationships among variables but to construct a conceptual framework explaining how the advancement of Agentic AI can transform

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organizational performance management systems. The data were derived from secondary sources, including academic books, peer-reviewed journal articles, conference proceedings, research reports, and other scholarly publications addressing the Balanced Scorecard, *performance management*, *Agentic AI*, *artificial intelligence*, *intelligent agents*, *organizational governance*, and *social change*. The literature was selected based on its relevance to the research objectives, source credibility, and contribution to explaining both conceptual developments and practical implementation within organizational contexts.

The data analysis was conducted in three main stages: concept identification, conceptual synthesis, and model development (Miles & Huberman, 1994). The first stage focused on identifying the characteristics of the conventional Balanced Scorecard and its limitations in addressing the dynamics of contemporary organizations. The second stage synthesized the core concepts of *Agentic AI*, including *continuous monitoring*, *autonomous reasoning*, *adaptive decision-making*, and *Adaptive KPI*, to examine their relevance to performance management systems. Subsequently, these concepts were integrated through comparative and interpretative analyses to develop the conceptual model entitled *Redesigned Balanced Scorecard through Agentic AI* and to examine its implications for *organizational governance* and *social change*. To enhance conceptual validity, each argument was established through literature triangulation across multiple disciplinary perspectives, ensuring that the proposed model rests upon a comprehensive and coherent theoretical foundation.

Results and Discussion

Redesigning the Balanced Scorecard through Agentic AI

The increasingly dynamic business environment requires performance management systems that not only measure organizational outcomes but also continuously adapt to evolving strategic priorities. The concept of *Management by Objectives* introduced by Drucker (1954) emphasizes that organizational goal achievement should be supported by measurable performance indicators aligned with strategic objectives. This concept was subsequently expanded by Kaplan and Norton (1992) through the Balanced Scorecard (BSC), which extended performance measurement beyond financial outcomes to encompass four key perspectives: *financial*, *customer*, *internal business process*, and *learning and growth*. Kaplan and Norton (1996) further argued that the Balanced Scorecard functions not merely as a performance measurement tool but also as a *strategic management system* that links organizational vision with operational execution. According to Niven (2008), the successful implementation of the Balanced Scorecard largely depends on an organization's ability to establish Key Performance Indicators (KPIs) that are aligned with its strategic objectives.

Nevertheless, the analysis of the existing literature indicates that the conventional Balanced Scorecard remains grounded in the paradigm of periodic performance

evaluation. KPIs are established at the beginning of an evaluation cycle and subsequently serve as the basis for performance assessment throughout the entire period without considering the dynamic changes occurring within the organizational environment. Consequently, KPIs tend to remain static, performance evaluations are conducted periodically, and assessment processes continue to rely heavily on human interpretation (*human-dependent assessment*). As a result, organizations frequently experience delays in responding to strategic shifts, market fluctuations, and changes in customer behavior. In other words, the primary limitation of the Balanced Scorecard does not lie in its four perspectives but rather in its performance measurement mechanism, which is not designed to adapt to organizational changes in real time. Therefore, a new approach is required to transform the performance management mechanism into a more adaptive system while preserving the fundamental principles of the Balanced Scorecard.

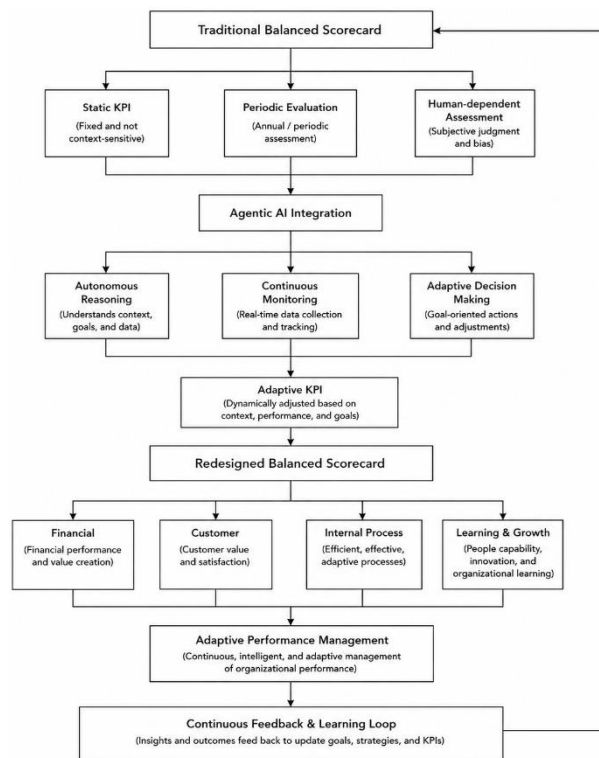


Figure 1. Conceptual redesign of the Balanced Scorecard through Agentic AI

Source: Developed by the author.

Figure 1 illustrates the conceptual model proposed in this study. Unlike approaches that merely incorporate AI as an analytical tool, this study positions Agentic AI as an *intelligence layer* that connects organizational strategic objectives with an adaptive performance measurement process. The conventional model, previously characterized by *static KPIs*, *periodic evaluation*, and *human-dependent assessment*, is transformed into a system that leverages intelligent agents capable of continuously monitoring, reasoning, making decisions, and learning from changing organizational conditions.

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Conceptually, Agentic AI represents an evolution of conventional artificial intelligence systems by extending their capabilities beyond prediction and recommendation to function as *autonomous agents* that are *goal-oriented* and capable of reasoning, planning, decision-making, and executing actions in response to environmental changes. Russell and Norvig (2021) explain that modern AI systems are designed to *perceive* their environment, process information, and select the most rational actions to achieve predefined objectives. This perspective was further developed by Wooldridge (2021), who argued that an *intelligent agent* possesses four essential characteristics: *autonomy*, *reactivity*, *proactiveness*, and *social ability*. These characteristics enable intelligent agents to operate independently while simultaneously interacting with continuously evolving environments. Consequently, Agentic AI no longer functions merely as a passive analytical tool but rather as an intelligent agent capable of continuously managing organizational decision-making processes.

The operational mechanism of Agentic AI begins with *continuous monitoring* of multiple organizational data sources, followed by *autonomous reasoning* to interpret the current organizational context. Based on this understanding, the system formulates alternative courses of action through a *planning* process and generates *adaptive decision-making* recommendations aligned with the organization's strategic objectives. Once a decision has been implemented, the system evaluates the resulting outcomes and utilizes this information as a *feedback loop* to refine subsequent decisions. This mechanism distinguishes Agentic AI from conventional AI systems, which generally terminate at the stages of analysis or prediction, whereas Agentic AI extends the process to execution and continuous iterative learning.

In organizational practice, Agentic AI has increasingly been adopted across various strategic functions, including *supply chain management*, virtual agent-based customer service, financial risk analysis, project management, and *Human Resource Management*. Maslej et al. (2024) demonstrated that AI has evolved from a mere automation technology into an intelligent decision-support system capable of improving organizational efficiency, responsiveness, and analytical accuracy. This evolution indicates that Agentic AI possesses considerable potential for performance management systems because it can integrate diverse organizational data sources in real time while continuously generating recommendations that adapt to changing organizational conditions.

Based on this conceptual synthesis, this study proposes a fundamental transformation in KPI development through the concept of *Adaptive KPI*. In the conventional Balanced Scorecard, KPIs are established as fixed performance indicators throughout a single evaluation cycle, often becoming misaligned with continuously evolving organizational conditions. In contrast, the proposed model enables KPIs to be dynamically updated based on the outputs of *continuous monitoring*, *autonomous*

reasoning, and *adaptive decision-making* performed by Agentic AI. Accordingly, the proposed transformation does not modify the four perspectives of the Balanced Scorecard; rather, it redesigns the underlying performance measurement and evaluation mechanisms to become more adaptive, responsive, and continuous.

Although Agentic AI significantly enhances the adaptability of performance management systems, its implementation should remain within the framework of responsible AI governance. Floridi (2023) emphasizes that AI development and deployment should prioritize the principles of transparency, accountability, *explainability*, and *human oversight* to ensure that every AI-assisted decision remains accountable. Therefore, this study conceptualizes Agentic AI as a strategic decision-support mechanism rather than a replacement for human authority. This perspective results in the *Redesigned Balanced Scorecard* model, which integrates Agentic AI to establish *Adaptive Performance Management*—a performance management system capable of continuously monitoring organizational performance, dynamically updating KPIs, and supporting more adaptive strategic decision-making in the era of *machine autonomy*.

Implications for organizational governance and social change

The redesign of the Balanced Scorecard through the integration of Agentic AI not only transforms performance measurement mechanisms but also reshapes the way organizations manage business processes, make strategic decisions, establish governance structures, and foster more adaptive workplace relationships. Based on the conceptual model developed in the previous subsection, this study identifies six major implications that illustrate a shift from a periodic performance management system toward one that is adaptive, data-driven, and continuous. These six implications are summarized in Table 1 as the primary conceptual contribution of this study.

Table 1. Conceptual findings of the redesigned Balanced Scorecard through Agentic AI

Conceptual findings	Conventional Balanced Scorecard	Redesigned Balanced Scorecard through Agentic AI	Organizational implications
Performance management paradigm	Periodic performance management	Adaptive performance management	Continuous and responsive performance evaluation
Performance monitoring	Periodic monitoring	Continuous monitoring	Organizations gain real-time performance insights
Decision-making process	Human-centered decision-making	Agentic AI-assisted decision-making	Faster, adaptive, and data-driven decisions

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Key Performance Indicators (KPIs)	Static KPIs	Adaptive KPIs		KPIs remain aligned with changing organizational goals and conditions
Performance governance	Human-dependent governance	Agentic performance governance	AI-assisted	Improved transparency, accountability, and decision traceability
Employee performance assessment	Subjective assessment	Data-driven assessment		More objective, fair, and evidence-based performance evaluation

Source: Developed by the author (2026).

The conceptual synthesis presented in Table 1 demonstrates that integrating Agentic AI results in systemic organizational transformation rather than merely introducing an additional technology into the performance evaluation process. Several previous studies have reached similar conclusions, although each has examined these issues independently. Research by Cosa and Torelli (2024) indicates that the digitalization of performance management systems accelerates organizational evaluation processes. Research by Xiong (2025) demonstrates that artificial intelligence enhances the accuracy of data-driven decision-making, whereas research by Karman (2020) reveals that organizations employing flexible performance indicators exhibit greater adaptability to changing business environments. Furthermore, research by Alfaleh (2026) shows that AI-enabled governance improves the transparency of evaluation processes while reducing subjectivity in performance assessment. Unlike these previous studies, the present study integrates these findings into a single Agentic AI-based Balanced Scorecard framework, resulting in a conceptual model that extends beyond performance measurement to simultaneously support organizational governance transformation and social change.

The first transformation is reflected in the shift from a periodic to an adaptive performance management paradigm. Aguinis (2019) argues that modern organizations require performance management systems capable of providing continuous feedback so that strategic decisions can be made before organizational problems become more complex. Building upon this perspective, the present study demonstrates that Agentic AI enables the adaptation process to occur automatically through continuous data analysis. For example, when a distribution company experiences supply disruptions caused by a natural disaster, managers no longer need to wait for a monthly evaluation meeting to revise operational targets. Instead, the system can detect declining distribution capacity, estimate its impact on sales targets, and recommend adjustments to distribution priorities and daily performance targets. Consequently, organizations no longer merely evaluate outcomes but are also able to modify their strategies while business operations are still in progress.

This transformation is directly followed by changes in performance monitoring mechanisms. Davenport and Harris (2007) explain that organizations utilizing continuous analytics possess greater capability to detect changes in business conditions than those relying solely on periodic reports. Within the proposed model, *continuous monitoring* serves not only as a data collection mechanism but also as an early warning system for identifying emerging organizational issues. For instance, when the emergency department of a hospital experiences increasing patient waiting times, the system does not merely report queue length but also integrates this information with the availability of medical personnel, bed capacity, and patient distribution across hospital units. Based on these analyses, Agentic AI can recommend the redistribution of healthcare personnel or adjustments to service schedules, thereby preventing further deterioration in service quality before patient satisfaction is significantly affected.

The ability to continuously monitor organizational performance subsequently becomes the foundation for strategic decision-making. Simon (1977) explains that human decision-making is constrained by *bounded rationality*, which limits the ability to process information, allocate time, and evaluate multiple decision alternatives. Likewise, Power (2002) argues that a *Decision Support System* enhances decision quality by utilizing more comprehensive information. This study demonstrates that Agentic AI extends beyond data presentation by generating multiple decision alternatives based on current organizational conditions. For example, when a retail company experiences declining sales in a particular region, the system can integrate sales data with customer behavior, promotional effectiveness, inventory availability, and competitor activities. Based on this integrated analysis, Agentic AI can recommend increasing promotional efforts, reallocating inventory to other regions, or revising marketing strategies, ensuring that managerial decisions become not only faster but also more contextually appropriate.

The next transformation is observed in the development of performance indicators. Parmenter (2020) argues that effective KPIs should consistently reflect the critical factors determining organizational success. Building upon this perspective, the present study introduces the concept of *Adaptive KPI*, whereby performance indicators evolve in response to organizational conditions. For example, a technology company may initially identify the number of new users as its primary marketing KPI. However, when market saturation occurs and customer acquisition costs increase, Agentic AI can recommend shifting the primary KPI toward customer retention, repeat transaction value, or customer satisfaction. Consequently, KPIs are no longer treated as fixed targets throughout an evaluation cycle but instead function as dynamic strategic instruments that evolve alongside organizational priorities.

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Changes in performance indicators subsequently influence organizational governance mechanisms. Governance is no longer confined to administrative oversight but evolves into a system capable of transparently explaining the rationale underlying every organizational decision. For example, when a particular division receives a below-target performance evaluation, Agentic AI does not merely report the final score but also identifies the factors contributing to the decline, such as increasing production errors, project delays, or rising employee absenteeism. This enables management to trace the reasoning behind every recommendation generated by the system, thereby making the evaluation process more transparent, accountable, and defensible. Such an approach does not diminish managerial authority; rather, it strengthens governance quality by relying on more comprehensive evidence.

These governance transformations ultimately lead to broader social changes within organizations. Armstrong (2023) argues that objective performance evaluation systems increase employees' acceptance of performance appraisal outcomes, whereas Castells (2010) maintains that digital transformation has reshaped organizational interactions into more open and information-driven relationships. This study suggests that Agentic AI can reinforce these changes by establishing performance evaluations grounded in empirical evidence. For example, when assessing the performance of a marketing employee, the system evaluates not only total sales but also customer retention rates, responsiveness to customer complaints, communication quality, contributions to team objectives, and performance consistency over time. Such an approach enables employees to better understand the rationale underlying evaluation outcomes because all managerial decisions are supported by verifiable data rather than by supervisors' subjective judgments.

This perspective is consistent with Malone (2018), who argues that collaboration between humans and intelligent systems (*human-AI collaboration*) generates *collective intelligence*, which combines the analytical capabilities of artificial intelligence with human strategic judgment. Within the context of this study, Agentic AI is not positioned as a replacement for managers or primary decision-makers but rather as a strategic partner that continuously analyzes organizational conditions, formulates alternative actions, and generates data-driven recommendations. For example, when an energy company faces fluctuations in electricity demand caused by extreme weather conditions, Agentic AI can integrate demand forecasts, power generation capacity, weather conditions, and operational costs to produce multiple strategic scenarios from which managers can choose. This approach demonstrates that strategic authority remains under human control while Agentic AI enhances decision quality through faster, more comprehensive, and more adaptive analyses.

Overall, the findings indicate that integrating Agentic AI extends beyond improving the efficiency of the Balanced Scorecard; it fundamentally transforms the way

organizations manage information, formulate strategies, make decisions, and cultivate organizational culture. The six identified implications are closely interconnected, demonstrating that Agentic AI functions as a catalyst for organizational transformation toward a performance management system that is more adaptive, transparent, evidence-based, and capable of maintaining an appropriate balance between artificial intelligence and human judgment in strategic decision-making.

Conclusion

This study proposes a redesigned Balanced Scorecard through the integration of Agentic AI in response to the limitations of conventional performance measurement systems, which continue to rely on *static KPIs*, periodic evaluations, and human-centered decision-making. Using a *library research* approach with *conceptual analysis*, this study develops the *Redesigned Balanced Scorecard* model by positioning Agentic AI as an *intelligence layer* that enables *continuous monitoring*, *adaptive decision-making*, and *Adaptive KPI*. The proposed model demonstrates that this transformation does not alter the four fundamental perspectives of the Balanced Scorecard but instead redesigns its underlying performance management mechanism to become more adaptive to changing organizational environments. The findings also identify six major implications: a shift toward *adaptive performance management*, the implementation of *continuous monitoring*, data-driven decision-making, the development of *Adaptive KPI*, the strengthening of evidence-based organizational governance, and the establishment of a more objective and transparent performance evaluation system. Accordingly, this study demonstrates that integrating Agentic AI not only enhances the effectiveness of performance measurement but also establishes a new paradigm of organizational governance that is more responsive to the dynamics of the *machine autonomy* era.

The primary contribution of this study lies in the development of a conceptual framework that integrates the Balanced Scorecard with advances in Agentic AI, resulting in a more adaptive performance management model than conventional approaches. In addition to providing a new perspective on the transformation of performance measurement systems, this study extends the discussion of the implications of Agentic AI for *organizational governance* and *social change*. Nevertheless, this study has several limitations because of its conceptual nature, and the proposed model has not yet been empirically validated in specific organizational settings. Furthermore, the discussion focuses primarily on performance management and does not comprehensively examine technical challenges, organizational readiness, or the ethical risks associated with implementing Agentic AI. Therefore, future research is encouraged to empirically validate the proposed model through case studies, surveys, or quantitative approaches across various organizational sectors while also developing evaluation indicators capable of measuring the effectiveness of *Adaptive KPI*, the

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quality of *human-AI collaboration*, and their long-term impact on organizational performance.

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