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Research on Enterprise Strategy Formulation and Implementation Mechanisms Empowered by Artificial Intelligence

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ABSTRACT
In the digital economy era, the complexity and uncertainty of the market environment have placed higher demands on corporate strategic management. Traditional strategic planning models are constrained by information lag and cognitive limitations, often leading to challenges such as inefficient resource allocation and insufficient dynamic adaptability during implementation. Artificial intelligence (AI) technology, through real-time data analysis, pattern recognition, and predictive modeling capabilities, is redefining the cognitive boundaries and execution pathways of corporate strategic management. Therefore, this paper conducts a systematic study on the core mechanisms through which AI technology can deeply empower corporate strategic formulation and execution, aiming to provide theoretical support and practical pathways for building a data-driven intelligent strategic management system.

KEYWORDS
Artificial intelligence; Corporate strategy; Strategic execution; Decision-making mechanisms

1 Introduction

The global business environment is undergoing profound structural changes, with accelerating technological iteration, dynamic restructuring of supply chains, and diversification of demand patterns forming the core characteristics of the new competitive landscape. Against this backdrop, traditional strategic management frameworks are increasingly revealing their limitations. Static planning mechanisms are unable to adapt to nonlinear changing environments, hierarchical decomposition-based execution models face the dilemma of cross-departmental collaboration failure, and lagging risk control is more likely to lead to systemic fragility.

The development of next-generation artificial intelligence (AI) technologies is showing a breakthrough evolutionary trend. Through capabilities such as multi-source data fusion analysis, dynamic simulation of complex scenarios, and distributed intelligent decision-making, these technologies are opening new pathways for the upgrading of strategic management paradigms. The essence of these technological breakthroughs is not to replace human decision-making, but to fundamentally deconstruct the traditional disconnect between strategic formulation and execution by enhancing an organization's environmental awareness and response agility. Currently, exploring the intrinsic logic of deep synergy between artificial intelligence and strategic management systems has become an essential theoretical frontier in driving the evolution of corporate management paradigms.

2 The basic framework for strategic planning and execution

2.1 Traditional models of strategic planning and their limitations

Traditional strategic planning follows a linear analytical framework, typically beginning with a macro-environmental scan and establishing strategic positioning through a static assessment of industry structure and competitive landscape [1]. This model heavily relies on inductive reasoning based on historical data, treating strategic planning as a cyclical top-down design activity. Its core logic is built on the assumption of environmental predictability. Classic strategic tools such as SWOT analysis and Porter's Five Forces Model, while methodologically valuable in stable market environments, inherently simplify complex business systems into deterministic variables. As accelerated technological change and blurred market boundaries become the new normal, the fundamental flaws of the traditional model become increasingly evident: First, mechanical environmental scans struggle to capture nonlinear sudden change signals, leading to misjudgments of strategic windows of opportunity; Second, static assessments of resource capabilities overlook the dynamic evolutionary characteristics of organizations, causing a disconnect between core capability development and strategic direction; Third, pyramid-shaped decision-making processes result in strategic responses lagging behind the pace of environmental change, particularly in disruptive innovation areas where organizations are prone to falling into the trap of path dependence.

2.2 Core elements of the strategic execution mechanism

Strategic execution is the key conversion system that transforms strategic intent into operational results, and its effectiveness depends on the synergistic interaction of multidimensional elements. Organizational structure serves as the physical vehicle for execution, with transparent allocation of responsibilities and reporting relationships ensuring seamless transmission of strategic tasks across vertical levels and horizontal departments. Resource allocation mechanisms form the material foundation of execution, encompassing the precise allocation of critical elements such as financial capital, human resources, and technological infrastructure. This requires the establishment of a dynamic budget model aligned with strategic priorities. Process design determines execution efficiency, necessitating the elimination of cross-departmental collaboration barriers through end-to-end value stream optimization. For example, product development cycles can be restructured from sequential approval processes into parallel agile workflows [2]. The performance management system serves as the core control mechanism, breaking down strategic objectives into quantifiable key performance indicators to form a pressure transmission network where objectives are anchored at each level and responsibilities are assigned to specific individuals. Cultural atmosphere provides soft support for execution; when organizational members deeply align with the strategic vision, they can spontaneously fill execution gaps in institutional blind spots. Leadership plays a catalytic role throughout the process. Managers must translate abstract strategies into actionable instructions through contextualized communication and initiate corrective interventions when execution deviates. The collective efficacy of these elements ultimately manifests as the organization's strategic agility—the dialectical unity of maintaining strategic direction stability in complex environments while achieving rapid tactical iteration.

3 The mechanism of artificial intelligence in corporate strategy formulation

3.1 Information acquisition and environmental perception

AI has transformed the depth and breadth of corporate strategic environmental scanning by enabling real-time capture and integration of multi-source, heterogeneous data, thereby overcoming the temporal and spatial limitations of traditional information acquisition. Intelligent crawler systems continuously gather global supply chain dynamics, policy and regulatory changes, and technology patent intelligence, with coverage extending from public financial reports to unstructured information sources such as social media sentiment, satellite imagery, and supply chain logistics data. Natural language processing technology semantically deconstructs massive text volumes to precisely identify potential market disruption signals—such as predicting emerging alternative product threats from hot topics in technical forums or extracting regional trade barrier risks from cross-border policy documents. Computer vision algorithms enable the digital mapping of the physical world, such as analyzing consumer movement patterns through retail store surveillance videos or identifying production capacity bottlenecks based on factory equipment imagery [3]. This holistic sensing capability enables enterprises to establish a dynamic environmental knowledge graph, transforming fragmented market elements into a strategic landscape map with spatio-temporal correlations. Such insights, which surpass human experiential thresholds, allow strategic decision-makers to penetrate the information fog, capture structural change windows before industrial landscape restructuring, and lay the cognitive foundation for forward-looking strategic planning.

3.2 Intelligent support for strategic decision-making

The intelligent support system for strategic decision-making is undergoing a paradigm shift from tool-assisted to cognitive collaboration. Traditional decision-making relies on linear deduction models, which struggle to address multi-level derivative impacts. The core capability of intelligent agents lies in constructing a phase space mapping of strategic options. Through a hybrid enhanced intelligence architecture, decision support systems can simultaneously run millions of scenario simulation threads. This enables concurrent evaluation of conflicting variables such as technology maturity curves, cross-elasticity of substitutes, and patent landscape density in technology route selection scenarios. Deep reinforcement learning algorithms create a unique strategic game board. When a company faces market entry decisions, the system can simulate competitors' counterstrategy spectra and dynamically generate asymmetric response plans [4]. The breakthrough contribution of cognitive computing engines lies in deconstructing strategic paradoxes. For example, in resource allocation dilemmas, intelligent optimization based on the Pareto frontier reveals the implicit balance point between innovation investment and cash flow stability. The revolutionary aspect of the decision-making mechanism lies in its counterintuitive nature. When the anchoring effect traps human decision-makers, the algorithm actively creates cognitive tension through adversarial generative networks, forcing strategic thinking to break free from the local optimum trap. This human-machine co-constructed decision-making ecosystem fundamentally expands the mental boundaries of strategists through machine intelligence.

3.3 Innovation-driven development and strategic positioning

Artificial intelligence is reshaping the value creation logic of strategic positioning by breaking through the static limitations of traditional positioning theory through the topological restructuring of innovation pathways. The intelligent innovation engine first deconstructs the implicit connections within industrial value networks, utilizing graph neural network identification technology to identify opportunities for the 重组 of technical modules. For example, in the medical device sector, the non-obvious fusion value between biosensors and blockchain technology is revealed. At the level of disruptive innovation identification, variational autoencoder technology can capture signals of technological paradigm shifts in scientific literature, providing early warnings of technological fault lines 12–18 months in advance compared to traditional Delphi methods [5]. A more profound impact lies in the formation of a dynamic positioning mechanism. When enterprises adopt intelligent positioning systems, value propositions can automatically adjust based on real-time demand manifolds: in the fast fashion industry, style migration algorithms convert regional aesthetic preferences into design parameters; in the industrial equipment sector, digital twins continuously validate product performance and scenario adaptability. This positioning paradigm is inherently counterintuitive—it dissolves the rigid constraints of the "trade-off" principle in Porter's framework, achieving a quantum leap in mass customization and low-cost efficiency through intelligent flexible manufacturing. Strategic positioning thus evolves into a continuous innovation process function, where core competitiveness no longer manifests as static market positioning but rather as the ability to build a foundational capability for innovation emergence.

4 Application pathways for artificial intelligence in corporate strategic execution

4.1 Resource allocation and organizational collaboration

Artificial intelligence is reshaping the resource dynamics model of strategic execution, with its core breakthrough lying in establishing a quantized scheduling mechanism for resource flow. Traditional budget allocation is constrained by the rigid annual cycle, leading to a mismatch between strategic resource investment and market pulse frequency. In contrast, the intelligent resource cloud map transforms capital expenditures into a continuously optimized dynamic process through real-time value stream analysis. In the smart transformation of manufacturing enterprises, deep learning algorithms can simultaneously analyze the implicit functional relationship between equipment depreciation curves and technological iteration rates, autonomously generating the optimal sequence combination of R&D investment and production capacity updates. Organizational collaboration undergoes a more profound paradigm shift, as blockchain-enabled innovative contract systems deconstruct the agency problems inherent in hierarchical structures. When cross-departmental collaboration is triggered, the system automatically generates a consensus tree of objectives and allocates responsibility entropy values.Additionally, the role of intelligent agents in collaborative networks is evolving—they do not simply replace middle managers but accelerate the restructuring of knowledge dissipation structures by creating virtual pressure fields. For example, in product development scenarios, natural language processing engines instantly convert ambiguous market department requirements into engineering parameters while simultaneously generating constraint condition matrices for design and production processes. This real-time feedback mechanism breaks through the Dunbar number constraint on organizational collaboration efficiency, creating a superfluid effect in strategic execution.

4.2 Monitoring and feedback in the strategic execution process

In the intelligent era, the strategic monitoring system has evolved into an organic living entity with metabolic characteristics, capturing embryonic signals of execution deviations through distributed sensory neurons. Traditional tools like the Balanced Scorecard rely on predefined metric frameworks, akin to searching for targets in a dark forest with a fixed spotlight. In contrast, the intelligent monitoring system builds an immersive sensing network that can map the subtle vibrations of strategic implementation in real time through digital twins. In channel expansion strategies, computer vision technology analyzes heat maps of foot traffic from tens of thousands of stores and generates dynamic warning topologies by integrating inventory turnover data. When regional market share fluctuations exceed adaptive thresholds, the causal inference engine immediately traces back to the transmission delay of dealer incentive policies. The disruptive nature of the feedback mechanism lies in its pre-adaptive characteristics—reinforcement learning algorithms simulate historical execution trajectories to generate a set of compensatory strategies before deviations become apparent. The more fundamental transformation lies in the reconstruction of closed-loop control logic: the traditional PDCA cycle is replaced by neuromorphic computing, where execution data flowing through a spiking neural network triggers strategy synapse plasticity regulation, evolving strategic adjustments from periodic interventions into continuous neural reflex activities. This monitoring paradigm transforms strategic execution into a self-organizing dissipative structure, with its core value lying in converting control costs into an energy source for strategic agility.

4.3 Risk management in strategic execution

Artificial intelligence reconstructs the risk management paradigm, building an intelligent risk barrier for corporate strategic execution. Traditional risk management relies on historical experience and manual judgment, making it difficult to cope with the new types of risks emerging in the digital age. AI-driven risk management systems first achieve comprehensive and forward-looking risk identification. For example, they use deep learning algorithms to scan unstructured data such as global policies and regulations, industrial chain dynamics, and technology patents. They provide 180-day warnings of strategic risks such as raw material embargoes and technology standard upgrades. During cross-border M&A execution, the system can monitor the political instability index and public opinion sensitivity of the target company's country in real time and automatically generate a risk avoidance roadmap. In the risk assessment phase, AI overcomes the limitations of traditional matrix analysis by quantifying risk transmission effects through multi-variable coupling simulations. For example, when detecting financial anomalies in a critical technology supplier, the system automatically simulates the cascading impacts of this risk on R&D progress, production costs, and market delivery, generating a risk propagation prediction curve measured in days. The most transformative aspect of risk response is the dynamic strategy generation capability. A decision engine based on reinforcement learning continuously optimizes response plans during execution. For example, in a supply chain disruption scenario, the system combines real-time logistics data, alternative supplier capacity, and in-transit inventory distribution information to update the optimal allocation plan every second, synchronously adjusting production schedules and customer commitments.

5 Conclusion

Artificial intelligence is profoundly transforming the core logic of corporate strategic management, driving a shift from static planning to a dynamic, adaptive systems engineering approach. At the heart of this transformation is the establishment of an intelligent closed-loop system spanning the entire strategic lifecycle: real-time environmental sensing and data simulation enable continuous optimization of strategic planning; intelligent resource allocation and cross-departmental collaboration enhance agile response capabilities during execution; and predictive monitoring and adaptive feedback mechanisms strengthen the foresight and resilience of risk management.

About the Author

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