

메커니즘 연구

Journal of MECHANISM MANAGEMENT



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폼팩터 전환기의 약자 우위 전략:

카카오톡은 어떻게 모바일 퍼스트 메커니즘으로 네이트온을 넘어섰는가

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Journal of Mechanism Management

2026.06

메커니즘경영학회
MECHANISM SOCIETY

Journal of MECHANISM MANAGEMENT

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Underdog Advantage in a Form-Factor Transition : How KakaoTalk Surpassed NateOn Through Mobile-First Strategic Mechanisms

*Boram Yoo

Yong Taek Min**

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Abstract

This study analyzes how KakaoTalk, a latecomer in the Korean mobile messenger market, overtook the incumbent NateOn and emerged as the dominant player. KakaoTalk's trajectory is treated as a representative case in which an underdog defeats a strong incumbent during a technological transition. To this end, the study constructs an integrated analytical framework that combines Cho's (2014) SER-M (Subject-Environment-Resource-Mechanism) model with Christensen's (1997) theory of disruptive innovation, and conducts an in-depth qualitative comparative case study of the two firms' strategic responses during the mobile transition period from 2010 to 2014. The findings reveal that KakaoTalk's success did not stem from technological superiority per se, but from early sensing of environmental change and the construction of innovative mechanisms. Specifically, KakaoTalk (1) detected the paradigm shift from PC to mobile at an early stage, (2) implemented mobile-native UX and frictionless onboarding based on a free pricing model as its core mechanisms, and (3) generated strong network effects that enabled rapid expansion of its user base. In particular, KakaoTalk targeted users who had been underserved under the SMS regime due to per-message charges and functional constraints, and offered a free messaging service, thereby exhibiting the characteristics of a low-end disruption.

Keywords: KakaoTalk; NateOn; SER-M model (Subject-Environment-Resource-Mechanism); mobile messenger; disruptive innovation; platform strategy; network effects; Weight-Sequence Model (WSM)

Received: Jan. 19, 2026 Accepted Date: Mar. 11, 2026,

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I. Introduction

1.1. Research background and purpose

In the late 2000s, the Korean digital communication market was dominated by NateOn, a PC-based messenger launched in January 2003 with 27 million users and strong network effects linked to Cyworld. By 2005, NateOn had become the market leader, surpassing competitors such as MSN Messenger and BuddyBuddy through its integration with Cyworld's social graph and the Nate portal ecosystem. However, the mobile transition triggered by the iPhone's introduction in 2009 reshuffled the market hierarchy. KakaoTalk, a latecomer launched in March 2010, overturned the incumbent's dominance within two years.

While prior studies have examined KakaoTalk's success factors (Kang, 2015; Yoo, 2013) or NateOn's failure (Hyung, 2020) in isolation, systematic comparative research explaining the mechanism of this reversal remains limited. A keyword search on major academic databases (RISS, Google Scholar) for "Messenger Platform Strategy" and "Comparative Analysis" from 2010 to 2024 reveals that comparative research applying a unified theoretical framework to these two firms remains scant. Most existing research relies on descriptive success stories rather than analyzing the structural causes of the "resource advantage paradox"—why a resource-rich incumbent failed against a resource-constrained startup.

This study fills this gap by integrating the SER-M (Subject-Environment-Resource-Mechanism) framework with Christensen's (1997) theory of disruptive innovation. Furthermore, it employs the Weight-Sequence Model (WSM) to quantify the strategic prioritization that enabled KakaoTalk to overcome the "David vs. Goliath" disparity. By addressing how a challenger bypassed the "chasm" and established a virtuous cycle of mechanisms, this study offers dynamic insights into platform competition. To achieve this, the study addresses three condensed research questions: (1) What differences existed in their strategic mechanisms? (2) How did KakaoTalk neutralize the incumbent's network advantage? and (3) What were the decisive factors separating success from failure within the SER-M framework?

1.2. Academic and Practical Contributions

This study makes academic and practical contributions by concretizing a mechanism-centered view of strategic innovation. Academically, it suggests that mechanism fit—rather than resource scale alone—can play a decisive role in performance outcomes during technological transitions. By symmetrically analyzing both success and failure, it mitigates the success bias prevalent in prior research. Practically, it highlights the risks of "core rigidity" for incumbents and demonstrates how latecomers can exploit opportunities through mobile-native UX and staged expansion.

Methodologically, by integrating SER-M with WSM, the study introduces an interpretive

framework that evaluates not only the components of strategy but also their execution sequence and relative priority. This provides a more actionable and structured understanding of platform strategy than static analytical models.

1.3. Structure of the Paper

The remainder of this paper is organized as follows. Section 2 reviews the theoretical background. Section 3 explains the research design and methodology. Section 4 presents the integrated analytical framework. Sections 5 and 6 provide in-depth case analyses of KakaoTalk and NateOn, respectively. Section 7 conducts a comparative analysis, and Section 8 concludes with theoretical and managerial implications.

II. Theoretical Background

2.1. Structure and Meaning of the SER-M Model

The SER-M (Subject, Environment, Resource, and Mechanism) model, originally proposed by Cho and Lee (1997) and later systematized by Cho (2014), serves as the core analytical framework of this study. The model conceptualizes firm performance as the outcome of how the subject, the environment, and the firm's resources are activated and connected through mechanisms. In contrast to traditional frameworks such as SWOT analysis or Porter's Five Forces, which tend to treat internal and external factors separately, SER-M emphasizes the dynamic interaction among these components and highlights execution mechanisms as the fundamental unit of strategic analysis.

Within the SER-M model, the subject refers to the internal drivers of strategic intent, including leadership, organizational culture, decision-making structures, and the firm's guiding vision. The environment captures the external conditions that shape strategic choices, such as technological change, competitive dynamics, regulatory shifts, and sociocultural context. Resources include both tangible assets—such as capital, human talent, and technological capabilities—and intangible assets, including brand equity, data, and network relationships. The mechanism dimension represents the concrete processes, routines, and methods through which resources are mobilized and transformed into competitive advantage.

A central insight of the SER-M framework is that mechanisms function as the strategic integrator that links the subject, the environment, and the resource base. Cho (2006) formalized this idea through the Mechanism-Based View (MBV), which argues that even when firms face similar environmental conditions and possess comparable resources, differences in mechanisms can lead to markedly different performance outcomes. Mechanisms therefore constitute more than mere execution tools; they are the creative and

adaptive means by which a firm expresses its strategic intent, aligns with environmental demands, and configures resources to generate value. Building on this mechanism-centered perspective, this study examines how KakaoTalk and NateOn produced contrasting outcomes despite competing in the same market and facing the same technological transition.

2.2. Comparative Advantage of SER-M and WSM

This study adopts the SER-M framework and WSM instead of traditional strategic tools such as SWOT or Porter's Five Forces (1980) for two specific reasons tailored to the platform transition context. First, while Porter's Five Forces model is effective for analyzing static industry structures and entry barriers, it often overlooks the internal sequencing of strategic execution. In a fast-moving platform market, the timing of resource deployment is as critical as the resources themselves. The SER-M framework emphasizes the dynamic interaction among Subject, Environment, and Resources through the "Mechanism" (Cho, 2014), allowing for a more fluid analysis of how firms adapt to rapid environmental shifts. Second, traditional qualitative frameworks lack a method to evaluate the "temporal priority" of strategies. This study complements SER-M with the Weight-Sequence Model (WSM) to address this limitation. As Cho and Moon (2022) argue, successful strategy depends not only on what resources are used but when and with what priority they are deployed. WSM provides an interpretive lens to evaluate this "strategic sequence," offering a methodological advantage in analyzing platform transitions where early network effects are path-dependent (Han & Cho, 2015).

2.3. Disruptive Innovation

Christensen (1997) defines disruptive innovation as a process in which a product or service that initially performs below the expectations of mainstream customers enters a niche market with different performance criteria and, through gradual improvement, eventually reshapes the broader market. The concept was formalized based on Christensen and Bower's (1995) earlier discussion of "disruptive technologies," which emphasized how incumbents often overlook emerging technologies that initially appear inferior according to existing standards.

Disruptive innovation takes two primary forms. The first is low-end disruption, in which entrants target customer segments that are overserved by incumbent offerings. In such cases, incumbent firms provide more features or higher performance levels than many customers require, creating an opportunity for entrants to deliver simpler and more affordable alternatives. The second is new-market disruption, which occurs when a firm creates new consumption by serving non-consumers—customers who were previously unable to adopt existing solutions due to price, complexity, or accessibility constraints.

The central mechanism enabling disruptive innovation is the asymmetry of performance trajectories. Christensen (1997) argues that incumbents tend to improve their technologies

more rapidly than customers' needs actually increase. This gap creates a window of opportunity for disruptors whose initial performance falls short of mainstream expectations but eventually converges with and surpasses them, thereby transforming existing business models and value networks.

The case of KakaoTalk illustrates how disruptive innovation operates during a form-factor transition. KakaoTalk addressed the high cost barriers of SMS and the limited mobile accessibility of PC-based messengers by offering a value proposition centered on free and simple messaging. Rather than replicating the complex features optimized for mainstream PC users, KakaoTalk delivered only the essential messaging functions required in the mobile environment. This strategic positioning reflects the characteristics of low-end disruption and represents an adapted form of disruptive innovation tailored to the mobile platform era. KakaoTalk's emergence demonstrates how a disruptive entrant can leverage simplicity, accessibility, and cost advantages to redefine a market that incumbents had previously dominated.

2.4. Platform Business and Network Effects

Platform businesses operate as two-sided markets that facilitate interactions between different user groups, such as consumers and producers, by providing a shared infrastructure and a set of rules that govern participation (Parker, Van Alstyne, & Choudary, 2016). Unlike traditional pipeline businesses that create and deliver value through a linear value chain, platforms enable participants to co-create, exchange, and amplify value through their interactions. A defining characteristic of platforms is that value is generated and amplified through network effects, which constitute the primary source of sustainable competitive advantage in platform markets.

Network effects are generally classified into direct and indirect effects (Katz & Shapiro, 1985). Direct network effects arise when the utility a user derives from a service increases as more users join the same side of the market. Messaging applications provide a representative example, as each additional user increases the number of potential communication partners for others, thereby enhancing individual utility. Indirect network effects, which Rochet and Tirole (2003) describe as cross-network externalities, occur when an increase in users on one side of the market enhances the value for participants on the other side. Such effects are central to two-sided platforms, where complementary user groups—such as developers and end users—jointly contribute to value creation.

A critical strategic challenge for platform providers is overcoming the “chicken-and-egg problem,” which refers to the difficulty of attracting users on both sides of the market in the early stages. Achieving critical mass requires deliberate ignition strategies, such as subsidizing one side of the market or offering free services, as discussed by Evans and Schmalensee (2016). Once critical mass is reached, positive feedback loops develop, accelerating growth and often leading to winner-take-all dynamics.

KakaoTalk provides a compelling empirical example of platform strategy in action. In

its early stage, KakaoTalk generated strong direct network effects by offering free messaging, rapidly expanding its user base. In 2012, the company launched its game platform, which connected game developers with users and effectively formed a two-sided market.

The exceptional success of Anipang illustrates the amplification of indirect network effects: as more users engaged with the game, additional developers joined the platform, increasing the supply of content and further stimulating user participation (Eisenmann et al., 2006; Rochet & Tirole, 2003).

Building on this momentum, KakaoTalk subsequently expanded into payments, shopping and content services, evolving into a multi-layered super-app that generated synergistic and overlapping network effects (Jang & Oh, 2013).

2.5. An Integrated Perspective on Competitive Strategy

While the SER-M model and the theory of disruptive innovation provide important insights into how firms respond to technological shifts, these frameworks alone are insufficient to fully explain the sequencing of strategic actions and the dynamic deployment of resources over time. To address these limitations, this study incorporates three major strands of competitive strategy research—Porter’s competitive strategy, Barney’s Resource-Based View (RBV), and Teece et al.’s dynamic capabilities—and positions them within an integrated analytical perspective.

Porter’s (1980, 1985) competitive strategy theory emphasizes industrial structure and strategic positioning as the primary determinants of firm performance. Through the Five Forces framework, Porter identifies the competitive forces that shape industry attractiveness and prescribes generic strategies—cost leadership, differentiation, and focus—as means to secure a defensible position within the industry. From this perspective, firms achieve sustainable competitive advantage by occupying favorable positions and establishing entry barriers against rivals.

Barney’s (1991) Resource-Based View shifts attention from external industry structure to internal firm heterogeneity. According to the RBV, sustainable competitive advantage originates from resources that satisfy the VRIO criteria: they must be valuable, rare, difficult to imitate, and organizationally embedded. This framework explains performance differences among firms operating in the same industry by emphasizing resource immobility and causal ambiguity. Intangible assets such as organizational culture, tacit knowledge, and complex social relationships are particularly difficult to replicate and therefore serve as durable foundations for competitive advantage.

Teece et al.’s (1997) dynamic capabilities perspective extends the RBV by explaining how firms renew and reconfigure their resource base in environments characterized by rapid technological change. Teece (2010) further argued that the design of business models is itself a dynamic capability, linking strategic adaptation to the architecture of value creation and capture. Dynamic capabilities consist of three interrelated processes: sensing

opportunities and threats, seizing opportunities through strategic commitments, and reconfiguring resources to maintain alignment with environmental change. This view highlights the importance of adaptability, emphasizing that competitive advantage depends not only on the possession of superior resources but also on the firm's ability to continually transform them.

Together, these theories enrich the SER-M framework by illuminating different aspects of strategic action. Porter clarifies how environmental forces shape strategic positioning, Barney explains how resource characteristics condition the potential for competitive advantage, and Teece elucidates how firms dynamically reconfigure their resources in response to environmental shifts. By integrating these perspectives, this study provides a comprehensive theoretical foundation for analyzing the contrasting strategic trajectories of KakaoTalk and NateOn. The combination of SER-M with these established strategy theories enables a multidimensional understanding of how firms deploy mechanisms to align subject, environment, and resources in periods of technological transition.

2.6. An Integrated Framework Linking SER-M and Competitive Strategy Theories

The strategic theories reviewed above align closely with the four components of the SER-M framework, revealing how different schools of thought emphasize complementary aspects of strategic action. SER-M conceptualizes strategy as the interaction of the subject, the environment, the resource base, and the mechanisms through which these elements are combined and activated. When viewed through this lens, the insights of Porter, Barney, and Teece can be systematically integrated into a coherent analytical structure.

The subject component corresponds to the strategic decision-making role of managers and organizational actors. In Porter's (1980, 1985) framework, the subject is responsible for analyzing industry structure and selecting an appropriate positioning strategy. In Barney's (1991) Resource-Based View, the subject is the agent that identifies VRIO resources and organizes them to create value. In Teece et al.'s (1997) dynamic capabilities perspective, the subject performs sensing, seizing, and reconfiguring activities to align the firm with a shifting environment.

The environment encompasses the external conditions that shape strategic choices. Porter's Five Forces model conceptualizes the environment as a set of structural factors that determine industry attractiveness. Barney (1991) emphasizes strategic fit, noting that the value of resources depends on the environmental context. Teece et al. (1997) frame environmental change as the trigger for sensing opportunities and threats, highlighting the need for ongoing adaptation. Across these theories, the environment functions as both a point of departure and a constraint for strategic decision-making.

The resource component captures the tangible and intangible assets that form the foundation of competitive advantage. Porter views resources as the basis for executing cost leadership or differentiation strategies. RBV extends this by specifying the VRIO criteria—value, rarity, inimitability, and organizational embeddedness—as the conditions under which

resources become sources of sustained advantage. Teece et al. (1997) emphasize the role of resources in seizing opportunities and maintaining competitiveness in dynamic markets. These views collectively underscore that resources must not only be possessed but also strategically organized and adapted.

The mechanism component represents the means through which subjects configure resources in response to environmental conditions. In Porter's framework, mechanisms include barrier-building, positioning, and activity systems that reinforce strategic fit. In RBV, mechanisms consist of the processes by which heterogeneous resources are combined and transformed into value. In the dynamic capabilities framework, mechanisms are the routines and processes that enable reconfiguration in the face of technological or market shifts. Consistent with Cho's Mechanism-Based View (2006), mechanisms serve as the central integrator that links intent, context, and resource deployment to produce performance outcomes.

To clarify how these conceptual relationships map onto one another, **Table 1** summarizes the correspondence between the four SER-M components and the focal concepts emphasized by Porter, Barney, and Teece. This integrative mapping serves as the theoretical foundation for the Weight-Sequence Model (WSM) analysis presented in Section 4, allowing the study to evaluate not only the qualitative content of strategic mechanisms but also their relative importance and temporal sequencing.

<Table 1> Linkages between SER-M components and major strategy theories

SER-M Component	Porter (Competitive Strategy)	Barney (Resource-Based View)	Teece (Dynamic Capabilities)
Subject	Strategic decision-maker	Resource organizer	Managerial sensing, seizing, reconfiguring
Environment	Industry structure (Five Forces)	Strategic fit	Sensing environmental change
Resource	Competitive assets	VRIO resources	Seizing opportunities
Mechanism	Positioning and barrier-building mechanisms	Resource combination mechanisms	Reconfiguring mechanisms

Following this mapping, the integrated framework demonstrates how the strategic elements emphasized by existing theories operate in a complementary manner within the SER-M structure. Porter's perspective highlights the importance of environmental analysis and competitive positioning, Barney's framework underscores the characteristics and organization of resources, and Teece's approach emphasizes dynamic adaptation to environmental change. Building on this integrative perspective, the present study examines the strategic differences between KakaoTalk and NateOn. By comparing how the two firms, despite facing similar environmental conditions, deployed their resources through distinct mechanisms and achieved contrasting outcomes, the study seeks to identify the decisive

influence of mechanisms on competitive performance.

2.7. Summary of Prior Research and the Distinctiveness of This Study

This section reviews prior research on messenger-platform competition, platform transitions, SER-M applications, and the Weight-Sequence Model (WSM) to identify the theoretical gaps that motivate the present study. Although existing research has provided valuable insights into the evolution of Korea's mobile messenger market, most studies have examined KakaoTalk's success and NateOn's decline in isolation, rather than treating them as contrasting cases that reveal mechanism-level differences under similar environmental conditions.

2.7.1. Research on Competition in the Korean Messenger Platform Market

Studies on competition within the domestic mobile messenger market can be grouped into three broad perspectives. The first perspective concerns user adoption and diffusion. Kang (2015) analyzed KakaoTalk's success from a user experience (UX) standpoint, using heuristic evaluations and user surveys to show that intuitive interface design and user-centered features enhanced usability. The study emphasized the simplicity of chat-window design and the constant visibility of the input box, but it did not examine how UX interacted with business models or network effects. Oh (2013) examined Kakao's platform strategy in the context of the Korean messenger market, emphasizing how platform openness and user-oriented service design contributed to rapid user adoption. Their study highlighted that simplicity and immediacy in platform use were critical factors differentiating KakaoTalk from competing messenger services. They identified address-book-based auto-synchronization as a key factor lowering onboarding friction. However, the study did not analyze strategic decision-making or organizational capabilities.

The second perspective focuses on platform strategy and business models. Yoo (2013) examined KakaoTalk's mobile platform expansion through the lens of Eisenmann et al.'s (2006) two-sided market theory, showing how cross-network externalities between users and content providers fueled platform growth. Similarly, Kim and Kim (2013) analyzed the formation of KakaoTalk's two-sided market structure, highlighting how free messaging served as the catalyst for attracting both users and third-party service providers. The study emphasized that address-book-based network formation and free messaging were essential for achieving critical mass, after which the launch of the 2012 game platform amplified indirect network effects. However, because the analysis covered only up to 2013, it did not address later expansions into payments, commerce, and mobility.

Han and Cho (2015) conducted a longitudinal analysis of KakaoTalk's platform business model evolution. They showed that the explosive popularity of Anipang marked the tipping point at which KakaoTalk transitioned from a messaging tool to a multifunctional platform, following a Preparation-Spread-Evolution (PSE) curve. Their work demonstrated how

KakaoTalk sequentially expanded from messaging to gaming, commerce, and finance. Yet the study did not offer a direct comparison with NateOn, and therefore could not explain why KakaoTalk succeeded while NateOn declined.

A third perspective concerns failure cases within the Korean social networking and messenger market. Hyung (2020) examined the decline of services such as NateOn, Cyworld, and MyPeople, emphasizing failures in mobile transition, business model formation, and organizational resistance to innovation. However, the study relied primarily on descriptive accounts of failure factors and did not apply a structured theoretical framework. Moreover, it did not compare successful and unsuccessful firms within the same environmental context.

2.7.2. Research on Platform Transitions and Technological Paradigm Shifts

Research on platform transitions has focused largely on global cases. Gawer and Cusumano (2014) analyzed the evolution of platform leadership and showed how shifts in technological architecture led to shifts in platform dominance—from IBM in the mainframe era to Microsoft in the PC era and later to Apple and Google in the mobile era. Their work demonstrates that incumbents' existing assets and capabilities can become constraints during technological transitions.

Henfridsson, Nandhakumar, Scarbrough, and Panourgias (2018) examined the restructuring of mobile platform ecosystems, showing how Nokia's Symbian platform lost competitiveness to iOS and Android. Their study argued that strong ties with existing ecosystem partners can hinder the formation of new developer communities, revealing the ambivalent nature of network effects. However, the analysis is centered on hardware-software ecosystems rather than pure software platforms such as mobile messengers.

Yoo, Henfridsson, and Lyytinen (2010) argued that digital convergence reshapes the nature of innovation, shifting the locus of innovation from products to platforms, from closed to open systems, and from firm-centered to ecosystem-centered structures. Although this perspective is useful for understanding KakaoTalk's ecosystem expansion, it does not address the specific mechanisms through which strategic actions are executed.

In Korea, studies on technological transition exist, but systematic analysis of the shift from PC-based to mobile messenger platforms remains limited. Thus, the domestic context lacks a theoretical explanation of how firms navigated the mobile transition and why their strategic responses diverged.

2.7.3. Applications of the SER-M Model

The SER-M framework proposed by Cho (2014) has been applied to various fields, including global manufacturing strategy and service industry competitiveness. Consistent with this mechanism-oriented perspective, Moon (2015) examined Samsung's global smartphone strategy and showed how the company narrowed the gap with Apple by

leveraging manufacturing and supply-chain capabilities to enable rapid product release cycles. Building on this line of research, Choi (2018) analyzed Hyundai Motor Company's internationalization strategy and highlighted how the firm's performance in China depended on adapting product development and operational practices to local market conditions, underscoring the importance of alignment between strategic mechanisms and the host environment.

However, existing SER-M research has been concentrated mainly in manufacturing and traditional service industries. Applications of SER-M to digital platform businesses remain scarce, particularly in contexts where network effects, multi-homing costs, and critical-mass dynamics shape competitive outcomes. Moreover, most SER-M studies analyze only successful firms, whereas comparative analysis of success and failure within the same market environment is rare. Research examining contrasting cases—where a resource-rich incumbent fails and a resource-constrained entrant succeeds—has been especially limited.

2.7.4. Research on the Weight-Sequence Model (WSM)

The Weight-Sequence Model, introduced by Cho and Moon (2022), is a relatively recent analytical method designed to quantify both the relative importance (weight) and the temporal sequence of strategic actions. Although WSM has been applied in studies of global expansion and technological innovation, empirical applications within platform business contexts remain limited.

Traditional qualitative case studies offer deep contextual insights but lack the ability to systematically quantify the prioritization of strategic choices. WSM addresses this limitation by assigning weights to evaluation criteria and computing the relative importance of strategic stages. However, prior research has not integrated WSM with SER-M, nor has it applied the combined framework to digital platform competition. Thus, the integrated SER-M×WSM approach developed in this study represents a methodological innovation.

2.7.5. Research Gaps and Distinctiveness of This Study

The review of prior research reveals four critical gaps. First, few studies have conducted a systematic comparative analysis of KakaoTalk and NateOn. Existing research tends to analyze one firm at a time, missing the opportunity to explain why opposite outcomes arose under similar environmental conditions. Second, research has not adequately examined the “resource advantage paradox,” whereby NateOn failed despite possessing 27 million users and substantial financial and organizational resources. Third, applications of the SER-M model to digital platform competition are limited, especially in explaining how mechanisms operate under network-effect-driven market structures. Fourth, methodological integration of qualitative and quantitative approaches has been lacking, leaving unanswered the question of how to evaluate the relative importance and sequencing of strategic choices.

This study addresses these gaps in three ways. First, it integrates the SER-M framework with Christensen's theory of disruptive innovation to analyze strategic responses to technological transitions. By incorporating the Mechanism-Based View (Cho, 2006), the study conceptualizes mechanisms as the strategic integrator that links subject, environment, and resources, and explains why firms with similar resource conditions may achieve different outcomes. Second, it applies the Weight-Sequence Model to quantify the relative importance of KakaoTalk's strategic stages, thereby adding analytical rigor and specificity to qualitative mechanism analysis. Combining SER-M with WSM enables a multidimensional assessment of what strategic actions were taken, in what sequence, and with what relative importance. Third, the study conducts a comparative analysis of KakaoTalk and NateOn using Yin's (2018) case-comparison methodology. By examining how two firms facing the same environmental shift applied different mechanisms and generated contrasting results, the study empirically illustrates that mechanism suitability is a decisive factor in competitive performance.

III. Research Design and Methodology

3.1. Shared Environmental Shift: The Transition from PC to Mobile

Both KakaoTalk and NateOn experienced the same macro-level technological transition from PC-based to mobile-based communication environments. This shared external shift provides a natural experimental setting for comparing how two firms, operating under identical environmental changes, produced contrasting competitive outcomes. Prior to 2010, the Korean messenger market was structured around PC-installed instant messaging programs integrated with portal ecosystems. However, the rapid diffusion of smartphones and mobile broadband created new communication behaviors centered on portability, ubiquitous access, and interface simplicity.

The mobile transition is therefore an essential analytical baseline in this study. It enables a controlled comparison that isolates mechanism-level differences, rather than environmental or resource-based disparities, as the primary drivers of performance divergence between KakaoTalk and NateOn.

3.2 Research Design: Comparative Case Study

This study employs a comparative case study design following Yin's (2018) methodological principles and the practical guidance provided by Baxter and Jack (2008) for novice case study researchers. A single-case analysis alone would not sufficiently explain why two firms with differing resource levels and market positions responded differently to

the same environmental change. The comparative approach enables systematic identification of the mechanisms through which a latecomer (KakaoTalk) outperformed an incumbent (NateOn).

The research design incorporates three key elements. First, SER-M provides the conceptual structure for analyzing the three foundational components of strategic action—subject, environment, and resources—and the mechanisms that connect them. Second, disruptive innovation theory is incorporated to explain how KakaoTalk leveraged a low-end disruption strategy during the form-factor transition. Third, the study uses the Weight-Sequence Model (WSM) to systematically evaluate the relative importance and temporal sequence of KakaoTalk’s strategic actions, supplementing qualitative interpretation with structured judgment.

This multi-framework design enhances theoretical rigor by integrating qualitative and interpretive quantitative perspectives, thereby enabling a more comprehensive explanation of the contrasting trajectories of KakaoTalk and NateOn.

3.3. Data Sources and Collection (Triangulation)

To enhance the reliability of the findings, this study employs triangulation in its data collection process. Multiple categories of secondary data were systematically gathered and cross-validated. Sources include corporate disclosures, investor relations (IR) materials, industry reports, regulatory publications such as the Korea Internet & Security Agency (2010) survey on smartphone usage, academic research, and major news media. These materials provide information on strategic decisions, service launches, user metrics, organizational actions, and industry dynamics during the critical period from 2010 to 2014.

Major Korean daily newspapers and IT-specialized media outlets were consulted to track contemporaneous accounts of platform competition and user behavior trends. Academic studies and government publications supplied contextual insights on mobile adoption rates, network effects, and platform economics. Corporate announcements and archived service logs were used to reconstruct each firm’s strategic timeline.

By synthesizing these sources, the study mitigates the limitations associated with relying on any single category of secondary data and ensures that interpretations are grounded in corroborated evidence.

3.4. Coding and Analytical Procedure

The analysis followed a structured coding procedure grounded in the SER-M framework. First, all collected materials—including corporate disclosures, media reports, academic studies, and strategic timelines—were systematically reviewed to identify key events, decisions, and behavioral patterns for both KakaoTalk and NateOn. Each event was then categorized according to its relevance to the four SER-M components: subject, environment, resource, and mechanism. This provided a consistent interpretive lens for comparing the two cases.

After this initial categorization, the study applied a second-level coding process to identify how mechanisms were constructed, activated, or constrained across the two firms. This step focused on capturing the interaction among SER-M elements, rather than treating each component independently. Mechanisms were coded based on their strategic intent, operational characteristics, and observable market effects.

Finally, the coded data were synthesized into chronological narratives for each platform. These narratives allowed for the identification of sequential patterns in strategic actions and provided the empirical basis for integrating SER-M analysis with the Weight-Sequence Model (WSM). Throughout the process, coding decisions were iteratively reviewed to maintain consistency and analytical rigor.

3.5. Combined Analytical Logic of SER-M and WSM

The integration of SER-M and the Weight-Sequence Model (WSM) provides a multidimensional perspective for analyzing strategic action during technological transitions. SER-M enables the identification and interpretation of mechanisms through which firms mobilize resources in response to environmental conditions. WSM complements this by providing a structured assessment of the relative importance and temporal sequence of these mechanisms within a broader strategic trajectory.

In this study, SER-M was first used to categorize and interpret KakaoTalk's and NateOn's strategic choices during the core transition period from 2010 to 2014. Mechanisms were then evaluated using WSM across three criteria—growth potential, profitability, and ease of implementation—whose weights were derived from a systematic review of prior literature. The scoring procedure transformed qualitative assessments into structured expert judgments, allowing for a comparative evaluation of strategic stages.

The combined model thus provides a richer explanation than either framework alone. SER-M clarifies what mechanisms were used and why they mattered, while WSM explains when they were executed and with what intensity they contributed to overall strategic outcomes. This integrated approach allows the study to trace the interpretive pathways through which KakaoTalk accumulated advantage and NateOn lost competitiveness.

3.6. Ensuring Validity and Reliability

To ensure construct validity, the study employed data triangulation by drawing on multiple types of secondary sources, including corporate reports, government publications, industry analyses, and contemporaneous media coverage. This cross-verification minimized the risk of interpretive bias stemming from any single data source. Pattern matching was used throughout the analysis to link empirical observations with theoretical constructs from SER-M, disruptive innovation theory, and platform strategy research.

Internal validity was enhanced through temporal sequencing. By reconstructing strategic actions chronologically, the study assessed whether hypothesized causal relationships—such as mechanism formation preceding network effects—were substantiated

by actual events. To mitigate the risk of post-hoc rationalization, the analysis focused on strategic decisions made at the time of the event rather than interpreting them solely based on subsequent success. Rival explanations, such as brand legacy or resource endowment, were also considered and evaluated within the SER-M structure.

Reliability was ensured by documenting coding rules, analytic interpretations, and decision criteria throughout the research process. Coding categories derived from SER-M were applied consistently across cases, and the integration procedure for WSM scoring was transparently recorded. This systematic documentation allows the study to be replicated or extended by future researchers.

3.7. Research Ethics and Data Management

All data used in this study were obtained from publicly accessible secondary sources, including corporate communications, regulatory filings, news articles, and published academic work. As no human participants were involved, institutional review board (IRB) approval was not required. The study did not collect or process any personal information, and all analyses were conducted at the aggregate level to ensure privacy and ethical compliance.

Data were managed in accordance with standard academic research practices. Source materials were archived in secure digital storage, and analytic files were retained to facilitate transparency and reproducibility. The study adhered to ethical guidelines for citation and intellectual property, and all referenced materials are properly attributed in the reference list.

IV. Analytical Framework

4.1. Core Analytical Dimensions

This study analyzes the strategic divergence between KakaoTalk and NateOn across three analytical dimensions derived from the mechanism-centered interpretation of the SER-M model. These dimensions capture how each firm operationalized mechanisms in response to the same technological transition and reveal the underlying logic behind their contrasting performance trajectories.

In this study, the SER-M framework is employed as an explanatory and interpretive lens—not as a tool for causal verification. Rather than claiming that specific mechanisms necessarily produce particular outcomes, the framework is used to retrospectively organize how subject, environment, resource, and mechanism interacted to shape strategic trajectories. This positioning is consistent with Yin's (2018) characterization of theoretical frameworks in case research as instruments for analytic generalization rather than statistical inference.

The first dimension is the degree of mobile suitability embedded in each firm's strategic mechanisms. Mobile environments differ fundamentally from PC environments in terms of interface constraints, interaction patterns, immediacy, and portability. Mechanisms that perform effectively in PC-centric contexts may therefore be maladapted to mobile use. This study examines whether and how each platform incorporated mobile-native design principles—such as simplified onboarding, touch-based interaction, and real-time communication—into its core mechanisms.

The second dimension concerns the mechanisms through which each firm generated, amplified, or failed to generate network effects. Because messenger platforms are highly sensitive to direct and indirect network effects, differences in onboarding design, retention structures, and ecosystem expansion can produce disproportionate advantages or losses. This study focuses on how each firm approached initial user acquisition, the formation of critical mass, and the reinforcement of network effects through complementary services.

The third dimension is the timing and sequencing of platform expansion. Messenger platforms often evolve into multi-sided ecosystems that integrate games, payments, commerce, and mobility services. However, premature diversification can dilute strategic focus, whereas slow expansion can cede opportunities to competitors. By comparing the expansion trajectories of KakaoTalk and NateOn, the study evaluates how the prioritization and sequencing of strategic actions influenced long-term competitive outcomes.

Together, these three dimensions enable a structured analysis of the mechanisms shaping KakaoTalk's rise and NateOn's decline, providing the conceptual basis for the WSM evaluation.

4.2. WSM (Weight-Sequence Model) Analytical Design

The Weight-Sequence Model (WSM), introduced by Cho and Moon (2022), is employed to systematically assess the relative importance and temporal ordering of KakaoTalk's strategic actions during the transition period from 2010 to 2014. WSM complements the SER-M framework by offering a structured method for evaluating the weight assigned to each strategic stage and the sequence in which those stages were executed. This section outlines the evaluation criteria, the derivation of normative weights based on platform theory, and the guidelines used for interpretive scoring.

It should be noted that the WSM in this study functions as an interpretive and explanatory tool, not as a method for causal verification or predictive generalization. The numerical outputs of the WSM do not constitute independent empirical evidence; rather, they serve to structure and visualize the qualitative findings by assigning relative priorities to strategic stages. The weights and scores presented are the product of interpretive judgment grounded in prior literature, not of statistical estimation. Accordingly, the WSM results should be understood as a supplementary analytical device that organizes the case narrative into a comparative framework, rather than as a standalone quantitative proof of strategic causation.

4.2.1. Establishing Evaluation Criteria

Three evaluation criteria were defined to assess the strategic significance of each stage in KakaoTalk's development: growth potential, profitability, and ease of implementation. First, growth potential refers to the extent to which a strategic action expands the user base and increases market traction. In platform businesses, growth potential is essential for generating network effects and reaching critical mass (Parker et al., 2016). Second, profitability captures the contribution of a strategic action to revenue generation and the potential to establish sustainable monetization pathways. Third, ease of implementation reflects the organizational and technical feasibility of executing a strategic initiative, based on the premise that lower implementation barriers are associated with higher strategic viability during early-stage competition.

4.2.2. Deriving Evaluation Weights from Prior Literature

To assign relative weights to the three evaluation criteria, this study conducted a structured review of seminal works in platform strategy and innovation, including Christensen (1997), Teece et al. (1997), Parker et al. (2016), and KISDI (2014). Each source was examined for the extent to which it emphasized growth, profitability, and implementation feasibility. A coding scheme was used whereby explicit and repeated emphasis on a criterion was assigned a score of 1, and partial or indirect emphasis was assigned 0.5. Across these sources, growth potential received the highest cumulative emphasis, followed by profitability and ease of implementation. The final evaluation weights were normalized to 0.40 for growth potential, 0.35 for profitability, and 0.25 for ease of implementation. These weights replace purely subjective judgment with a literature-grounded rationale, enhancing the transparency of the evaluation process.

4.2.3. Rationale for Stage Weights (Normative Parameters)

A critical feature of the WSM is the assignment of stage weights, which represent the strategic priority of each phase within the overall platform growth trajectory. Unlike evaluation weights, stage weights in this study are established as normative parameters derived from the theoretical axioms of platform economics.

Consistent with platform theory, which emphasizes that early-stage user acquisition and ecosystem formation determine long-term dominance (Katz & Shapiro, 1985; Parker et al., 2016), this study assigns higher weights to the initial stages. Specifically, Stage 1 (User Acquisition) and Stage 2 (Platform Expansion) are assigned weights of 0.40 and 0.35, respectively. This reflects the "time value" of network effects: actions taken early to secure critical mass have a disproportionately large impact on the final competitive outcome due to path dependence. Conversely, Stage 3 (Lifestyle Integration) and Stage 4 (AI and Global Partnerships) are assigned lower weights of 0.15 and 0.10, as they represent incremental evolution atop the established network. These weights are not arbitrary empirical estimates

but theoretical constants that reflect the structural logic of winner-takes-all markets.

4.2.4. Evaluation Guidelines and Scoring Procedure

To ensure consistency in how qualitative case evidence was translated into scores, this study applied Evaluation Guidelines (rather than a strict psychometric rubric) derived from Parker et al. (2016). The guidelines for assigning scores on a 1-to-5 scale are defined as follows: A score of 5 (Very High) indicates a transformative contribution to the criterion, such as triggering explosive user growth or establishing a primary revenue model. A score of 4 (High) indicates a major contribution aligned with core strategic goals. A score of 3 (Moderate) reflects steady progress or maintenance of existing trends. A score of 2 (Low) indicates minor impact or peripheral relevance, while a score of 1 (Very Low) implies negligible impact or significant barriers.

These scores function as ordinal indicators reflecting the relative intensity of each criterion at each stage. For instance, Stage 1 received a '5' in Growth Potential because it marked the period of exponential user acquisition driven by free messaging. The weighted scores were calculated by multiplying these criterion scores by the evaluation weights, and then aggregated to derive the final WSM values. This procedure visualizes the strategic concentration of KakaoTalk's resources without claiming false statistical precision.

4.3. Key Research Propositions and Analytical Orientation

Drawing on the theoretical foundations reviewed above, this study develops four research propositions that guide the subsequent analysis. These propositions synthesize insights from SER-M, disruptive innovation, and platform strategy research to explain the divergent outcomes of KakaoTalk and NateOn.

Proposition 1 posits that mobile-native design enables faster user adoption than PC-centric design during a form-factor transition (analyzed in Sections 5.4 and 6.4). **Proposition 2** suggests that address-book-based network formation reduces onboarding friction more effectively than ID-based systems (analyzed in Sections 5.2 and 6.2). **Proposition 3** argues that sequential platform expansion generates more sustainable growth than simultaneous multi-feature expansion (analyzed in Sections 5.5 and 6.4). Finally, **Proposition 4** states that timely recognition of environmental shifts is more critical than early market entry during technological transitions (analyzed in Sections 5.1 and 6.1). By structuring the investigation around these mechanism-centered propositions, the study advances a theoretically grounded explanation of why one firm succeeded while another failed in the same technological transition.

V. Case Analysis I: KakaoTalk

5.1. Subject: Agile Decision-Making and Mobile-First Vision

KakaoTalk's strategic direction was driven by the clear vision of its founder, Kim Beom-su, who anticipated the paradigm shift from the web to mobile. Unlike NateOn, which viewed mobile as an extension of the PC web, Kakao defined mobile as a fundamentally distinct ecosystem requiring a new grammar of interaction. This "mobile-first" philosophy was operationalized through an agile organizational structure. The "4-100 rule" (teams of four working on projects for 100 days) exemplified a mechanism designed for speed and rapid iteration. This subject-level agility allowed Kakao to launch a prototype in March 2010, just months after the iPhone's debut in Korea, securing a critical first-mover advantage in the App Store era.

5.2. Environment: Capitalizing on the Mobile Transition and Chasm

The environmental context of 2010 was characterized by the rapid diffusion of smartphones and the high cost of SMS/MMS services. While incumbents viewed the transition as a threat to their walled gardens, KakaoTalk interpreted it as an opportunity for low-end disruption. The "Chasm" in the early mobile market—the gap between tech-savvy early adopters and the mass market—was bridged by addressing a universal pain point: communication cost. By offering free, real-time messaging, KakaoTalk lowered the barrier to entry, effectively converting price-sensitive SMS users into platform participants. This environmental fit was not accidental but the result of a deliberate sensing mechanism that identified the "free" value proposition as the key to unlocking the mass market.

5.3. Resource: Leveraging Social Capital and Data

Initially, KakaoTalk lacked the financial resources and massive user base of NateOn. However, it strategically leveraged "social capital" stored in users' address books. Unlike NateOn, which required a reciprocal "friend request-acceptance" process suited for PC privacy, KakaoTalk utilized an auto-synchronization mechanism that instantly connected users based on their existing phone contacts. This turned a user's offline social graph into an online network resource without friction. Over time, the accumulated chat data and social graph became a proprietary resource that fueled subsequent expansions into gaming and commerce, creating a high switching cost for users.

5.4. Mechanism: The "Fast and Light" Strategy

KakaoTalk's core mechanism can be summarized as "Fast and Light." In the early stages, the app stripped away complex features (e.g., video calls, avatars) to focus solely on the speed and reliability of text messaging. This "subtractive design" ensured stable performance even on unstable 3G networks, a critical factor for user retention. The "1"

unread indicator was a simple yet powerful mechanism that provided immediate feedback on communication status, reinforcing the perception of real-time connection. These micro-mechanisms collectively reduced the cognitive load on users and accelerated the viral loop of adoption.

5.5. Virtuous Cycle of Platform Expansion

Once critical mass was achieved, KakaoTalk activated a "virtuous cycle" of platform expansion. The launch of "Anipang" in 2012 demonstrated how the social graph could be monetized. By integrating social competition (e.g., sending "hearts" to friends) with casual gaming, KakaoTalk transformed communication traffic into entertainment revenue. This success attracted third-party developers, enriching the ecosystem and further locking in users. Subsequent expansions into "Kakao Gift" and "Kakao Taxi" followed the same logic: leveraging the established user base to disrupt adjacent markets. This sequential expansion—from messaging to gaming, then to lifestyle services—minimized the risk of resource dispersion and maximized the leverage of network effects. Table 2 summarizes the chronological development of KakaoTalk’s platform mechanisms from 2010 to 2023, highlighting the SER-M components most active in each stage.

<Table 2> KakaoTalk’s Service Expansion Timeline and Corresponding SER-M Elements

Year	Core Services Introduced	Primary Effects	Dominant SER-M Elements
2010	Basic messaging; simplified onboarding	User acquisition; friction reduction	S, E, R
2011	Group chat; read receipts; emoticons	Enhanced UX; increased engagement	R, M
2012	Game platform (Anipang)	Activation of indirect network effects	R, M
2013	PC version	Cross-device lock-in	R, M
2014	KakaoPay	Monetization; ecosystem expansion	E, R, M
2016	Gifting and shopping	Advancement toward lifestyle platform	R, M
2020–2023	Public-service integration; lifestyle utilities	Societal embeddedness; policy collaboration	E, R, M

Note: Each stage reflects the dominant SER-M elements driving KakaoTalk’s strategic evolution. Although all elements operate cumulatively, the table highlights the mechanisms most central to each time period.

5.6. Interpretation of the WSM Results

The results presented in Table 3 systematically evaluate the strategic patterns identified in the previous sections. KakaoTalk’s Weight-Sequence Model (WSM) scores reveal a clear prioritization across stages, suggesting that its platform evolution followed a deliberate and

sequential logic.

Stage 1 (User Acquisition) demonstrates how the agile subject (S) sensed the mobile transition (E) earlier than incumbents and recombined scarce resources (R) into mechanisms (M) such as frictionless onboarding and free messaging. This stage received the highest weighted score, reflecting its foundational role. Stage 2 (Platform Expansion) illustrates how the accumulated user base and behavioral data (R) facilitated the emergence of new mechanisms—games, gifting, and advertising channels—that strengthened monetization potential and indirect network effects.

In Stages 3 and 4, mechanisms (M) became the dominant drivers of strategic evolution. Stage 4, in particular, highlights KakaoTalk’s recent shift toward AI-enabled global partnerships. Although this stage carries a lower normative weight (0.10) due to its nascent status during the core analysis period, it represents a critical evolutionary step where accumulated data is reconfigured for the generative AI era. The weighted scores across stages—2.00 (40%), 1.40 (35%), 0.45 (15%), and 0.20 (10%)—capture this time-sequential evolution and reinforce platform strategy research indicating that early user acquisition and ecosystem development exert disproportionate influence on long-term competitive advantage (Parker et al., 2016).

<Table 3> Weight-Sequence Model (WSM) Evaluation and SER-M Element Mapping Across KakaoTalk’s Strategic Stages

Stage	Period	Strategic Focus	Key Activities	Score (1-5)	Stage Weight	Weighted Score	SER-M Elements
Stage 1	2010-2011	User Acquisition	Free messaging; simplified onboarding via address-book sync	5	0.40	2.00	S·E·R
Stage 2	2011-2012	Platform Expansion	Games, gifting, advertising channels	4	0.35	1.40	R·M
Stage 3	2012-2020	Lifestyle Integration	KakaoPay; mobility; delivery services	3	0.15	0.45	E·R·M
Stage 4	2021-present	AI & Global Partnerships	OpenAI collaboration; Kakao iAI integration	2	0.10	0.20	S·R·M

Note: Scores represent the aggregated evaluation results based on Evaluation Guidelines derived from Parker et al. (2016). Stage weights serve as normative parameters reflecting the relative importance of each strategic stage within the platform lifecycle.

5.7. Interpretation of Strategic Weight and Sequence

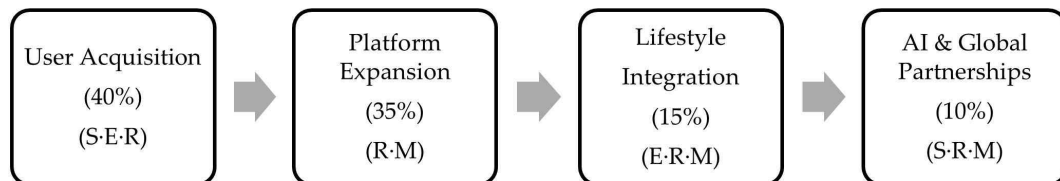
Integrating the WSM results with the case analysis reveals that KakaoTalk’s platform strategy was structurally designed to concentrate resources on the early phases. As shown in **Figure 1**, the stage weights assigned to Stage 1 (0.40) and Stage 2 (0.35) together account

for 75 percent of the total strategic weight. This clearly indicates that the initial two stages constituted the core strategic backbone of KakaoTalk's platform strategy.

Stage 1 was intensively executed between 2010 and 2011, leveraging subject agility and environmental sensing to eliminate entry friction. The user base established in this stage became the critical resource for Stage 2 (2011-2012), where platform extension mechanisms like *Anipang* were introduced. The success of Stage 2 was contingent upon the trust and network mass secured in Stage 1. Although Stages 3 and 4 show lower weighted scores, they function as complementary strategies that add incremental value—lifestyle integration and AI intelligence—atop the established network foundation.

Overall, the strategic sequence—user acquisition, platform expansion, lifestyle integration, and AI-enabled partnerships—constitutes a temporal realization of the dynamic combinations embedded in the SER-M framework. Each stage internalized the resources of the preceding stage to generate new mechanisms, aligning with Teece et al.'s (1997) dynamic capabilities framework.

[Figure 1] KakaoTalk's Strategic Weight-Sequence Model (WSM):
Summary of Stage Weights and Dominant SER-M Elements.



Note: The figure visualizes the WSM evaluation results across four strategic stages. The arrows represent the sequential progression of strategic emphasis over time, highlighting how different combinations of Subject (S), Environment (E), Resource (R), and Mechanism (M) became central at each phase.

VI. Case Analysis II: NateOn

6.1. Subject: Cognitive Inertia and Defensive Strategy

NateOn, launched in January 2003, had established itself as Korea's dominant PC

messenger by 2005 through its integration with Cyworld, pioneering of the commercial emoticon market, advanced file transfer capabilities, and enterprise communication solutions. These strengths enabled NateOn to accumulate approximately 27 million users by the late 2000s. However, the very assets that drove PC-era success became sources of strategic rigidity during the mobile transition.

NateOn's leadership was deeply embedded in the PC-centric success logic of the "wired" internet era. As a subsidiary of SK Communications, the organization prioritized protecting the revenue streams of Cyworld and the Nate portal over cannibalizing them with a new mobile service. This "Subject" mindset created a form of cognitive inertia. Unlike Kakao's "mobile-first" vision, NateOn viewed mobile as a supplementary channel to the PC web (a "Tethered" approach). Consequently, decision-making processes were hierarchical and risk-averse, focusing on how to port existing PC features to mobile rather than reimagining communication for the smartphone era.

6.2. Environment: Misreading the Mobile Shift

NateOn faced the same environmental shock—the iPhone launch—as KakaoTalk, but its interpretation was fundamentally different. While the market was shifting toward "openness" and "app-based ecosystems," NateOn adhered to the "walled garden" strategy typical of telecommunication giants. The firm underestimated the speed of the mobile transition, assuming that PC dominance would buffer the shift. Furthermore, NateOn failed to recognize the "Chasm" in the mobile market. By obsessively focusing on the retention of its established PC user base, NateOn neglected the critical window to capture the emerging mass market, allowing KakaoTalk to secure the mobile mainstream that NateOn had inadvertently abandoned. By retaining the complex login and friend-acceptance procedures of the PC era, it failed to lower the entry barrier for new smartphone users, inadvertently widening the gap between its existing user base and the emerging mobile mass market.

6.3. Resource: The "Resource Curse"

Ironically, NateOn's greatest asset—its 27 million users and integration with Cyworld—became its greatest liability, a phenomenon known as the "Resource Curse." The massive user database was tied to the PC-based "NateOn ID" system, which was cumbersome compared to KakaoTalk's phone-number-based graph. Moreover, the monetization model relied heavily on selling digital items (e.g., Cyworld acorns) and display ads, resources that were difficult to translate to the small screens of early smartphones. The abundance of PC resources created a "lock-in" effect for the firm itself, preventing it from aggressively reallocating resources to the mobile frontier.

6.4. Mechanism: Complexity and Feature Overload

NateOn's mobile mechanism was characterized by "Complexity and Continuity." Instead

of the "subtractive design" adopted by KakaoTalk, NateOn attempted to replicate the full PC experience on mobile (e.g., file transfer, remote control, tabbed chat). This resulted in a heavy, slow application that drained battery life and consumed excessive data—critical flaws in the 3G era. The "UC (Unified Communication)" strategy, which sought to integrate wired and wireless platforms, sounded logical in theory but failed in practice because it ignored the distinct user behaviors of mobile contexts. This mechanism misalignment meant that NateOn's superior features (on PC) became usability burdens (on mobile).

6.5. Vicious Cycle of Network Collapse

As KakaoTalk secured the mobile network effect, NateOn entered a "vicious cycle." The delayed release of a mobile app (launched later than KakaoTalk) meant that NateOn missed the initial window for mobile network formation. As users migrated to KakaoTalk for real-time mobile chat, NateOn's activity rate dropped. The decline in active users reduced the utility for remaining users (reverse network effects), accelerating the exodus. Attempts to regain share by adding more features only worsened the app's performance, further alienating users. This negative feedback loop demonstrates how quickly a dominant incumbent can collapse when its core mechanisms fail to adapt to a form-factor transition.

6.6. Structural Rigidities

Ultimately, NateOn's failure was not a failure of technology but of structural rigidity. The "Sensing" capability was present (they knew smartphones were coming), but the "Seizing" and "Reconfiguring" capabilities were paralyzed by the need to defend the PC legacy. This case illustrates that in times of disruptive change, an organization's mechanism for resource reconfiguration is more critical than the absolute size of its resources.

VII. Comparative Analysis and Discussion

7.1. Comparative Analysis of SER-M Elements

This section compares the strategic choices and execution processes of KakaoTalk and NateOn identified in the previous chapters. By systematically contrasting the two platforms through the SER-M framework, the study reveals how the four elements—Subject, Environment, Resource, and Mechanism—functioned as structural lenses explaining their performance divergence. Table 4 summarizes this comparative analysis.

<Table 4> Comparative SER-M Analysis of KakaoTalk and NateOn

SER-M Element	KakaoTalk (Challenger)	NateOn (Incumbent)	Strategic Implications
Subject (S)	Agile startup organization; mobile-centric vision	Bureaucratic large-corporation structure; PC-centric mindset	Organizational structure determines the speed of innovation
Environment (E)	Interprets mobile transition as an opportunity	Interprets mobile transition as a threat	Environmental perception shapes strategic direction
Resource (R)	Limited capital; technology and UX-based intangible assets	Abundant capital; large installed user base	Resource utilization matters more than resource abundance
Mechanism (M)	Mobile-native UX; frictionless onboarding; staged expansion	Feature porting; high entry barriers; complex integrations	Environmental fit of mechanisms determines success

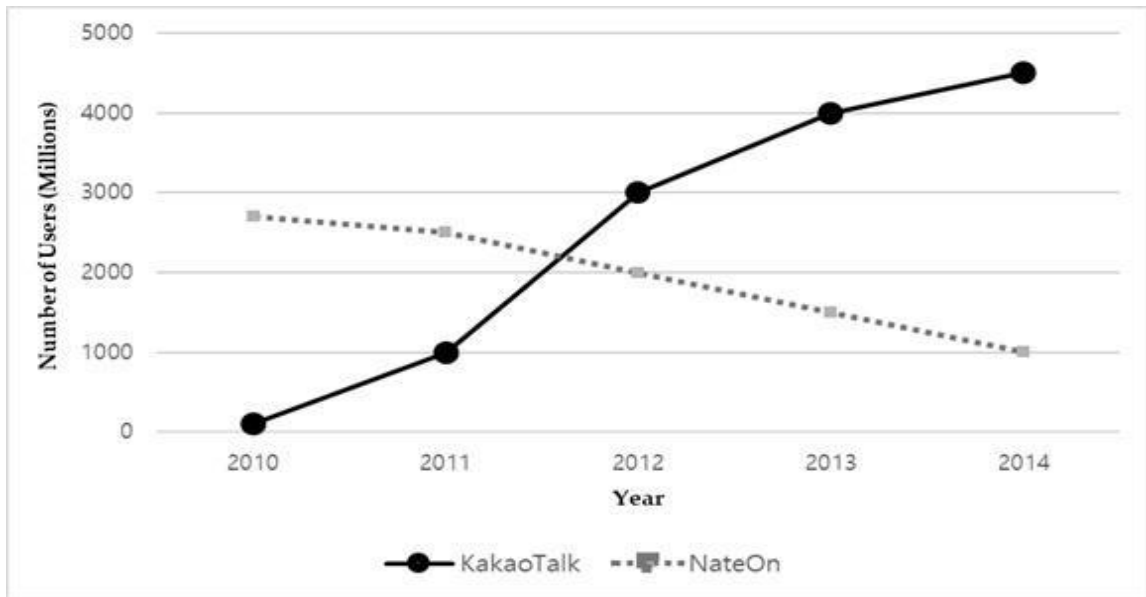
Note: The analysis suggests that the Mechanism (M) element played a central role. While KakaoTalk recombined limited resources into mechanisms aligned with mobile environments, NateOn failed to translate its abundant resources into effective execution.

As shown in Table 4, the divergence in Subject (S) and Environmental (E) interpretation fundamentally shaped their strategic orientations. KakaoTalk's agile structure enabled rapid "Sensing" and "Seizing" of the mobile paradigm shift, whereas NateOn's "Cognitive Inertia" led to a defensive stance. From the Resource (R) perspective, NateOn's abundance paradoxically became a constraint—the "Resource Curse"—as it sought to protect its PC legacy. Ultimately, the Mechanism (M) element served as the differentiator: KakaoTalk's "Fast and Light" approach created positive network effects, while NateOn's "Complexity and Continuity" resulted in a vicious cycle of user churn.

7.2. Reversal of Network Effects

The strategic misalignment of NateOn and the superior mechanism fit of KakaoTalk culminated in a dramatic reversal of market dominance. As visualized in **Figure 2**, NateOn's user base entered a negative feedback loop as users migrated to the mobile-native environment of KakaoTalk. This trajectory exemplifies the self-reinforcing nature of network effects in platform markets. KakaoTalk reached its "critical mass" inflection point in 2012 with the launch of the game platform, after which the gap between the two platforms became irreversible. This supports the WSM finding that early-stage concentration on user acquisition (Stage 1) is the most critical determinant of long-term platform survival.

[Figure 2] User Trajectories of KakaoTalk and NateOn (2010-2014)



Note: NateOn's User figures for KakaoTalk are based on corporate disclosures, whereas figures for NateOn represent aggregated estimates derived from publicly available media reports and industry analyses. All user counts are reported in millions.

Source: Kakao quarterly investor relations reports (2011-2014); Korea Communications Commission (2011); Korea Information Society Development Institute (2014); and publicly available media reports.

7.3. Discussion: The Mechanism-Based View of Platform Competition

The comparative analysis provides interpretive support for the Mechanism-Based View (Cho, 2006). Even when firms face identical environmental shifts and possess comparable (or even superior) resources, the outcome appears to be substantially shaped by how those elements are integrated through mechanisms. NateOn's failure suggests that "Core Competencies" can easily transform into "Core Rigidities" during form-factor transitions. Conversely, KakaoTalk's rise demonstrates that a latecomer can overcome a massive resource gap by implementing mechanisms that lower entry barriers and maximize mobile-specific utility. This integrated SER-M and WSM approach allows for a multidimensional understanding of not just what strategies were chosen, but how their execution intensity and temporal sequence may have contributed to a structural performance gap.

VIII. Conclusions and Implications

8.1. Summary of Findings

This study analyzed the process through which KakaoTalk overtook NateOn and emerged as the dominant player in the Korean messenger market between 2010 and 2014 by applying the SER-M framework and disruptive innovation theory. By combining a qualitative comparative case study with the Weight-Sequence Model (WSM), the analysis suggests that the capability to construct mechanisms aligned with environmental change may be more critical than the absolute scale of resources, and that this capability appears to constitute a key factor enabling challengers to surpass incumbents.

KakaoTalk generated explosive network effects through innovative mechanisms such as a mobile native user experience, address book based onboarding, and staged platform expansion. The organizational agility of a startup enabled early recognition of the mobile paradigm shift, while limited resources were strategically concentrated on building core mechanisms through focused allocation. The WSM results show that allocating approximately 75 percent of total strategic emphasis to early user acquisition and platform expansion created the foundation for long term success.

Despite possessing a user base of approximately 27 million and substantial financial resources, NateOn lost its market dominance due to misinterpretation of the mobile environment and the adoption of misaligned mechanisms. Viewing mobile as a supplementary extension of the PC constrained strategic adaptation, while structural rigidity inherent in a large corporate organization hindered rapid innovation. Abundant resources became a liability rather than an advantage, as concerns over self cannibalization delayed decisive mobile innovation. Complex registration procedures and PC oriented interface design proved fundamentally incompatible with mobile usage, accelerating user attrition.

The contrast between the two platforms culminated in a dramatic reversal of network effects. NateOn's user base declined sharply from 27 million in 2010 to 10 million in 2014, whereas KakaoTalk's users surged from approximately 1 million to 45 million over the same period, resulting in a complete market reversal. Overall, this study identifies the competitive mechanisms underlying platform transitions through the integration of the SER-M framework and WSM. The findings suggest that success during technological paradigm shifts depends not on the volume of resources possessed, but on the construction of mechanisms aligned with environmental change.

8.2. Theoretical Implications

This study offers both structural and process oriented theoretical contributions by integrating the SER-M framework, disruptive innovation theory, the resource based view, dynamic capabilities theory, and the Weight-Sequence Model into a single execution oriented analytical framework. First, the analysis suggests that the Mechanism (M) element within the SER-M framework functions as the central integrative driver that converts Subject (S),

Environment (E), and Resource (R) into realized strategic outcomes. By comparing the cases of KakaoTalk and NateOn, this study shows that mechanism centered configurations constitute the decisive factor shaping strategic performance.

Second, the study operationalizes disruptive innovation theory at the level of strategic execution. The findings demonstrate that disruptive innovation unfolds as a process oriented pathway that begins with targeting underserved users and proceeds through the removal of entry barriers and building network effects. These results suggest that disruptive innovation during platform transitions should be understood as an executable mechanism based process.

Third, by combining the WSM with the SER-M framework, the study introduces a methodological integration that enhances the interpretive depth of qualitative case research. The WSM enables a structured comparison of relative strategic importance, execution intensity, and temporal sequencing of strategic actions, though its outputs should be understood as interpretive rather than statistically verified measures. Fourth, the integrated SER-M and WSM model demonstrates its potential as a practical decision support framework for prioritizing strategies during platform transitions.

8.3. Practical Implications

The findings offer concrete strategic guidance for firms navigating digital transitions. First, incumbent firms must remain vigilant against the core competency trap, whereby past sources of success become obstacles to future adaptation. To address this challenge, incumbents should establish independent innovation units or venture labs specifically designed to respond to platform transitions. Such units must be granted sufficient autonomy and decision making authority, including the willingness to tolerate self cannibalization when necessary.

Second, challenger firms can build growth trajectories by targeting underserved markets. KakaoTalk's experience suggests that focusing initially on a single core function and executing it to a high level of completeness before expanding into related services can be highly effective. In practical terms, this implies adopting minimum viable product strategies and rapid iterative improvement cycles.

Third, the ability to accurately interpret the nature of environmental change is critical to strategic success. Practically, firms must move beyond the mere adoption of new technologies and instead develop a deep understanding of the new forms of value and user behavior. Fourth, from a policy perspective, the findings suggest that mechanism based innovation can mitigate excessive market concentration. Policies aimed at lowering entry barriers, such as establishing user rights to address book portability, can stimulate innovation and competition.

8.4. Limitations and Directions for Future Research

This study has several methodological limitations. First, the analysis relies primarily on secondary data drawn from the South Korean messenger market. Future research could test the generalizability of these findings through cross national comparative studies involving global platforms such as WhatsApp, Line, and WeChat. Second, the study's reliance on qualitative pattern matching limited the ability to quantify causal strength. Future research could address this by integrating quantitative methods such as structural equation modeling to assess the statistical validity of the proposed relationships.

Third, this study compares two firms with substantially different organizational characteristics. At the time of KakaoTalk's launch, Kakao was a small startup with approximately four employees, whereas SK Communications was a large corporation with extensive resources and an established market position. This asymmetry raises questions about commensurability: KakaoTalk's agility and rapid iteration (e.g., the "4-100 rule") may have been a structural necessity of its small size rather than a deliberate strategic choice. While this study interprets such practices as mechanisms that enabled competitive success, readers should note that the same practices might not be replicable in larger organizations facing different constraints. Future research could address this limitation by comparing firms of similar scale during technological transitions, or by examining whether startups that later grew into large organizations maintained their agile mechanisms.

Fourth, the study lacked access to granular behavioral metrics such as daily active users. Future studies could improve measurement precision by analyzing API and log data to directly observe user behavior. Fifth, future research should extend the analysis to emerging mechanisms in the era of generative AI platforms. The rise of conversational AI services such as ChatGPT has the potential to reshape competitive dynamics. Mechanisms related to AI driven service automation and the evolution of conversational user experiences represent promising avenues for investigation. Just as the shift from PC to mobile devices precipitated a change in leadership, future transitions involving extended reality or voice interfaces may once again restructure the platform landscape.

Finally, it should be acknowledged that the core analytical frameworks of this study—SER-M and WSM—are inherently explanatory and interpretive in nature, rather than tools for strong causal verification or predictive generalization. The SER-M framework retrospectively organizes how subject, environment, resource, and mechanism interacted, and the WSM assigns relative weights and sequences to strategic stages based on normative parameters derived from prior literature. In particular, the WSM's weight assignments rest on interpretive judgment informed by platform theory rather than on empirical calibration through sensitivity analysis, inter-rater reliability testing, or statistical estimation. As such, the WSM's numerical outputs function as supplementary devices for structuring the qualitative narrative, not as independent quantitative evidence. Moreover, the temporal distance between the core analysis period (2010-2014) and the current AI-driven platform environment limits the direct applicability of these findings to contemporary competitive contexts. The contribution of this study therefore lies not in predicting current platform

strategies, but in explicating the structural principles by which mechanism fitness determined competitive outcomes during a technological transition. Future research could strengthen the methodological rigor of the WSM by incorporating expert Delphi surveys or the Analytic Hierarchy Process (AHP) to enhance the objectivity of weight assignments, and by extending comparative analyses to contemporary platform competition cases.

8.5. Concluding Remarks

This study systematically analyzed the mechanisms of creative destruction that emerged during a technological transition by examining the contrasting cases of KakaoTalk and NateOn. Focusing on the dramatic market reversal in the Korean messenger industry between 2010 and 2014, the analysis integrated the SER-M framework with disruptive innovation theory to explain why one platform succeeded while the other failed. The findings demonstrate that in rapidly changing digital environments, firm survival and success depend not on the sheer scale of resources possessed, but on the ability to accurately interpret environmental change and implement adaptive and innovation oriented mechanisms.

NateOn's failure represents a paradoxical outcome of rational decision making grounded in past success. Despite possessing an installed user base of approximately 27 million users, strong integration with Cyworld, and substantial financial backing from the SK Group, NateOn lost market dominance due to misinterpretation of the mobile transition and the adoption of misaligned mechanisms. Viewing mobile platforms as extensions of the PC environment and prioritizing the protection of existing assets delayed innovation and ultimately eroded its competitive position. In contrast, KakaoTalk's success stemmed from strategic choices that accurately anticipated the direction of change and effectively leveraged limited resources through simple yet powerful mechanisms. Address book based onboarding, a mobile native user experience, and staged expansion collectively generated explosive network effects, enabling growth from approximately 1 million users in 2010 to 45 million users in 2014.

The study contributes to the literature along three dimensions. First, it suggests that the Mechanism (M) element within the SER-M framework functions as the central integrative force that unifies subject, environment, and resources into realized performance outcomes. Second, it operationalizes disruptive innovation theory by translating abstract concepts into executable mechanisms such as onboarding simplification, user experience innovation, and ecosystem expansion. Third, it introduces a methodological integration by combining WSM with SER-M, thereby adding interpretive structure to qualitative analysis. The finding that allocating approximately 75 percent of strategic emphasis to early user acquisition and platform expansion appears to have been a key factor in long-term success offers a novel perspective on the temporal logic of platform strategy.

From a practical standpoint, the study provides clear strategic guidance for firms undergoing digital transformation. Incumbent firms must guard against the core competency trap by establishing independent innovation units capable of experimenting with new

paradigms, while challengers should target underserved markets and pursue staged expansion strategies to achieve network critical mass. Above all, the findings underscore that the capacity to construct mechanisms aligned with environmental change is the primary determinant of success. Ultimately, the study reaffirms that sustained competitive advantage arises from the continuous innovation of mechanisms aligned with evolving environments, rather than from the preservation of existing resource advantages.

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폼팩터 전환기의 약자 우위 전략: 카카오톡은 어떻게 모바일 퍼스트 메커니즘으로 네이트온을 넘어섰는가

유보람*

민용택**

본 연구는 한국 모바일 메신저 시장에서 후발주자 카카오톡이 어떻게 기존 강자 네이트온을 추월하고 시장 지배적 플랫폼으로 부상하였는지를 분석하였다.

조동성(2014)의 SER-M(Subject-Environment-Resource-Mechanism) 모델과 Christensen(1997)의 파괴적 혁신 이론을 결합한 통합 분석 프레임워크를 구축하고, 2010년부터 2014년까지의 모바일 전환기에 두 기업의 전략적 대응을 비교하는 질적 사례연구를 수행하였다. 분석 결과, 카카오톡의 성공은 기술적 우위 그 자체가 아니라 환경 변화의 조기 감지와 혁신적 메커니즘의 구축에서 비롯된 것으로 나타났다. 반면 네이트온은 약 2,700만 명의 사용자와 풍부한 자원을 보유하고 있었음에도, 모바일 환경에 대한 오해와 PC 시대 메커니즘의 고착으로 인해 시장 지배력을 상실하였다. 구체적으로, 카카오톡은 (1) PC에서 모바일로의 패러다임 전환을 조기에 인식하고, (2) 모바일 네이티브 UX와 무료 기반 무마찰 온보딩을 핵심 메커니즘으로 구현하였으며, (3) 강력한 네트워크 효과를 창출하여 사용자 기반을 폭발적으로 확장하였다. 특히 카카오톡은 건당 과금과 기능적 제약으로 인해 기존 SMS 체제에서 충분히 서비스받지 못했던 사용자를 대상으로 무료 메시징 서비스를 제공함으로써 저가 시장 파괴(low-end disruption)의 특성을 보여주었다. 본 연구는 기술 전환기에서 메커니즘 적합성이 자원 규모보다 경쟁 성과에 중요한 역할을 할 수 있음을 시사하며, 후발주자의 플랫폼 전략 수립에 대한 이론적·실무적 시사점을 제공한다.

주제어: 카카오톡, 네이트온, SER-M 모델, 파괴적 혁신, 모바일 메신저, 플랫폼 전략, 네트워크 효과, 비중순서모델(WSM)

금융 약자 토스(TOSS)의 비대칭 경쟁 우위 전략
SER-M 경영 전략 모델 기반의 사례 분석

Asymmetric Competitive Advantage Strategy
of Financial Un-derdog TOSS

Case Study Based on SER-M Management Strategy Model

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Yong-taek Min

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본 연구는 핀테크 기반의 금융 약자인 토스(TOSS)가 어떻게 전통적 강자인 시중은행과의 경쟁에서 비대칭적 경쟁 우위를 확보하고 시장을 재편했는지 다층적으로 분석합니다. 이를 위해 SER-M(주체-환경-자원-메커니즘) 전략 모델 (조동성 & 문휘창, 2022)과 WSM(가중치-순서 모델) (조동성, 2024)을 핵심 분석틀로 채택했습니다.

토스는 '쉽고 편리한 금융'이라는 명확한 비전(주체) 아래, 기존 금융권의 복잡한 인증 절차와 불편한 사용자 경험이라는 시장 환경의 약점을 기회로 활용했습니다. 데이터 기반의 민첩한 조직 문화와 직관적인 UX/UI 설계 역량(자원)을 바탕으로, 고객의 불편함을 최우선으로 해결하는 전략적 순서(Sequence)와 가중치(Weight)를 설정(준비바리퍼블리카, 2021) 했습니다. 이를 통해 금융의 모든 절차를 단순화하는 실행 체계(메커니즘)를 구축하여, 사용자가 의식하지 못하는 금융 경험을 구현했습니다.

분석 결과, 토스의 성공은 단순히 기술 혁신에 그치는 것이 아니라, 주체(S), 환경(E), 자원(R), 메커니즘(M)을 유기적으로 결합하고, 제한된 자원을 전략적 우선순위에 따라 집중하고 순서에 맞게 실행하는 (WSM) 치밀한 전략 설계의 결과임을 확인했습니다. 본 연구는 토스의 사례를 통해 자본과 규모에서 열세인 후발주자라도, 강점과 약점을 정확히 파악하고 전략적 정합성과 실행력을 확보한다면 시장의 판도를 바꿀 수 있다는 '약자가 강자를 이기는 전략'의 구체적인 작동 방식을 제시합니다. 이는 핀테크 산업을 넘어 다양한 분야의 후발주자들에게 유효한 전략적 시사점을 제공합니다.

주제어: 토스, SER-M모델, WSM모델, 핀테크, 금융약자, 비대칭경쟁우위, 고객불편해결, 직관적인 UI/UX

Abstract

This study analyzes how fintech-based financial underdog TOSS secured asymmetric competitive advantage against traditional commercial banks. Applying the SER-M (Subject-Environment-Resource-Mechanism) strategy model (Cho & Moon, 2022) and WSM (Weight-Sequence Model) (Cho, 2024) as analytical frameworks, this research interprets TOSS's strategic actions retrospectively rather than claiming TOSS deliberately designed its strategy based on these models.

Under the clear vision of "easy and convenient finance" (Subject), TOSS utilized the weaknesses of existing financial institutions' complex authentication procedures and inconvenient user experiences as market opportunities. Based on data-driven agile organizational culture and intuitive UX/UI design capabilities (Resources), TOSS established strategic sequence and weight settings that prioritize solving customer inconveniences (Viva Republica Co., Ltd., 2021). Through this, TOSS built an execution system (Mechanism) that simplifies all financial procedures, implementing financial experiences that users are unaware of.

The analysis results confirm that TOSS's success is not merely technological innovation, but the result of meticulous strategic design that organically combines Subject (S), Environment (E),

Resource (R), and Mechanism (M), concentrating limited resources according to strategic priorities and executing them in proper sequence (WSM). This study presents the specific operational mechanism of "strategy for the weak to defeat the strong" through TOSS's case, showing that even latecomers inferior in capital and scale can change market dynamics if they accurately identify strengths and weaknesses and secure strategic alignment and execution capability. This provides effective strategic implications for latecomers in various fields beyond the fintech industry.

Keywords: TOSS, SER-M Model, WSM Model, Fintech, Financial Underdog, Asymmetric Competitive Advantage, Customer Inconvenience Resolution, Intuitive UI/UX

1. Introduction

This study aims to analyze indepth how fintech based financial underdog TOSS successfully competed against traditional commercial banks, the dominant players in Korea's financial market. In competition between entities with unequal power or resources, when the weaker party focuses on their core strengths to defeat the stronger party, this is called "asymmetric competitive advantage." TOSS's success goes beyond simple technological innovation, representing a paradigmatic case of how a latecomer can change market dynamics in the highly regulated and high barrier financial sector, which constitutes the importance of this research.

This study applies the SER-M (Subject-Environment-Resource-Mechanism) model (Cho & Moon, 2022) as an analytical lens for interpreting TOSS's success retrospectively. Unlike existing fragmentary analytical frameworks, the SER-M model enables three dimensional analysis of strategy through organic interactions among the strategic subject (S), external environment (E), internal resources (R), and the mechanism (M) that executes them. Additionally, we supplementarily utilize the WSM model (Cho, 2024) that analyzes the importance (Weight) and execution sequence (Sequence) of strategic elements to dynamically understand how TOSS efficiently allocated and executed limited resources.

The expected contributions of this paper are as follows. First, by analyzing TOSS's success through the integrated framework of SER-M and WSM, it provides a new perspective for understanding latecomer success strategies from a systemic viewpoint rather than single factors. Second, this can present a concrete design and execution model for "strategy for the weak to defeat the strong" (Cho & Moon, 2022) applicable to latecomers in other industries with structural limitations beyond finance, such as healthcare and education.

Received Mar. 8. 2026 Accepted Apr. 8. 2026

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Following this introduction, Chapter 2 explains the SER-M and WSM models that form the theoretical background of the study. Chapter 3 traces the business growth history of TOSS as a financial underdog, and Chapter 4 analyzes the structural advantages of competing commercial banks. Chapter 5 compares the strengths and weaknesses of both sides through SWOT analysis of TOSS and commercial banks, and Chapters 6 and 7 apply TOSS's strategy to SER-M and WSM models for indepth structuring based on this analysis. Finally, Chapter 8 concludes by summarizing research results and discussing strategic implications.

2. Theoretical Background

2.1 SER-M Model

The SER-M model (Cho, 2014) aimed to view strategy not as fragmentary means but as an organic and integrated system. Here, Subject refers to the will of leaders or organizations that formulate and execute strategy, while Environment includes external conditions and opportunity/threat factors where strategy operates. Resource means internal capabilities and assets of the organization (human, material, informational resources, etc.), and Mechanism refers to methods and structures through which subjects utilize resources to execute strategy and respond to the environment (Cho & Moon, 2022).

The SER-M model (Cho, 2014) emphasizes the organic relationships among four core elements to be considered in strategy formulation and execution: Subject, Environment, Resource, and strategic operating system (Mechanism). Unlike simple SWOT analysis or competitive strategy models, this model contains complex systems theoretical perspectives in that it explains organizational strategic choices and execution through interactions and harmony among the four elements (Cho & Moon, 2022).

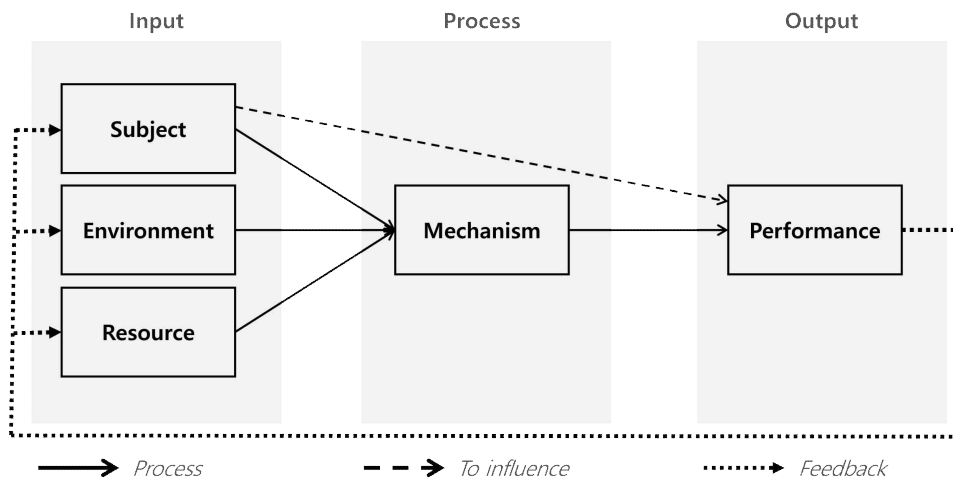


Figure 1. SER-M(Subject-Environment-Resource-Mechanism) Model

Subject is the central actor of strategy, consisting of CEOs in enterprises, leaders (kings, generals, etc.) in history, or groups (including citizens and people). They set strategic directions through vision, determination, and insight.

Environment is the external world where strategy unfolds, including political, economic, social, technological, and natural conditions. The external environment simultaneously provides opportunities and threats, and strategy requires adaptation or proactive response to this environment.

Resource refers to internal capabilities and assets possessed by the organization. It includes all tangible and intangible resources such as human resources, material resources, finance, information, brand, and trust.

Strategic operating system (Mechanism) is the organized procedures and systems through which subjects actually execute strategy utilizing environment and resources. Execution capabilities such as institutions, structures, control systems, and decision making methods are key.

An integrated approach is essential in interpreting strategy. While existing strategic analysis often tends to explain individual elements like subject, resources, and environment separately, strategy should essentially be understood as a complex system where these elements interact. Strategy is designed and executed within an integrated structure where multidimensional variables are interconnected, rather than being a fixed single structure.

Furthermore, the operational mechanism of strategy has nonlinear characteristics. The effects of strategy cannot be predicted merely by simple summation of components, but rather disproportionate results may emerge through interactions among elements. This means strategy can produce emergent results based on dynamic interactions rather than being a simple collection of plans. Therefore, when designing strategy, the relationships among elements and synergy possibilities must be considered together (Cho & Moon, 2022).

Additionally, there exists an inherent feedback mechanism in strategic structure. Results after strategy execution again influence Subject, Environment, Resource, and strategic operating system (Mechanism), leading to strategy reconstruction and adjustment. This feedback structure shows that strategy is not a onetime execution plan but a cyclical process that is repeatedly modified and developed according to environmental changes and execution results. Consequently, strategy should be understood as a dynamic system departing from static frameworks, which is a core condition for sustainable strategy formulation and execution.

This paper aims to analyze how fintech based financial underdog TOSS can achieve strategic advantage over traditional commercial banks through the combination of these elements, based on the SER-M model framework (Cho, 2022).

2.2 WSM(Weight-Sequence Model) Analysis Framework

Another framework of this paper is the WSM (Weight-Sequence Model) model (Cho, 2024).

The WSM model is a theoretical framework that clarifies the importance (Weight) given to each element of SER-M and their application sequence (Sequence) when making strategic decisions. Weight assigns relative importance that each strategic element of SER-M occupies, varying according to organizational goals. Sequence is the order that defines which elements of SER-M should be achieved first in the process of strategy execution.

The WSM model contributes to enhancing strategic efficiency by clarifying which elements to focus on and in what order to proceed, especially in situations with resource constraints.

Existing strategic theories were represented by Michael Porter's 5F model emphasizing industrial structural factors (The five competitive forces that shape strategy) (Porter, 2008), Resource Based View (RBV) focusing on internal resources (Barney & Arikan, 2005), and Dynamic Capabilities Theory focusing on competitive dynamics (Teece et al., 1997). However, digital platform based fintech companies require complex strategic design and execution that cannot be explained by resources (R) or environment (E) alone. The SER-M model decomposes corporate strategy into four elements: Subject (S), Environment (E), Resource (R), and Mechanism (M), analyzing the feasibility of strategic advantage realization through their interactions. Here, WSM (Weight-Sequence Model) strengthens execution capability by assigning weights to each strategic element and considering execution sequence, reducing gaps between strategic design and actual application. This framework is particularly effective for analyzing strategies where latecomers defeat leading companies.

WSM (Weight-Sequence Model) is based on the perspective that strategic components operate as an interconnected dynamic system. This model understands the relationships among core strategic elements - Subject, Resource, Environment, and Mechanism - not as simple linear flows but as integrated and feedback capable structures (Cho & Moon, 2022). Unlike the analytical and segmented approaches emphasized in existing strategic theories, WSM enables more realistic and organic strategic analysis by viewing strategy as one complex system (Mintzberg et al., 2020).

Particularly, this model emphasizes the nonlinearity of strategy. This is notable in that elements interact rather than acting independently, potentially producing unpredictable or emergent results. In other words, strategic effects appear through synergy or conflict from interactions rather than simple sums of elements (Gharajedaghi, 2011). This nonlinear property suggests that strategy is a fluid structure containing change possibilities and adaptability rather than fixed plans.

Additionally, WSM fundamentally includes feedback structures in strategic processes. Strategic execution results again influence subjects, resources, environment, and mechanisms, through which strategic structures are repeatedly reconstructed. This cyclical feedback system means that strategy formulation and execution is not a unidirectional fixed procedure but a continuously evolving dynamic mechanism (Stermann, 2001).

Consequently, WSM provides a theoretical framework explaining strategic structural complexity centered on three core elements: integration, nonlinearity, and feedback circulation in analyzing and designing strategy. This presents the direction of strategic

thinking in modern organizational environments where change has become routine.

2.3 Research Methodology

2.3.1. Research Design and Approach

This study adopts a case study to analyze indepth the strategic process through which financial underdog TOSS secured asymmetric competitive advantage against financial powerhouse commercial banks. Particularly, to prove that TOSS's success strategy lies in the organic combination of corporate strategic design and execution mechanisms rather than being limited to technology or resources, we take a qualitative research approach applying integrated strategic analysis models.

2.3.2. Analysis Models: SER-M and WSM Integrated Analysis

To analyze TOSS's asymmetric competitive advantage strategy multidimensionally, we integrally apply the following theoretical analytical frameworks.

1) SER-M (Subject-Environment-Resource-Mechanism) Model

Using the SER-M model as the core analytical framework, we structurally analyze the organic interactions and alignment among TOSS strategy's four core elements: Subject (S), Environment (E), Resource (R), and Mechanism (M). Through this model, we understand indepth how TOSS built an execution system(M) for financial procedure simplification by utilizing environmental (E) opportunities of existing financial sector inconveniences, integrating UX/UI capabilities as resources (R), based on the subject (S) vision of "easy and convenient finance."

2) WSM (Weight-Sequence Model)

We apply the WSM model to complement SER-M analysis and strengthen strategic execution aspects. The WSM model is used to analyze which strategic elements (SER-M) TOSS assigned high weights to under limited resources and in what sequence they executed them.

Particularly, we track the process of assigning high weight to UX/UI improvement under the goal of "customer inconvenience resolution" and setting strategic sequences like "simple remittance → financial platform expansion" to identify efficiency in resource allocation and execution.

2.3.3. Data Collection and Analysis

To secure research reliability and validity, we collect and analyze multifaceted data as follows.

1) Literature Review

We collect secondary data for background knowledge acquisition including TOSS's business growth history, commercial banks' structural advantages and monopolization paths, fintech industry reports, and regulatory environment changes. We review theoretical literature (academic papers, books, etc.) on SER-M and WSM models to ensure accurate understanding and application of analytical frameworks.

2) Public Data Analysis

We utilize business reports, investment prospectuses, media releases, and official announcements from TOSS (Viva Republica) and major commercial banks to collect quantitative data such as major financial and nonfinancial indicators, market share, and customer number changes that can form the basis for SWOT analysis. Particularly, we track major service function changes and UI/UX improvement cases of the TOSS app by launch timing in chronological order to concretize the "Sequence" aspect of WSM.

3) Expert Interviews (Selective)

(To enhance qualitative depth of research) We review open interview records or related materials from fintech/financial IT experts, management strategy experts, early TOSS users, and former/current employees to secure indepth insights into TOSS strategy execution processes and vision (subject).

Data Analysis Process: Collected data is coded and classified based on SER-M's four elements (S, E, R, M) and WSM's two elements (W, S). Subsequently, we logically interpret and structure how each element contributed to TOSS's "asymmetric competitive advantage" realization and how the core principles of SER-M - "integration, nonlinearity, feedback circulation" - operated among elements to derive conclusions.

3. Business Growth History of Financial Underdog TOSS (Viva Republica Co., Ltd., 2021)

TOSS started as a simple remittance service launched by Viva Republica Co., Ltd. in 2015. At that time, domestic financial institutions' mobile systems were rampant with complex procedures and inconvenient user experiences including digital certificates, ActiveX, and security cards. TOSS succeeded in rapid market penetration by fundamentally solving user inconveniences that existing financial institutions had overlooked through simple and intuitive UI/UX called "3second remittance." Subsequently, it evolved into an allinone financial platform by integrating various financial functions including insurance, cards, investment, and loan brokerage into one app. In 2021, it received authorization from financial authorities to establish TOSS Bank, an internetonly bank, thereby leaping from a

simple fintech startup to an institutional bank. TOSS succeeded in securing hundreds of millions of Monthly Active Users (MAU) in a short period and reshaping the interface power between existing banks and financial consumers. This was the implementation of a new philosophy called UserDefined Finance rather than simple technology development (Park, 2024).

Unlike existing telecomcentered K Bank and portal platform centered Kakao Bank, TOSS had to obtain authorization as the third internet bank as an independent entity. This was an arduous journey requiring passage through numerous regulations including capital requirements, financial soundness requirements, risk management systems, and compliance requirements. While initial business deficits continued, TOSS secured competitive advantage in nonfinancial elements through user experience based service design, simple subscription/inquiry/transfer procedures, and 24-hour automated service systems. The key was securing customer loyalty based on trust by consistently reflecting the philosophy of "easy finance" in user experience (UX), technology, and policy response. Additionally, it succeeded in meeting capital requirements through external investment attraction and startup series round investment success (Series C, D, E) amounting to hundreds of billions of won, and secured regulatory agency trust through external accounting audits and internal control strengthening. This is recorded as a new case of startup integration into institutional financial institutions.

TOSS is Korea's representative fintech company that provides innovative services by applying artificial intelligence (AI) technology to various areas (Jang et al., 2024). Currently, TOSS is improving service quality using selfdeveloped AI-based graphic generation tool "TOSST" and data analysis platform "TUBA," and expanding to offline markets through facial recognition payment system introduction. Through such AI technologies, TOSS succeeded in turning profitable for the first time in 10 years as of end 2024. TOSS is preparing for global market entry while promoting overall industry development through strategies that open its innovation technologies.

TOSS entered the offline payment market by introducing facial recognition payment system "Face Pay" utilizing AI technology. This system was launched through TOSS Places and is currently used in 100,000 affiliated stores nationwide. Face Pay is innovative service combining biometric recognition technology and AI that enables simple payments by recognizing users' faces.

TOSS also announced expansion of "Safe Compensation System" to Face Pay to strengthen service safety. CEO Lee Seung-gun mentioned, "I don't think people will carry plastic cards and wallets even 100 years from now," presenting his vision for future payment systems.

TOSS adopts strategies to open its technological know-how and systems externally. CEO Lee Seung-gun stated, "We will open more than 20 tools and system knowhow to lead steep growth of the entire industry while expanding AI-centered offline payment systems and aiming for global expansion to spread innovation." This open strategy can be seen as similar approaches to DeepSeek's recent opening of its AI model R1 to gain competitiveness in the

global AI market.

TOSS plans to provide not just tools and systems but also management methods and know-how. By sharing distributed development infrastructure and corporate culture that enables 300 live server deployments daily, it aims to contribute to overall Korean IT industry development.

TOSS announced plans to support 1 trillion won to startups over the next 5 years. This includes various forms of support beyond simple investment, including loans, marketing, and software support necessary for creating new services with TOSS. CEO Lee Seung-gun stated he would invest in companies pursuing innovation like TOSS, which is a comprehensive innovation support strategy not limited to specific technologies like AI or robotics.

TOSS set a goal to secure more than half of its users overseas within 5 years. For this, it aims to develop financial super apps into daily super apps by introducing methods connecting partner companies and startup services to its own services. CEO Lee Seung-gun expressed confidence that TOSS app's high user loyalty is comparable to global fintech platforms.

TOSS succeeded in turning profitable for the first time in 10 years since launch by recording 1.9556 trillion won in revenue and 21.3 billion won in net profit in 2024. This represents 42.7% growth compared to the previous year, with balanced growth from subsidiaries including TOSS Securities, TOSS Payments, TOSS Income, and TOSS Insurance contributing. TOSS's super app strategy succeeded in expanding its user base, with Monthly Active Users (MAU) recording 24.8 million as of end-2024, a 29% increase from the previous year.

TOSS's AI technology applications play important roles in improving user experience. Face Pay, the facial recognition payment system, provides more convenient payment experiences to users, while AI-based graphic generation tool TOSST contributes to maintaining consistent visual identity. These technological innovations lead to TOSS app's high user loyalty (opening the app 9 times daily and using it more than 2 hours monthly).

CEO Lee Seung-gun revealed goals for AI-centered offline payment system expansion and global market entry, including Large Language Model (LLM) introduction. This shows TOSS's strategy to expand services and enter global markets with AI technology as core competency.

TOSS also pays great attention to security. It has 20 white hackers internally who hack systems to check security, boasting technical capabilities that won first place for 4 consecutive years in Financial Security Institute competitions. This shows TOSS's philosophy of prioritizing security and safety in AI technology utilization.

TOSS applies AI technology to various areas to innovate services and create business performance. TOSST the AI-based graphic generation tool, TUBA the data analysis platform, and Face Pay the facial recognition payment system are TOSS's representative AI application cases. TOSS prepares for global market entry while promoting overall industry

development through strategies that open such technical knowhow.

TOSS's success in turning profitable after 10 years shows that such technological innovation and strategic approaches were effective. In the future, TOSS is expected to focus on expanding offline payment markets and building global user bases by more actively utilizing AI technology (Financial Supervisory Service & Korea Financial Telecommunications & Clearings Institute, 2023). It is also expected to contribute to Korean IT industry development by spreading innovation through startup ecosystem support.

4. Structural Advantages and Monopolization Paths of Commercial Banks as Financial Powerhouses

4.1. Structural Advantages: Entry Barriers Based on Resources, Institutions, and Networks

Domestic commercial banks (Kookmin, Shinhan, Hana, Woori) have built dominant positions in Korea's financial market over long periods, based on multi-layered structural advantages that fintech latecomers cannot easily overcome. These advantages can be explained by three core axes:

1) Capital Power and Scale Economics (Scale and Capital Superiority): Commercial banks are based on massive equity capital and asset scales accumulated over decades. This is the source of large-scale lending and funding capabilities that are the essence of finance, and the foundation guaranteeing customer trust in fundflows (Kim, 2018). This enables realization of economies of scale to provide various financial products at low costs, providing cost advantages that fintech companies cannot easily imitate (Porter, 2008).

2) Regulatory and Institutional Barriers: Finance is an industry strictly controlled through national authorization and regulation. Commercial banks already possess licenses for all financial businesses within the framework of institutional finance under Financial Holding Company Act and Banking Act. Particularly, high entry requirements from financial authorities regarding reliability, soundness, and risk management capabilities have acted as the biggest asymmetric barriers for new financial players, especially fintech companies without banking licenses (Financial Supervisory Service, 2020).

3) Network and Legacy Infrastructure (Network Effect and Legacy Infrastructure) : Nationwide branch networks and ATM networks built over decades provided physical contact point advantages. Most importantly, the accumulation of overwhelming customer data and credit information. Commercial banks exclusively possess salary transfers, loan, and deposit transaction histories of most Korean citizens, maintaining unparalleled advantages in data resources (Resource) necessary for financial product design and risk assessment (Lee et al.,

2019). This data advantage was the biggest challenge that latecomers like TOSS had to overcome.

4.2. Monopolization Path: Entrenched Practices and Internal Mechanisms

The path through which commercial banks maintained monopolistic positions is closely related to internal operational mechanisms that induce market entrenchment based on structural advantages:

1) Rigid IT Systems and Bureaucratic Organizational Culture: Commercial banks have depended on legacy IT systems that prioritize stability and regulatory compliance. These systems, coupled with bureaucratic decision making structures that make innovation or rapid service updates difficult, resulted in slow response mechanisms to financial innovation (Kim, 2023). This acted as a decisive factor for TOSS to capture environmental (E) opportunities of "easy and convenient finance."

2) Utilization of Information Asymmetry Structures: Banks maintained information asymmetry with customers through complex and difficult to understand financial product structures and inconvenient user experiences like digital certificates and security cards. This was monopolistic practice that made bank switching difficult by increasing customer search and switching costs (Jang et al., 2024).

Such structural advantages and monopolization paths of commercial banks constitute core resources (R) and conservative strategic operating systems (M) as financial powerhouses, and were the biggest "environmental (E)" threat that financial underdog TOSS had to overcome, while simultaneously being an "opportunity" area where "asymmetric competitive advantage" could be created.

5. SWOT and Key Indicator Analysis

This chapter comparatively analyzes through SWOT framework how fintech startup TOSS secured competitive advantage from "underdog" position against traditional financial powerhouses - commercial banks (Kookmin, Shinhan, Woori, Hana). This analysis shows the essence of asymmetric competitive advantage strategy that even resource poor latecomers can threaten powerhouses by maximizing their unique strengths.

5.1 Strengths

TOSS's most core strength is user experience (UX) centered interface design. Unlike existing commercial banks that required multiple steps including digital certificates and security card

inputs, TOSS dramatically lowered financial service entry barriers by replacing these with simple methods like "one-touch remittance." Additionally, TOSS secures digital organizational agility that shortens service update cycles to seconds through A/B testing and CI/CD (Continuous Integration/Continuous Deployment) systems based on user data. Furthermore, it succeeded in launching new technologies and products faster than existing banks by actively utilizing government regulatory sandbox systems.

Meanwhile, commercial banks have strengths in capital power and liquidity accumulated over long periods, generating stable profits based on stable deposit and loan portfolios. Nationwide branch networks and ATM infrastructure act as core foundations for maintaining largescale loyal customers, while securing economies of scale and cost advantages through largescale IT infrastructure and R&D investments.

5.2 Weaknesses

While TOSS is rapidly expanding markets centered on digitally friendly young generations, it still has low brand recognition among nondigital generations over 40 and entry resistance to service usage exists. Additionally, revenue model diversification including advertising, insurance, and loans remains in early stages, with clear weaknesses in accumulated experience and knowhow for complex financial product development, risk management, and credit evaluation systems compared to traditional financial institutions.

Conversely, commercial banks have high dependency on legacy systems formed during long operations, where digital certificate based complex authentication systems and branch centered business processes act as structural obstacles to digital transformation. Decision-making structures are also bureaucratized, making rapid execution or innovative change response difficult, with high fixed cost burdens from nationwide branch and largescale personnel operations pointed out as weaknesses.

5.3 Opportunities

For TOSS, the continuously expanding influence and transaction proportion of digital native segments including MZ and Z generations in financial markets acts as strategic opportunity. This is very favorable to TOSS's user centered UX/UI strategy, while rapid growth in AI technology based personalized loan, insurance, and investment advisory service markets provides potential market opportunities for TOSS's technology based service expansion. Furthermore, government level Open Banking introduction and active support policy environments for digital financial innovation are established, helping TOSS secure regulatory flexibility necessary for new financial service experimentation and market launch through such institutional backing.

Commercial banks can also actively invest in next generation digital technologies like cloud,

artificial intelligence, and blockchain based on largescale capital power. Further more, opportunities for new revenue source development are expanding through entry into new business areas like ESG finance and carbon credit trading, while overseas branch network expansion in ASEAN regions and participation in global financial alliances are strengthening overseas partnerships and global market entry foundations.

5.4 Threats

TOSS faces direct threats from big tech and global fintech companies like KakaoPay, NaverPay, and Apple Pay entering financial markets. These companies are expanding competitiveness based on massive capital and user bases, potentially causing difficulties in securing market share. Additionally, regulatory strengthening for consumer protection and financial stability enhancement is anticipated, which may constrain agile service experimentation by startups. Single events like security incidents or service failures can also act as potential risks that could fatally damage brand trustworthiness.

For commercial banks, customer defection is becoming reality due to growth of internet only banks (TOSS Bank, K Bank, etc.) and popularization of mobile based finance. Particularly, falling behind startups in UX and service speed could accelerate customer defection centered on digital native generations, while fintech companies are rapidly expanding market share in niche financial markets like small investments and asset management, threatening traditional revenue models of commercial banks.

5.5 Strategic Implications

Through the above SWOT analysis, we confirmed that resourcepoor latecomer TOSS can neutralize traditional banks' advantages by strategically maximizing core strengths of UX and organizational agility. TOSS is compensating for relatively inferior capital and infrastructure issues through UXcentered strategy, data based agile operational systems, and government system utilization capabilities. Specifically, it pursues ecosystem expansion through platform strategies involving Open Banking connections and API openings, while building hybrid models that strengthen revenue model diversification and risk management through strategic partnerships with existing banks. This is a representative case of asymmetric competitive advantage strategy, providing important implications applicable to industries overall in the digital transformation era.

Table 1. SWOT Analysis: TOSS vs. Commercial Banks (Kookmin, Shinhan, Woori, Hana)

Category	TOSS	Commercial Banks
Strengths	Intuitive UX/UI Agile organizational culture Regulatory sandbox utilization	Strong capital power Extensive customer base Economies of scale
Weaknesses	Low brand recognition Early-stage revenue model diversification Lack of financial product development experience	Legacy system dependency Slow decision-making structure High fixed costs
Opportunities	MZ generation digital demand expansion AI loan/insurance market growth Government digital finance support	Digital transformation investment expansion ESG/new business entry Global partnerships
Threats	Big tech/fintech entry Regulatory strengthening risks Customer trust defection risks	Internet bank competition Mobile service gaps Niche market erosion

6. TOSS Strategy from SER-M Perspective

S (Subject): TOSS's strategy starts from founder and CEO Lee Seung-gun's philosophy. Under the mission of "making finance understandable to everyone," TOSS designed its organization around young and agile decision-making structures. Structures that value internal practitioner feedback over external experts and do not separate problem discovery and solution subjects enabled rapid improvement and iteration. These subjective characteristics connect to proactiveness in quickly recognizing customer problems and modifying strategies accordingly, contributing to securing consistency and concentration in strategy execution.

E (Environment): TOSS accurately identified emotional dissatisfaction with financial consumer inconveniences and increasing mobile finance demand trends centered on MZ generations. Simultaneously, it proactively utilized institutional environmental changes including government fintech promotion policies, regulatory sandbox systems, and financial deregulation policies. While competitors maintained asset centered conservative management, TOSS demonstrated environmental adaptation capabilities by rapidly shortening product conversion cycles and designing product structures meeting user needs.

R (Resource): TOSS's core resources are internal development teams built around user experience design, databased design capabilities, and agile organizational structures to

execute them. UI/UX intuitively designs all financial functions, automating and eliminating various procedures to minimize users' cognitive burden. Recommendation algorithms based on user behavior data and loan/investment proposal algorithms based on financial habits have also been sophisticated. Internally, agile development processes and horizontal communication are efficiently implemented, maximizing innovation resource utilization.

M (Mechanism): TOSS's execution mechanism is a structure that concretizes the philosophy of "intuitively simplify complex finance." Complex financial functions are reduced to within 3 steps, minimizing user interactions, with precise design considering user behavior down to button positions, terminology, colors, and animations.

Additionally, response efficiency is enhanced through AI based chatbot responses and self-diagnosis flows rather than direct inquiries through customer centers. The ultimate goal of the mechanism is "unconscious financial execution by users," which is an integrated strategic structure combining UX, algorithms, organizational structures, and policy responses.

7. Integrated Structuring of TOSS's SER-M Strategy and WSM (Weight-Sequence Model) Strategic Model

TOSS did not merely stop at user-centered design but comprehensively redesigned financial services. This is a result where each element of SER-M organically interacts to secure both strategic design integration and execution capability.

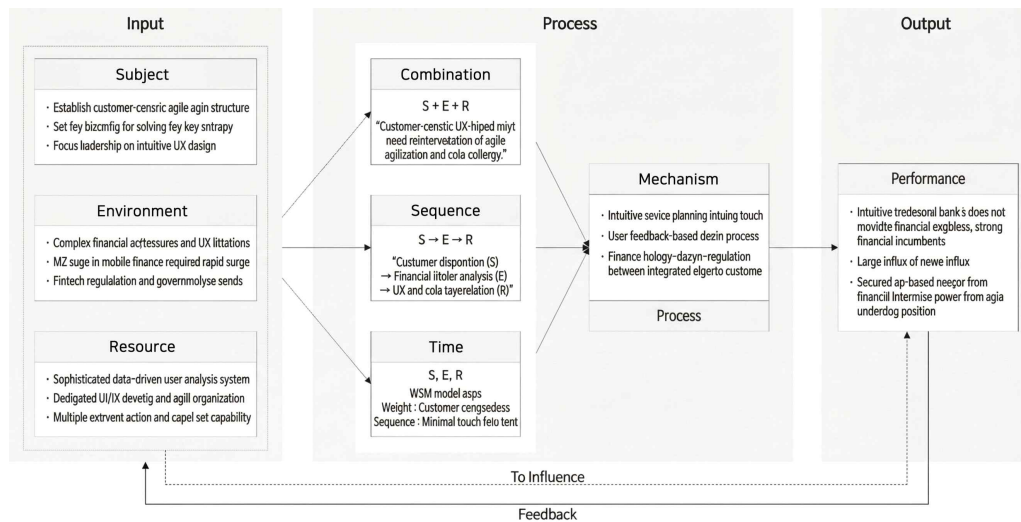


Figure 2. TOSS SER-M & WSM (Weight-Sequence Model) Strategy Structure Diagram

The following is a strategic diagram structuring TOSS's strategy according to SER-M model and WSM (Weight-Sequence Model). This structure visually shows how TOSS accurately recognized strategic gaps of giant banks from financial underdog position and converted them into executable strategies.

Fintech startup TOSS created powerful competitive advantage even under financial underdog conditions through the Subject-Environment-Resource-Mechanism (SER-M) model. Below, we comprehensively explain strategic design by four elements and their combination (S+E+R), sequential (S→E→R), and W-S (Weight-Sequence) perspectives.

7.1. Strategic Component Analysis and Execution Framework

7.1.1 Subject

TOSS has built strategic capabilities based on customer centered agile startup identity from organizational structural design stages. Particularly, as a structure enabling agile organizational operations, it introduced DRI (Directly Responsible Individual), a project unit manager designation system, dramatically improving decision making speed. Small cross-functional team based operations promote rapid execution and iterative feedback, establishing rapid experimentation and learning culture throughout the organization.

TOSS has a mindset that converts all inconvenience elements that customers experience in using financial services into strategic assets. That is, it does not recognize customer pain points as simple problems but defines them as core tasks to be solved, placing them in organizational priorities. These values penetrate the entire organization from top management to development, design, and marketing departments, with all decisions made under integrated leadership structure that takes "intuitive user experience" as the top priority principle.

7.1.2 Environment

TOSS's strategy started from converting complex and closed financial environments created by existing commercial banks into opportunity factors instead. First, traditional authentication procedures including digital certificates, security cards, and PC based security modules have acted as major barriers blocking financial service entry, becoming backgrounds that highlight the importance of user centered design.

Along with this, as MZ generation demand for mobile finance taking smartphones as main platforms rapidly increased, demand for new financial services centered on "non-face-to-face" and "simplicity" expanded. The government also provided institutional mitigation and technology demonstration environments for fintech innovation through regulatory sandboxes and Open Banking, supporting rapid verification and commercialization of new technologies and products. These external conditions form favorable policy and sociocultural foundations for TOSS

strategy execution.

7.1.3 Resource

TOSS has focused on securing internal resources and strengthening capabilities to maximize external environmental opportunities. Among them, the core is data based user analysis systems. TOSS built its own platform that comprehensively analyzes user behavior logs, financial transaction histories, and social data to secure capabilities generating realtime personalized financial proposals.

In technical resource aspects, UX/UI dedicated development teams and agile organizational operations play important roles. Function specific teams where designers, frontend and backend developers collaborate rapidly develop and deploy functions through 2week sprints, improving customer experiences in realtime. Additionally, capital attracted from multiple global venture capitals and strategic investors stably provides financial foundations necessary for technology development, marketing, and customer acquisition.

7.1.4 Mechanism

TOSS's execution mechanism is designed around procedural conciseness and iterative learning systems. Representatively, major functions (remittance, payment, account inquiry, etc.) are extremely simplified in authentication and UI procedures to be executable with average 2-3 touches. This is a strategic result of designing customer experience flows with minimal resistance.

Additionally, TOSS operates feedback loops that repeatedly perform bug fixes, UI improvements, and new function planning by collecting and analyzing realtime user data. These loops typically execute in 1-2 week units, extremely shortening user experience improvement cycles. Furthermore, company wide task force (TF) structures among function development, regulatory response, and marketing execution departments enable parallel collaboration from new function planning to deployment, maximizing execution efficiency.

7.1.5 Combination Strategy (S + E + R)

TOSS redefines existing financial service paradigms by organically combining subject(S) customer-centered thinking, environment (E) non-face-to-face financial conversion flows, and resource (R) data analysis capabilities and agile organizational structures. For example, based on MZ generation demands familiar with mobile finance (E), it implemented "instant remittance" functions utilizing user experience design (S) and data-based personalization capabilities (R), presenting new standards for customer experience. Connecting this SER-M analysis to the SWOT framework from Chapter 5, TOSS's strategic alignment can be interpreted through three strategic postures: S-O Strategy (Strength-Opportunity): TOSS leveraged its UX/UI design

strengths (S) to capture opportunities from MZ generation demand for simplified mobile finance (O). The “3-second remittance” feature exemplifies using organizational strengths to exploit environmental opportunities. W-O Strategy (Weakness-Opportunity): Despite capital weakness (W), TOSS utilized regulatory sandbox opportunities (O) to bypass traditional licensing barriers. External investment rounds converted environmental opportunities into resource acquisition, compensating for initial capital constraints. W-T Strategy (Weakness-Threat): Most critically for underdog strategy, TOSS countered threats from established banks’ market dominance (T) despite its own resource limitations (W) by redefining competitive dimensions. Rather than competing on capital or branch networks where it was disadvantaged, TOSS shifted competition to UX simplicity and agile execution—domains where incumbent banks’ legacy systems became liabilities rather than assets. This W-T strategic reframing is the essence of asymmetric competitive advantage.

7.1.6 Sequential Strategy ($S \rightarrow E \rightarrow R$)

TOSS's strategy execution is systematically structured through three-stage flows. First, it precedes problem recognition by identifying and analyzing inconveniences (pain points) within existing financial services using customer journey maps (S). Second, it diagnoses structural inefficiencies in financial environments (E) like authentication procedures and customer response systems by analyzing contexts where such inconveniences occur. Finally, it executes through UX design, authentication simplification, and automation system development by applying owned technologies and organizational capabilities (R) to defined tasks. This step-by-step strategy formulation method enhances alignment between customer-centered service design and execution while enabling flexible responses to market reactions.

7.2 Temporal Strategy (W-S Model Application)

This section applies the W-S model to interpret TOSS’s strategic trajectory retrospectively. It is important to note that the weights assigned below are analytical interpretations derived from examining TOSS’s resource allocation patterns and strategic priorities as evidenced in public documents, not metrics that TOSS explicitly calculated.

7.2.1 Analytical Basis for Weight Assignment

The weight values (1-5 scale) in Table 2 were derived through qualitative analysis of three data sources: (1) TOSS’s official communications emphasizing “customer inconvenience resolution” as the paramount organizational priority, (2) resource allocation patterns observable in investment rounds and team structure expansions prioritizing UX/UI development, and (3) the chronological sequence of service launches demonstrating execution priorities. This analytical approach acknowledges inherent limitations in precisely quantifying strategic priorities without access to internal decision-making data, which is addressed in Section 8.3 as a research limitation requiring future quantitative validation.

7.2.2 Why S→E→R Sequence Was Inevitable for TOSS

Unlike established commercial banks that could pursue R→E→S sequences (leveraging existing resources to shape environments and define strategic subjects), TOSS as a resource-constrained latecomer necessarily followed S→E→R logic. First, lacking substantial capital or infrastructure (R), TOSS could not compete on resource dimensions initially. Second, the external environment (E) presented asymmetric opportunities—incumbent banks' UX complexity created exploitable gaps that required no capital investment to identify. Third, the strategic subject (S)—defining “easy finance” as the core mission—had to precede resource acquisition because investor funding (R) depended on demonstrating a compelling vision (S) validated by market opportunity (E). This S→E→R sequence reflects the structural constraints facing underdogs: they must first articulate why they should exist (S), identify where incumbents are vulnerable (E), and only then can they attract the resources (R) to execute.

7.2.3 Strategic Roadmap Analysis

Strategic roadmaps considering both Weight and Sequence are as follows:

Table 2. SERM & WS Integration: Weight and Sequence Organization

Stage	Category	TacticalElement	Weight	Sequence
①	S	Customer inconvenience recognition and top priority solution strategy planning	5 points out of 5	1
②	E	Intuitive UI/UX design	4 points out of 5	2
③	E	Touch reduction and authentication procedure simplification	3 points out of 5	3
④	R	Capital securing (external partnerships and investments)	2 points out of 5	4
⑤	R	Function expansion (loan/insurance/investment services)	1 points out of 5	5

Strategic Roadmap: Execution Priorities by Weight and Sequence

TOSS's strategic roadmap follows structures that comprehensively consider importance (weight) and execution sequence of each tactical element beyond simple listing of execution items. This approach provides foundations for maximizing efficient resource distribution and step-by-step synergy in strategy execution, particularly reflecting fintech industry characteristics sensitive to limited organizational capabilities and external environmental changes.

First, the tactical element receiving highest weight (5 points out of 5) is "customer inconvenience recognition and top priority solution strategy planning," set as sequence 1 in the strategic roadmap. This means activities identifying customer pain points and defining them as organizational core tasks are starting points and direction determining core stages for entire strategy execution. This sequence and importance setting is valid in that TOSS's strategy focuses on customer experience-centered problem solving rather than simple technological innovation.

The second highest priority is "intuitive UI/UX design" with weight 4 points out of 5 and sequence 2. This represents sequential structures where intuitive and concise interface design is executed as concrete realization means for solving customer inconveniences. UI/UX design is a core element defining customer contact points and determining service usability, acting as strategic devices minimizing psychological resistance as well as technical implementation.

The third stage is "touch reduction and authentication procedure simplification" with weight 3 points out of 5 and sequence 3. This means concrete practice tasks of previous UX design, referring to work reducing complexity in touch numbers and authentication processes required when using functions. This is where customer-centered approaches are reflected in actual service flows, mainly where feed-back-based iterative improvement activities occur.

Stage 4 is "capital securing (external partnerships and investments)" with weight 2 points out of 5, somewhat lower than UX and function improvement stages, and sequence 4. This reflects realistic limitations that service expansion and technology innovation continuation are difficult with internal capabilities alone, showing execution will to supplement resources through external capital procurement and strategic partnerships.

Finally, "function expansion (loan/insurance/investment services)" is placed in the final stage with weight 1 points out of 5 and sequence 5. This means developing strategies through methods adding derivative business models or new financial products after core functions are stably implemented. That is, this strategic roadmap takes internal expansion sequential strategic approaches that consider business model expansion after completing core experience (UX).

Comprehensively, this strategic roadmap is configured according to logical flows of customer-centered recognition → intuitive design → experience simplification → resource supplementation → function expansion, with each stage designed considering alignment between importance and sequence. This structure suggests that TOSS secures intrinsic completeness and execution feasibility of user experience-centered strategies.

7.3 Performance

According to such SER-M-based strategy and W-S roadmaps, TOSS recorded 10 million

downloads within 6 months of launch and Monthly Active Users (MAU) surpassing 20 million by providing onetouch experiences that traditional banks could not offer. Despite being financial underdogs, by securing "power" of appbased user interfaces, it achieved results occupying over 30% of entire banking sector digital channel traffic.

Existing banks' legacy systems and internal procedure-centered execution cultures showed limitations in external crisis response speed and user-centered strategy design, while TOSS could become strategic leaders despite being latecomers by integrating each element of SER-M according to "weight and sequence."

8. Conclusion and Strategic Implications

8.1 Main Research Findings (Discussion)

This study retrospectively analyzed TOSS's asymmetric competitive advantage against traditional commercial banks by applying the SER-M (Sub-ject - Environment - Resource - Mechanism) model and WSM (Weight-Sequence Model) as interpretive frameworks. It is important to note that this analysis applies these theoretical models to understand TOSS's achieved outcomes, rather than claiming TOSS consciously employed these frameworks in strategy formulation.

TOSS secured a unique competitive advantage by organically integrating the four elements of the SER-M model to maximize strategic synergy. First, as the Subject, TOSS clearly defined user inconveniences in financial services as its top priority strategic task. To achieve this, in terms of the Environment, it accurately diagnosed and utilized opportunities such as the complex and inefficient legacy structures of existing banks, the surging demand for mobile finance among the MZ generation, and government deregulation policies. Supporting this were its Resources, specifically its agile UI/UX design capabilities and databased technical assets, reinforced by dedicated UI/UX organizations and data teams. Consequently, by establishing a Mechanism that implements these elements through intuitive user experiences and the simplification of complex financial procedures, TOSS successfully positioned itself as a "representative fintech company of user-centered design."

TOSS strengthened its execution capabilities through the WSM model by recognizing the relative importance (Weight) among strategic elements and meticulously designing the execution order (Sequence). TOSS's execution strategy revolved around a clear central axis: "Customer Problem Recognition → Intuitive UX Design → Implementation of Minimum Touch → Service Expansion." This design of strategic priorities and sequential execution played a decisive role in efficiently distributing limited resources and enhancing strategic agility in response to changing market conditions.

Behind TOSS's successful strategy execution lie an innovative organizational culture and supporting mechanisms. First is an agility and responsibility centered organizational culture. Through the DRI (Directly Responsible Individual) system, TOSS reduced dependency on middle management approval and granted autonomy to project owners, thereby simultaneously increasing decision-making speed and execution quality. Second is a structure for accepting failure and learning. By establishing institutional devices such as "Failure Parties" to share failure experiences and convert them into learning assets, the company accelerated organizational learning and innovation speeds. Third is data-based decisionmaking. TOSS implemented a "learning strategic system" that analyzes user behavior data in realtime to repeat A/B tests and optimize remittance paths and menu configurations. Finally, through a Build or Buy strategy, TOSS secured strategic flexibility by selecting optimal growth paths—building services like TOSS Bank and TOSS Securities inhouse while acquiring companies like TADA.

8.2 Theoretical Contributions

This study offers the following academic and practical implications:

First, it presents an empirical integration of the SER-M and WSM frameworks. Moving beyond existing fragmentary analyses of resources or competitive structures, this study analyzes fintech success strategies from a systemic perspective, providing a new viewpoint on strategy formulation for organizations with many constraints. Second, it presents a concrete model for a "strategy for the weak to defeat the strong." It demonstrates through concrete mechanisms that even latecomers with inferior capital and scale can change market dynamics if they accurately identify strengths and weaknesses and secure strategic alignment and execution capabilities. Third, it emphasizes the dynamic mechanisms of strategy execution. Through the WSM model, the study proves that quantitatively evaluating the "Weight" and "Sequence" in strategy execution and designing agile processes lead to tangible performance, suggesting that strategy is a dynamic system determined by execution capability rather than a static structure.

8.3 Research Limitations and Future Research Directions

As a qualitative case study analyzing TOSS's success centered on the SER-M and WSM models, this research has limitations in statistically generalizing the causal relationships of strategic success. Accordingly, future research directions are suggested as follows:

First, this study's Weight assignments in the WSM analysis are based on qualitative interpretation of observable patterns rather than quantitative measurement. Future research should develop objective indicators for strategic element prioritization, potentially through content analysis of investment allocations, organizational resource distribution, or executive communication frequency analysis. Second, comparative analysis with failed fintech cases is essential. This study focuses exclusively on TOSS's success, but similar strategies employed by companies like Banksalad, Finda, or other fintech startups that struggled could reveal whether

TOSS's strategic alignment was truly differentiating or whether external factors were decisive. Comparison with Kakao Bank (large platform-based) and K Bank (telecom-based) would clarify TOSS's distinctive strategic elements as an independent startup. Third, this study does not sufficiently separate external environmental factors from strategic design effects. Government deregulation (regulatory sandbox), favorable investment climate, and MZ generation demographic shifts all contributed to TOSS's success independently of its strategic choices. Future research should employ counterfactual analysis or comparative cases to isolate strategic versus environmental contributions. Fourth, TOSS achieved profitability only in 2024—ten years after launch. The long-term sustainability of this profit model requires critical examination. Future research should track performance trends over extended periods and assess whether current profitability represents a structural shift or temporary alignment of favorable conditions. Fifth, this study lacks third-party quantitative data such as Financial Supervisory Service statistics, detailed app usage metrics (MAU trends, retention rates by cohort), and competitive bench-marking data. Incorporating such data would strengthen analytical validity. Finally, defense mechanisms against future threats require attention. Security incidents, competition from global big tech companies, and potential regulatory tightening present ongoing challenges that this study does not fully address.

8.4 Conclusion

This case study retrospectively analyzes TOSS's strategic trajectory through the SER-M and WSM frameworks, demonstrating how the organic alignment of strategic elements enabled a latecomer to challenge established market leaders. The W-T (Weakness-Threat) strategic perspective is particularly instructive: TOSS countered its resource disadvantages by converting incumbent banks' complexity into opportunities, prioritizing UX simplification over infrastructure competition. Key W-T strategies included: (1) leveraging regulatory sandbox to bypass traditional licensing barriers, (2) targeting MZ generation digital preferences to offset brand recognition gaps, and (3) using agile execution to outpace legacy system-bound competitors. This analysis provides strategic implications for latecomers across industries, though future research should incorporate quantitative validation and comparative analysis with failed fintech cases to enhance generalizability.

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ser-M 모델로 도출한 국내 EERS 개선 방안

화이트 인증서 제도 도입을 중심으로 한 사례연구

Policy Recommendations to Improve Korea's EERS Derived from the ser-M Model

A case study focusing on the adoption of a white certificate scheme

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국 문 초 록

본 연구는 한국의 에너지효율향상 의무화제도(Energy Efficiency Resource Standard, EERS)가 수요측 효율향상을 제도적으로 정착시키기 위해 어떠한 개선이 필요한지를 분석하였다. 본고는 한국 EERS 개선을 위해 검증된 절감량을 거래 가능 인증서로 전환하는 화이트 인증서 제도(White Certificate Scheme, WCS) 도입을 검토하였다. 이를 위해 이탈리아 TEE, 프랑스 CEE, 덴마크 EEO, 한국 EERS를 다중사례연구 방식으로 비교하고, 주체(S)·환경(E)·자원(R)이 메커니즘(M)을 통해 성과(O)로 연결되는 구조를 ser-M 프레임워크로 해석하였다. 비교 결과, 해외 사례의 성과 차이는 단순한 의무 수준보다 제3자 참여 범위, 표준화된 MRV, 국가 레지스트리, 거래 또는 이전 규칙, 가격안정장치와 같은 메커니즘 설계의 차이에서 발생하였다. 반면 한국은 공기업 중심의 이행 구조, 연간 절감량 중심 평가지표, 거래 플랫폼 부재, 정책금융 의존 등으로 인해 에너지효율향상 성과가 민간투자 유인을 갖는 자산으로 전환되지 못 하였다. 이에 본고는 전담 거버넌스 구축, 제3자 발급·거래 참여 확대, 수명가중 절감량 산정, 독립 검증을 포함한 MRV 표준화, 레지스트리 및 거래 인프라 구축, 이월·제한적 차입·의무자 간 이전을 포함한 유연한 이행규칙 도입을 제안한다. 또한 제도의 정책 활용도를 높이기 위해 단기와 중장기로 구분한 단계적 로드맵을 제시한다. 이러한 논의를 제도 소개 이상의 메커니즘의 다각이 비교분석으로 학술적 의의가 있으며, 한국형 WCS 설계 청사진을 제공한다. 또한, 에너지효율향상 활동을 민간 금융이 참여 가능한 투자자산으로 전환하는 제도적 방향을 제시한다.

I. 서론

최근 전 세계적으로 기후변화 대응과 에너지 안보 강화가 국가 에너지 정책의 핵심 과제로 부상하고 있다. 탄소중립 실현을 위해서는 에너지 소비 절약과 국제 연료가격 및 지정학적 리스크에 대응할 수 있는 공급망 안정 전략이 필수적이다. 따라서 에너지 사용 효율화를 통해 수요측면에서 에너지 사용량을 줄이고, 외부 의존도를 낮추는 전략은 환경·안보적 목표를 동시에 충족하는 핵심적인 방안으로 평가된다. 이러한 국가적 목표를 달성하는 데 가장 비용 효율적인 핵심 수단 중 하나는 에너지효율향상 의무화제도(Energy Efficiency Resource Standard, EERS)가 주목받고 있다(International Energy Agency, 2017, 2024).

국제에너지기구(IEA)는 2030년까지의 이산화탄소 배출 감축 기여도에서 에너지 효율 향상의 비중을 약 40%로 산정하며, 이는 단일 수단 중 가장 높은 비율이다. 반면, 이산화탄소 포집·저장(CCS)의 본격적 기여는 2030년 이후에야 본격적인 효과를 발휘할 것으로 전망된다. 따라서 EERS는 단순한 수요 절감 정책을 넘어, 현 시점에서 기후위기 대응과 에너지 안보 강화를 동시에 실현할 수 있는 핵심 정책 수단으로 평가된다(International Energy Agency, 2021, 2024).

국내 EERS 제도는 2018년 시범사업을 시작으로 현재 정식 시행을 위한 법제화가 국회에서 논의 중이며, 2027년 이후부터 본사업 시행이 예상된다. 시범사업 기간 동안, 한국전력공사, 한국가스공사, 한국지역난방공사 등 의무 공급자들의 참여를 통해 일정 성과를 달성하였다. 한국전력공사는 2020년부터 2024년까지 총 2,909 GWh의 전력을 절감하였고, 2024년에는 한국지역난방공사 또한 목표량을 초과 달성하였다. 그러나 이러한 양적 성과에도 불구하고, 제도효과의 지속성과 효율적 측면에서 구조적 한계가 드러나면서 제도 개선의 필요성이 제기된다(한국지역난방공사, 2025).

국내 현행 EERS 제도가 안고 있는 문제점은 크게 두 가지로 요약된다. 첫째, 의무 공급자의 제도에 대한 동기 저하이다. 전력과 가스 판매를 통해 수익을 창출하는 공급자 입장에서 효율성은 매출감소로 직결되는 구조적 역인센티브를 초래한다. 이러한 상황에서 정책 이행이 기업의 재무적 손실로 이어지기 때문에 EERS 효율향상은 손해라는 인식을 강화시켜, 공급자들의 소극적 참여에 영향을 미칠 위험이 있다. 이러한 상황은 에너지 효율 향상이라는 사회 전체의 편익과 개별 공급자의 이해관계가 충돌하는 것으로 그들이 제도 참여에 대해 적극적으로 행동하기 어려운 제도적 한계를 드러낸다(International Energy Agency, 2017, 2024).

둘째, 양적 목표 중심의 설계가 질적 가치 창출로 연결되지 못하는 괴리가 있다. 현재 EERS 제도는 해마다 부과되는 에너지 절감 목표량인 양적 지표 실적관리에 머물러 있으며, 고효율 기기 보급과 기술혁신이 창출하는 장기적 가치는 경제적 자산으로 인정받지 못하고 있다. 이로 인해, 민간 에너지 절약 전문기업인 ESCO(Energy Service Company)의 산업은 기술 혁신과 자본 투입대비 실질 수익을 확보하지 못하고, 정부의 정책자금 의존도가 상승하는 민간참여의 구조적 어려움이 지속되고 있다(International Energy Agency, 2024; Lindberg, Markard, & Andersen, 2019; 이성근 & 안영환, 2006; 이성인, 이지연, 김수덕, 민은주, & 백민호, 2013).

본 연구는 국내 EERS 제도가 직면한 구조적 한계, 특히 에너지공급자의 이행 동기 위축과 양적 실적 성장의 불균형 문제를 해소하고, 에너지 효율 시장의 지속가능한 활성화 방안을 모색하는 데 목적이 있

Received Mar. 27. 2026 Accepted Apr. 16. 2026

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다. 이를 위해 본 연구는 해외의 대표적인 시장 기반 인센티브 메커니즘인 화이트 인증서 제도(White Certificate Scheme, WCS)에 주목한다. WCS는 에너지 절감 성과를 거래 가능한 자산으로 전환하여, 참여자에게 경제적 보상을 제공함으로써 자발적 참여를 유도한다는 점에서, 단순 관리 중심인 기존 제도와 차별화 된다. 본 연구는 이탈리아(TEE), 프랑스(CEE), 덴마크(EEO), 한국(EERS)의 4개 사례를 비교하여 한국형 WCS 도입의 타당성과 방향을 검토한다. 이탈리아는 거래시장과 가격안정장치를 결합한 하이브리드 구조를, 프랑스는 kWh cumac 기반의 장기 절감가치 제도화를, 덴마크는 공개 증서시장 없이도 유연한 이행규칙을 운영하는 구조를, 한국은 공기업 중심 EERS 시범사업 구조를 각각 보여준다. 따라서 이 4개국은 서로 다른 메커니즘 유형과 제도 성과를 비교하기에 적합한 사례군이다(Bertoldi & Rezessy, 2006; International Energy Agency, 2017).

방법론으로는 질적 다중사례연구를 채택하고, 분석틀로 ser-M(Subject-Environment-Resource-Mechanism) 프레임워크를 활용한다. 본 연구는 각 사례의 법령, 운영규정, 연차보고서, 기관 자료에서 제도 설계 요소를 추출한 뒤, 이를 주제(S), 환경(E), 자원(R), 메커니즘(M)으로 분류하고, 다시 메커니즘의 작동 원리를 SER, SRE, RSE, ESR, ERS, RES 유형으로 재분류하였다. 이를 통해 해외 WCS의 성공 요인을 국내 실정에 맞게 변용하여 한국형 WCS의 제도적 기반, 시장 인프라, 참여자 인센티브 설계를 제안하고자 한다(Yin, 2003; 조동성, 2014; 조동성 & 문휘창, 2020).

II. 이론적 배경

1. EERS 및 WCS의 기본 개념과 작동 원리

EERS는 국가가 법령에 근거하여 의무 공급자에게 에너지 절감 의무를 부과하는 제도이다. 공급자는 목표 달성을 위해 효율 투자사업을 수행한다. 제도 구조는 ‘목표 부여 → 이행 → 성과 관리’로 정리된다. 국내에서는 「에너지이용합리화법」 및 시행령 제16조(에너지공급자의 수요관리투자계획)가 법적 근거이며, 산업통상자원부 고시 「에너지공급자의 수요관리 투자사업 운영규정」에 시범사업 형태로 운영하도록 규정한다(정경화, 2012; 한국에너지공단, n.d.).

현재 의무 대상은 한국전력공사, 한국가스공사, 한국지역난방공사 3개 기관이다. 제도, 대상기관, 추진 목적 등은 한국에너지공단 공식 통계와 보고서를 통해 확인 가능하다. 한국전력공사는 고효율 전기기기 보급, 노후 설비 개보수, 소비자 참여 프로그램 등을 추진한다. 한국가스공사와 한국지역난방공사는 가스·열 분야 사업을 수행하며 2020~2023년 사이 가스·열 분야 절감실적은 약 3.8만→1.9만→2.5만→5.6만 Gcal로 변화하였다. 이들 기관은 고효율 기기 보급, 노후 설비 개선, 소비자 참여 프로그램 등을 통해 절감 실적을 관리하고 있으나, 여전히 제도 운영은 공기업 중심의 행정적 성과관리 성격이 강하다. 즉, 절감량은 관리되지만 그 성과가 자산화되거나 시장 거래를 통해 확장되는 구조는 아직 마련되지 않았다(한국에너지공단, n.d.).

WCS는 EERS 구조에 ‘거래 가능한 절감량 증서(인증서)’를 결합한 시장 기반 정책(Market-Based Instrument, MBI)이다. MBI는 가격과 시장을 활용해 행태 변화를 유도하는 정책 수단이다. 이는 명령-통제식(command-and-control) 규제와 구별된다. 명령-통제는 규제 준수를 직접 강제한다. 반면, MBI는 세금, 보조금, 거래 가능한 권리 등을 통해 경제 주체의 효율적인 선택을 유도한다(Bertoldi & Rezessy, 2006; International Energy Agency, 2017; Stavins, 2001).

WCS의 메커니즘은 다음과 같다. 국가가 의무 공급자에게 절감 목표를 할당하고 공급자는 자체 프로젝트로 목표를 이행하거나 제3자가 창출한 절감량을 ‘화이트 인증서’로 구매해 목표를 달성한다. 미이행 시

에는 페널티가 부과된다. 절감 활동은 MRV(Measurement, Reporting, Verification) 체계로 관리된다. 인증서 거래가 가능해지면 의무 공급자 외 주체도 시장참여가 가능하다. 잉여 절감량이 발생하는 사업자는 인증서를 발행하고 이를 필요로 하는 사업자가 이를 구매하여 의무를 이행한다. 이러한 효율적 시장 메커니즘은 부여된 목표를 낮은 비용으로 달성하도록 유도한다(International Energy Agency, 2017; Bertoldi & Rezessy, 2006; Ea Energianalyse, 2014).

2. 선행연구 검토 및 연구 공백

국내외 선행연구의 흐름은 세가지 축으로 분류할 수 있다. 첫째, EERS 및 WCS의 제도 원리와 설계를 다룬 연구다. Bertoldi and Rezessy(2006), IEA(2017), Ea Energianalyse(2014)는 화이트 인증서의 목표 설정, 추가성, MRV, 거래구조, 페널티 설계가 비용효율성과 이행확실성에 미치는 영향을 체계화하였다.

둘째, 국가별 제도 운영성과와 정책믹스를 분석한 연구다. 이탈리아·프랑스·덴마크 사례에 대한 Broc(2017), Di Santo and Biele(2017), European Climate Initiative (2019), Cour des comptes(2024), Di Santo(2019, 2022) 등의 연구는 각국 제도의 장점과 한계를 제시하였고, Rosenow, Kern and Rogge(2017), Lindberg, Markard and Andersen(2019)은 에너지효율정책이 단일 제도만으로 작동하지 않으며 다른 정책수단과의 정합성이 중요하다고 지적하였다.

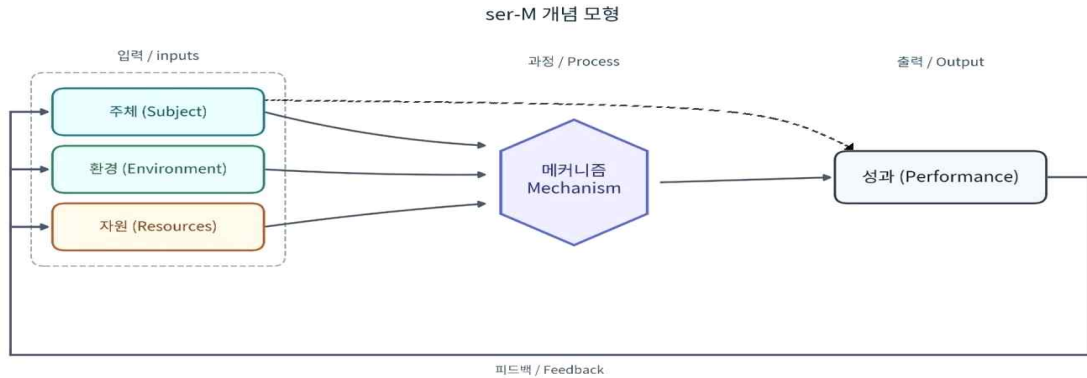
셋째, 국내 제도 도입 필요성과 제약요인을 다룬 연구다. 정경화(2012), 이성인 외(2013), 석주현(2020)은 한국에서 EERS와 화이트 인증서 논의가 필요함을 보여주었으나, 주로 제도소개 또는 정책믹스 관점에 초점을 두었다.

반면 본 연구가 검토한 문헌들에서는 EERS/WCS의 성과를 주체·환경·자원·메커니즘의 결합 구조로 비교한 연구가 충분하지 않았고, 특히 한국의 메커니즘 중심 설계와 단계적 도입 로드맵으로 연결한 연구는 제한적이었다. 따라서 본고는 기존의 국가별 기술 제안을 넘어 동일한 정책목표를 가진 비교국가의 제도들이 왜 서로 다른 성과를 보이는지를 ser-M 관점에서 설명하고, 그 결과를 한국형 WCS 설계원리로 전환한다는 점에서 차별성을 가진다.

3. ser-M(Subject-Environment-Resource-Mechanism) 프레임워크

ser-M 이론은 성과를 주체(Subject), 환경(Environment), 자원(Resource)의 결합으로 설명한다. 핵심은 그 요소들의 상호작용이며, 이를 가능하게 하는 메커니즘(Mechanism)이 무엇인지에 있다. 성과는 이러한 요소들이 결합·조정되는 방식에서 발생한다. ser-M은 자원기반관점(RBV)이 ‘무엇을 보유하느냐’에 초점을 두는 것과 달리, 요소 간 연결과 작동 과정을 분석의 중심에 둔다. 메커니즘을 주체·환경·자원의 동태적 결합 원리로 정의하고 이를 제4의 전략 패러다임으로 제시한다. 그 개념적 모형은 [그림 1]과 같다(조동성, 2014; 조동성 & 문휘창, 2020).

[그림 1 : ser-M 개념 모형]



출처: 조동성(2014, p.53), 메커니즘기반관점

ser-M 모형은 네 구성 요소로 이루어진다. 이들 요소 간의 상호작용 프로세스에 초점을 맞춘다. 각 요소의 정의는 [표 1]과 같다.

[표 1 : ser-M 모형에 따른 네 가지 핵심 구성 요소]

주체 (Subject, S)	· 비전·전략 수립과 핵심 의사결정을 수행하는 경영자 및 조직의 역량 (조직문화, 추진 의지 포함)
환경 (Environment, E)	· 시장 구조, 경쟁, 기술 변화, 정부 규제·정책 등 조직을 둘러싼 외부 조건
자원 (Resource, R)	· 조직이 보유·동원 가능한 유·무형 자산(기술, 자본, 정보 인프라, 특허 등)
메커니즘 (Mechanism, M)	· 주체(S)·환경(E)·자원(R)의 상호작용을 촉발하는 매개 기제이자 작동 원리 · 주체가 환경을 인식하고 자원을 활용해 목표 달성 프로세스를 만들어내는 원천 · 작동 원리는 조합(Combination), 순열(Permutation), 시간(Time)으로 구성됨

출처: 조동성(2014)

ser-M 분석을 통해 이러한 요소가 상호 보완적으로 결합될 때 성과가 발생할 수 있다. 따라서 특정 요소만을 강조하기보다, 네 요소의 상호작용 구조를 중심으로 경쟁우위와 성과요인을 파악해야 한다. 이때 핵심은 메커니즘이다. 메커니즘은 주체가 특정 환경 맥락에서 자원을 조직화하는 규칙과 절차를 의미하며, 메커니즘의 차이가 제도 성과의 격차로 이어진다(조동성, 2014; 조동성 & 문휘창, 2020).

메커니즘의 작동 원리는 조합(Combination), 순열(Permutation), 시간(Time)의 세 축으로 설명된다. 특히 순열 관점은 결합 순서에 따라 메커니즘을 창조형·혁신형·적응형으로 구분하고, 이를 환경창조(SER), 자원창조(SRE), 환경혁신(RSE), 자원혁신(ESR), 환경적응(ERS), 자원적응(RES)으로 세분한다. 환경창조(SER)는 주체의 비전과 전략으로 규칙·표준·시장구조 등 환경을 형성한 뒤 자원 동원과 시장 진입을 촉진하는 경로다. 자원창조(SRE)는 설비·인력·지식 등 핵심 자원을 선제적으로 구축하고 환경 대응과 확장을 추진하는 경로다. 환경혁신(RSE)은 축적된 자원을 기반으로 규제·표준·거래 규칙 등 외부 환경을 능동적으로 개편하는 유형이다. 자원혁신(ESR)은 주어진 환경 제약 속에서 조직·인력·공정 등 자원의 기

능과 배치를 재구성하는 유형이다. 환경적응(ERS)은 기존 제도와 시장 인센티브를 활용해 자원 운용을 최적화하는 경로다. 자원적응(RES)은 제한된 자원 범위 내에서 점진적으로 효율을 높이는 경로다. 이러한 유형은 고정된 것이 아니라 시기·역량·외부 조건에 따라 바뀔 수 있다(조동성, 2014).

기존 연구가 개별 정책도구나 성과지표 중심의 사례를 설명했다면, ser-M은 제도 설계의 동태적 결합 원리를 분석하게 해준다. 따라서 본고는 ser-M을 통해 단순 제도 비교를 넘어, 한국형 WCS 설계에 필요한 작동 메커니즘을 도출하고자 한다.

III. 연구 방법

1. 사례연구 방법론

본 연구의 목적은 한국형 화이트 인증서(WCS) 도입 모델을 제안하는 데 있다. 이를 위해 다중사례연구(multiple-case study)를 채택하여 이탈리아(TEE), 프랑스(CEE), 덴마크(EEO), 대한민국(EERS) 4개국을 비교하였다. 연구 설계는 복제 논리(replication logic)에 따라 사례 간 비교가능성을 확보하였다. 분석틀은 ser-M으로 설정하였다. 각 사례의 주체(S), 환경(E), 자원(R), 메커니즘(M)을 코딩하고, S·E·R이 어떤 M 유형을 통해 성과로 연결되는지 경로를 도출하였다(Yin, 2003; 조동성, 2014; 조동성 & 문휘창, 2020).

2. 분석 대상

본 연구는 유럽의 화이트 인증서 제도(이탈리아 TEE, 프랑스 CEE, 덴마크 EEO)와 한국의 EERS 제도를 비교·분석하기 위해 2005년부터 2025년까지 발행된 총 36종의 문헌을 활용하였다. 데이터는 핵심 1차 자료와 보조 자료군으로 구성하였다.

이탈리아, 프랑스, 덴마크, 한국을 비교 대상으로 선택한 이유는 각 사례가 서로 다른 EERS/WCS 메커니즘 유형을 대표하기 때문이다. 이탈리아는 거래시장과 가격안정장치를 결합한 하이브리드 구조를, 프랑스는 kWh cumac 기반의 장기 절감가치 인정 구조를, 덴마크는 이월·이전·차기 보전 등 유연한 이행 규칙 중심 구조를 보여준다. 반면 한국은 공기업 중심의 시범사업 EERS로서 거래 플랫폼과 장기 절감가치 인정 체계가 미비한 상황을 보여준다. 따라서 이 4개국은 ser-M 프레임워크에 따라 메커니즘 차이와 제도 성과를 비교하기에 적합하다.

핵심 1차 자료는 각국의 제도적 근거와 운영 규칙을 확인하기 위한 용도로 다음과 같다. EU 에너지효율지침(2023/1791), 이탈리아 규제당국(ARERA)의 요금 상환 및 안정화 조치 결의(2018, 2021), 이탈리아 전력시장운영기관(GME)의 인증서 시장 운영 규칙(2018), 이탈리아 에너지관리기관(GSE)의 연차보고서(2018), 프랑스 정부의 CEE 운영 지침 및 절차, 한국에너지공단의 EERS 시범사업 실적(2018-2023)이다. 보조 자료는 제도별 성공 요인과 정책 믹스 분석을 위해 활용하였다. EPATEE 국가 사례(Broc, 2017; Di Santo & Biele, 2017), EUKI(2019), Ea Energianalyse(2014), 프랑스 감사원(Cour des comptes, 2024) 및 IEA(2017, 2024) 보고서 등이다. 또한, 국내외 선행연구(정경화, 2012; 이성인 외, 2013; 석주현, 2020 등)를 통해 분석의 이론적 토대를 강화하였다.

본 연구의 분석 절차는 다음과 같은 단계로 수행되었다. 첫째, 핵심 1차 자료로부터 각국의 제도 규정, 시장운영 규칙, 연차별 실적 데이터를 추출하고, 분석의 일관성을 위해 모든 용어 정의와 단위 체계를

원문 기준으로 정립하였다. 둘째, 도출된 모든 지표를 ser-M(주체·환경·자원·메커니즘) 프레임워크에 기반하여 코딩하였으며, 코딩 결과의 신뢰성을 제고하기 위해 EPATEE, IEA 등 보조 문헌을 활용한 상호 검증 과정을 거쳤다. 마지막으로 복제 논리(replication logic)를 적용한 교차 사례 비교를 통해 비용 효율성, 운영 유연성, 이행 확실성 관점에서 국가별 메커니즘의 차이를 규명하였다(조동성, 2014; 조동성 & 문휘창, 2020; Yin, 2003).

3. 코딩 절차

코딩은 3단계로 수행하였다. 첫째, 각 사례의 규정·운영규칙·연차보고서에서 제도 문구를 추출하여 주체(S), 환경(E), 자원(R), 메커니즘(M), 성과(O)의 다섯 범주에 배치하였다. 둘째, 메커니즘 유형 분류 기준에 따라 SER, RSE, ERS, RES, SRE, ESR의 증거를 판별하였다. 셋째, 동일 항목에 대해 1차 자료와 보조 자료의 해석이 일치하는 경우에만 최종 분류로 채택하였다.

예를 들어 거래시장·레지스트리·참여규칙을 새로 형성하는 제도 변화는 환경창조(SER)로, 축적된 운영 경험과 데이터에 기초해 가격상한·평가규칙·집행절차를 보정하는 변화는 환경혁신(RSE)으로 분류하였다. 기존 규칙 내에서 이월·이전·보전 등으로 비용최소 경로를 선택하게 하는 장치는 환경적응(ERS)으로, 주어진 자원 제약 속에서 배치와 활용을 최적화하는 구조는 자원적응(RES)으로 보았다.

[표 2 : 메커니즘 유형 분류 기준에 따른 분류]

유형	코딩 기준	대표 증거 유형	본 연구 적용 사례
SER	새로운 거래·등록·참여 환경을 제도적으로 창출	레지스트리 신설, 거래시장 개설, 제3자 발급 허용	이탈리아 GSE-GME 구조, 프랑스 EMMY
RSE	운영경험과 데이터를 활용해 규칙·집행을 고도화	가격상한, 규정 보완, 예측 가능한 집행	이탈리아 가격안정화, 프랑스 집행 고도화
ERS	기존 환경 안에서 비용최소 이행규칙을 활용	banking, transfer, make-good	덴마크의 유연한 이행 구조
RES	제한된 자원 범위 내에서 배치·운용 최적화	기존 인프라 활용, 점진적 효율화	덴마크, 한국의 운영효율 중심 구조
SRE	새로운 운영자원과 조직 역량을 구축	전담조직, 플랫폼, 전문인력 양성	한국 도입 로드맵의 중장기 과제
ESR	기존 자원을 활용해 지표·평가규칙을 혁신	CBA 도입, 장기 절감가치 평가	한국형 kWh cumac형 산정 규칙 제언

IV. 사례분석 결과

1. 이탈리아 TEE 제도

이탈리아 TEE(Titoli di Efficienza Energetica)는 GSE(Gestore dei Servizi Energetici)가 프로젝트 평가와 제도 운영을 맡고, GME(Gestore dei Mercati Energetici)가 인증서 정규시장을 개설·운영하는 이원 거버넌스로 구성된다. 의무는 고객 5만 명 이상을 보유한 에너지공급자에게 부과된다. 비의무 주체(기타 에너지공급자, ESCO, 에너지관리전문가(UNI CEI 11339), ISO 50001 보유 조직 등)도 절감 활동을 통해 인증서를 발급받아 정규시장을 통하거나 양자거래로 매각할 수 있다. 이 구조는 의무자 외의 민간 역량을 제도 안으로 유입시켜, 목표 달성을 분산·확대하는 방식으로 설계되어 있다(Di Santo &

Biele, 2017; GME, 2018; GSE, 2018).

TEE는 EU 에너지효율지침(EED) 개정에 따라 상향된 연간 신규 절감의무(2024-2025년 1.3%, 2026-2027년 1.5%, 2028-2030년 1.9%)를 국내 제도와 정책수단 조합을 통해 이행한다. 경쟁이 도입된 에너지시장 환경에서 TEE는 절감 성과를 거래 가능한 자산으로 전환해 투자 유인을 제공한다. 2017-2018년 인증서 가격 급등 이후 규제당국 ARERA가 요금상환 상한(250 €/TEE) 등 안정화 장치를 도입·보완하여 변동성을 완화하고 예측 가능성을 높였다. 또한 추가성(additionality) 원칙을 적용해 법적 기준선 초과 분만을 성과로 인정하여 절감량의 과대 산정을 억제한다(ARERA, 2018, 2021; Di Santo, 2019, 2022; European Union, 2023).

인증서 거래는 GME가 운영하는 정규시장(MTEE)과 양자거래(OTC) 등록 체계로 이루어진다. 거래는 공적 플랫폼과 운영 규칙에 따라 표준화되어 투명성과 신뢰성이 확보된다. 의무이행 비용의 일부를 보전하는 요금상환(Contributo tariffario) 제도가 함께 작동하며, ARERA는 의무연도별 상환 단가를 고시하고 상환을 설정해 가격 급등 시 완충 장치로 활용한다. 이 체계는 변동성과 불확실성을 낮춰 민간 자본 참여를 유도한다. 한편 GSE는 절감량 산정 기준과 분석 방식 등 MRV 기준을 마련하고, 프로젝트 승인·TEE 발급 실적과 시장 동향을 연차보고서로 정기적으로 공개한다. 이는 산정 기준의 일관성과 제도 신뢰를 높이는 기반이 된다(ARERA, 2018, 2021; GME, 2018; GSE, 2018).

TEE는 인증서 거래를 기본으로 하고, 가격 안정 장치를 결합한 하이브리드 구조이다. 의무자는 자체 효율화 사업으로 실적을 확보하거나 정규시장·양자거래에서 인증서를 매입해 의무를 이행한다. 목표 초과 달성 시 인증서 판매로 수익화가 가능한 점은 추가 절감 유도 요인이다. 다만 2017-2018년 가격 급등으로 시장만으로는 가격 안정과 예측 가능성을 확보하기 어려워졌다. 이후 규제당국은 요금상환 상한 등 안정화 조치를 도입하고 시장 운영규칙을 보완해 제도 신뢰와 예측 가능성을 높였다. 그 결과 TEE는 거래 유연성과 공적 안정장치를 결합해 비용 효율성과 이행 확실성을 함께 추구하는 방식으로 운영되고 있다(ARERA, 2018, 2021; Di Santo, 2022; GME, 2018).

최근 공식 자료에 따르면 GSE는 2024년에 763,329개의 TEE를 인정하였고, 이는 약 0.4Mtep의 에너지절감에 해당한다. 또한 GME 연차보고서는 2024년 MTEE에서 1.83 million toe, 양자거래 플랫폼에서 1.18 million toe가 거래되었다고 제시한다. 이는 제도가 실물 절감성과뿐 아니라 유동성 있는 거래 인프라를 보유하고 있음을 보여준다(GSE, 2025; GME, 2025).

ser-M 관점에서 TEE의 메커니즘은 환경혁신(RSE)과 환경창조(SER)를 함께 보여준다. 2017-2018년 가격 급등 이후 ARERA가 한 조치는, 제도 운영 경험과 규제 수단이라는 자원(R)을 활용해 시장 규칙과 구조(E)를 재정렬한 환경혁신(RSE)으로 해석된다. 동시에 GSE-GME 이원 거버넌스, 정규시장과 양자거래 등록 체계, 거래·정산·MRV 인프라를 단계적으로 구축한 과정은 에너지 효율 거래가 가능한 제도 환경(E)을 형성한 환경창조(SER)에 해당한다(ARERA, 2018, 2021; Di Santo, 2019, 2022; GME, 2018; 조동성, 2014).

종합하면, 이탈리아 TEE의 핵심은 거래 유연성과 공적 안정장치를 결합한 하이브리드 메커니즘에 있다. 이는 단순한 자유시장 모델이 아니라, 시장 기반 거래를 가능하게 하되 가격 변동성을 공적 규칙으로 보정하는 구조이다. 이는 한국형 WCS 설계에 가격안정장치와 거래 인프라를 함께 검토해야 함을 시사한다.

2. 프랑스 CEE 제도

프랑스 CEE(Certificats d'économies d'énergie)는 에너지·기후총국(DGEC)이 제도를 총괄하고, 국가

CEE 센터(PNCEE)가 신청·발급, 현장 점검, 제재를 집행한다. 에너지공급자 중 의무자(obligés)에게 절감 실적 확보 및 소비자 효율향상 유도 의무가 부과된다. 요건을 충족하는 비의무 법인(eligible non-obligés)도 절감사업을 통해 인증서를 발급받을 수 있어, 주거·상업·산업·농업·운송 등 전 부문에서 참여 범위가 확대된다. 2016년부터는 의무량의 일부를 에너지 빈곤층 지원 사업으로 달성하도록 하는 별도 의무(obligation précarité)가 도입되어, 취약계층 지원과 에너지효율 정책의 연계가 강화되었다(Ministère de la Transition Écologique, n.d.; PNCEE, 2024).

프랑스 에너지시장은 송·배전은 공공 규제가 강하고, 소매·도매에는 경쟁이 도입된 혼합형 구조다. 정부(DGEC)와 집행기구(PNCEE)는 의무자와의 협의·조정을 통해 제도를 운영하며, 정책 예측 가능성을 높이는 방향으로 관리해 왔다. 이 구조는 급격한 가격·시장 변동을 완화하고, 참여 주체가 중·장기 효율투자를 할 환경을 제공한다. 또한 CEE는 전 부문에서 인증서 발급이 가능하도록 설계되어, 다양한 활동 영역의 절감 투자를 촉진한다(Cour des comptes, 2024).

자원(R) 측면에서 CEE는 정부 재정의 직접 투입이 아니라, 의무자 부담과 시장거래를 통해 효율투자 재원을 조달하는 구조다. 정부는 CEE를 공공 보조금과 구별되는 민간 주체의 지원으로 규정한다. 의무자는 자체적으로 절감량을 확보하거나, 에너지를 절감한 제3자로부터 인증서를 매입할 수 있다. 이는 효율투자 확대와 민간 자본 유입을 동시에 유도한다. 또한 EMMY 레지스트리는 CEE의 발급·이전·거래 이력을 기록·관리하여 거래의 투명성과 추적성을 확보한다(Alliance ALLICE, 2023; Cour des comptes, 2024; Ministère de la Transition Écologique, n.d.; Registre national des CEE (EMMY), n.d.).

CEE 제도의 핵심 메커니즘(M)은 kWh cumac 기준으로 절감량을 산정·인정하는 규칙이다. kWh cumac은 연간 절감량을 설비의 기준 수명 동안 누적한 뒤, 제도에서 정한 할인율을 적용해 할인된 누적 절감량으로 환산한다. 이 방식은 장수명 설비의 절감효과를 초기부터 인증서 가치에 반영해 장기투자를 유도하고, 단기 성과 중심의 사업 편중을 완화한다. 의무자가 의무를 미이행할 경우 제재가 부과된다(Alliance ALLICE, 2023; Cour des comptes, 2024; Ministère de la Transition Écologique, n.d.).

프랑스 정부의 5차 기간 CEE 공식 문서에 따르면 2022-2025년 의무량은 총 3,100TWh cumac이며, 2022년 한 해에만 852TWhc가 발급되었다. 2024년에는 거래가격이 대체로 7.5-8.35€/MWhc 범위에서 형성되었고, 주거부문에서 81TWhc, 산업부문에서 27TWhc, 수송부문에서 14.4TWhc의 engagement가 집계되었다(Ministère de la Transition Écologique, 2022, 2025).

CEE는 장기 절감 가치를 제도 규칙으로 인정해 민간 자원 동원을 확대한다. EMMY는 인증서의 발급·등록·이전·거래 이력을 전자적으로 기록·관리한다. PNCEE는 신청 심사, 현장 점검, 제재를 집행한다. 이 인프라와 집행 체계가 결합되면서 절감량의 가치평가·등록·거래가 가능한 제도 환경이 형성되었고, 이는 환경창조(SER)적 성격을 가진다. 또한 법정 패널티와 예측 가능한 집행은 비용 최소 경로를 유도하고 이행 리스크를 낮추며, 운영 인프라를 바탕으로 규칙과 집행을 정교화한 환경혁신(RSE)으로 볼 수 있다(Cour des comptes, 2024; Ministère de la Transition Écologique, n.d.; PNCEE, 2024; Registre national des CEE (EMMY), n.d.; 조동성, 2014).

프랑스 사례의 강점은 절감성과의 장기 가치를 제도적 단위로 표준화했다는 데 있다. 이는 한국형 WCS 설계에서 단순 연간 절감량이 아니라 장기 수명과 할인율을 반영한 인증 단위를 도입해야 하는 이유를 뒷받침한다.

3. 덴마크 EEO 제도

덴마크 EEO(Energy Efficiency Obligation Scheme)는 덴마크 에너지청(DEA)이 행정·운영을 담당하

다. 정부와 공급자 간 에너지 절약 협정(Energy Savings Agreement)을 통해 목표와 이행 방식을 정하는 협의 기반 거버넌스로 운영된다. 의무공급자는 에너지 절약 자문·정보 제공, 그리드 설비 효율화, ESCO 하도급, 최종사용자 보조금 지급 등 다양한 수단으로 의무를 이행할 수 있다. 목표 수준과 이행 방식은 에너지청 및 정부와 공급자 단체 간 협상을 통해 결정·갱신된다(Broc, 2017; European Climate Initiative, 2019; Ea Energianalyse, 2014).

덴마크는 탄소중립과 화석연료 퇴출을 법제화했다. 이를 바탕으로 에너지효율과 재생에너지 확대를 병행할 수 있는 정책 환경을 구축했다. EEO는 EU 에너지효율지침(EED) 이행수단으로 운영된다. 정부(DEA)와 공급자 단체는 통상 3년 단위로 에너지 절약 협정을 갱신하며 목표와 규칙을 조정한다. 이 갱신 체계는 제도운영의 예측 가능성과 유연성을 높이고, 참여자가 효율적인 투자 계획을 수립할 수 있게 한다(European Climate Initiative, 2019; Broc, 2017).

덴마크는 가구 난방의 약 2/3를 공급하는 지역난방 인프라를 보유하고 있다. 이 인프라는 열 생산·공급 단계에서 대규모 효율화 사업을 추진할 수 있는 물리적 기반이 된다. EEO 이행 비용은 정부 예산이 아니라 전기·가스·열 요금을 통해 회수된다. 따라서 의무 공급자는 프로그램 운영, 보조금, 컨설팅, 하도급 등 절감을 달성할 다양한 재원 경로를 갖는다. 덴마크는 별도의 공개 증서시장을 두지 않는다. 대신 의무자 간 연도 간 이월과 양자 이전(bilateral transfer)을 허용해 거래·행정 비용을 낮춘다. 2018년 절감 실적은 산업 53%, 가정 21%, 서비스 16%, 수송 2%로, 산업 부문 비중이 가장 크다(European Climate Initiative, 2019; Broc, 2017).

EEO의 핵심은 '유연한 메커니즘'이다. 의무 당사자는 그리드망 개선, 하도급, 최종사용자 직접 보조 등 다양한 수단 중에서 비용이 가장 낮은 경로를 선택한다. 성과는 매년 보고하며, 덴마크 에너지청(DEA)이 무작위로 검증한다. 제도는 연도 간 이월(banking)과 의무자 간 이전(양자 이전 포함)을 허용해 초과 실적을 활용할 수 있게 하고, 미달 시에는 벌금형 페널티보다 다음 해 추가 절감으로 보전(make-good)하도록 하여 목표 준수를 도모한다. 이러한 설계로 지속적인 제도 운영이 가능하다(Ea Energianalyse, 2014; European Climate Initiative, 2019; Broc, 2017).

정량지표 측면에서 EUKI 보고서는 덴마크 EEO의 2015년 연간 최종에너지 절감이 291ktoe로 전체 대상부문 최종에너지 소비의 약 4.2%에 해당한다고 제시한다. 또한 생애기준 절감 1kWh당 평균 프로그램 비용이 0.5유로센트로, 비교 가능한 공급에너지 가격 13유로센트보다 낮았다. 소비자 요금에 대한 부담도 가정부문 2%, 산업부문 5% 수준에 그쳤다고 보고한다(European Climate Initiative, 2019).

ser-M 관점에서 덴마크 EEO는 1차적으로 환경적응(ERS), 2차적으로 자원적응(RES)의 성격을 보인다. 환경적응(ERS) 측면에서 이월·이전·무작위 점검·차기 보전과 같은 장치를 통해 기존 규칙과 인센티브 체계를 활용하는 동시에, 의무 당사자가 다양한 이행 수단 중 비용 최소 경로를 선택하면서 보유 자원의 배치와 운용을 최적화한다. 또한 중앙 거래소를 두지 않는 구조, 양자 이전 허용, 요금 회수 가능성, 지역난방 중심의 인프라 등은 대규모 제도 변경 없이 현재의 자원 조합의 효율을 높인다는 점은 자원적응(RES) 성격이다(Ea Energianalyse, 2014; European Climate Initiative, 2019; Broc, 2017; 조동성, 2014). 종합하면, 덴마크 사례는 반드시 공개 거래시장이 있어야만 유연한 제도 운영이 가능한 것은 아님을 보여준다. 한국형 WCS가 초기부터 완전한 시장모형만을 추구하기보다, 이월·이전·차기 보전 등 유연한 규칙을 먼저 도입하는 점진적 경로도 가능함을 시사한다.

4. 대한민국 EERS 제도

국내 EERS의 주체 구조는 기후에너지환경부와 한국에너지공단이 설계·운영을 주도한다. 다만 해외의

DGEC나 GSE처럼 전담 조직이 독립적 권한을 기반으로 제도를 추진하는 체계가 아니다. 의무 대상은 한국전력공사·한국가스공사·한국지역난방공사 등 3개 공급자이다. 공급자 매출과 직접적으로 이어지는 EERS 활동은 의무이행을 최소 수준으로 관리하는 요인이다. 목표 초과 달성에 대한 경제적 인센티브도 부족하다. ESCO는 의무공급자 수행 파트너로 참여하지만, 대행·하도급 중심으로 역할이 제한된다.

국내 에너지시장은 전기·가스·지역난방에서 공기업 중심의 단일 구매·공급 구조와 강한 요금 규제가 결합되어 있다. 유럽의 경쟁 도매·소매 시장과 비교하면, 에너지 효율을 수익으로 전환시키는 시장 기반 제도가 부족하다. 요금·가격 체계도 판매량 감소에 따른 손실 보전이나 수익 다변화보다 공급 안정과 물가 관리에 더 무게가 실린다. 이 때문에 효율 투자 성과가 곧바로 수익성 개선으로 연결되지 않는다. 또한 EERS는 배출권거래제(ETS), 재생에너지 공급의무화(RPS) 등 다른 정책과 연계가 충분하지 않다. 절감 성과가 타 제도와 연계가 어려워 정책 간 시너지도 제한된다. 이러한 연계 필요성은 지속적으로 제기되었으나, 상호연계 제도는 아직 미흡하다(정경화, 2012; Rosenow, Kern, & Rogge, 2017).

자원 측면에서 국내 ESCO 사업은 에너지이용합리화자금 등 정책금융 의존도가 높고 민간 자금 유입은 제한적이다. 따라서 정책자금이 축소되거나 집행 여력이 약화되면 ESCO 사업자의 투자 여력과 사업 지속성이 직접 영향을 받는다. 이는 국내 ESCO 시장이 시장 기반 민간 주도 구조가 아니라 정책자금 의존형 구조라는 점을 시사한다.(이성근 & 안영환, 2006; 석주현, 2020).

EERS 절감 성과가 금융 관점에서 담보화나 유동화 가능한 자산으로 인정되기 어려워 정책금융 의존 경향은 심화된다. 절감 성과를 표준화된 방식으로 검증·등록·거래할 전용 플랫폼도 부재하다. 여기에 절감량 산정과 성과 지표의 객관성·신뢰성이 충분히 확보되지 못해 성과의 자원 가치가 낮아진다. 결과적으로 민간 자금 유입 유인도 약화된다(이성근, 이지연, 김수덕, 민은주, & 백민호, 2013; 석주현, 2020).

메커니즘 측면에서 현행 EERS는 연간 절감량 중심으로 운영된다. 프랑스의 kWh cumac처럼 장기 절감효과를 반영하는 산정 규칙이 없고, 덴마크 EEO의 이월·이전과 같은 유연한 이행수단도 없다. 제도적 경직성은 의무공급자와 ESCO의 장기·대규모 투자 유인을 약화시킨다. 목표 초과 이행에 대한 보상이 없고, 화이트 인증서 거래 플랫폼도 없어 유럽 WCS의 핵심인 시장 기반 메커니즘이 국내 EERS에서는 구현되지 못한다.

ser-M 관점에서 보면, 국내 EERS는 자원적응(RES)과 환경적응(ERS)이 결합된 형태로 작동한다. 장기 효과 산정 규칙과 이월·이전 장치가 없기 때문에, 의무공급자와 ESCO는 단년도 의무와 자원 제약 범위 안에서 운영 효율을 개선하는 수준에 머문다. 이는 자원 제약 하에서 배치·운용 최적화를 추구하는 자원적응(RES)에 가깝다. 동시에 보상 구조와 거래 플랫폼 부재, 의무공급자 중심 구조, 경쟁 환경의 부재, 정책금융 의존은 기존 환경을 준수·활용하도록 만든다는 점에서 환경적응(ERS) 성격이 보조적으로 나타난다. 유럽 3개국 사례와 국내 EERS를 ser-M 프레임워크로 비교한 결과는 [표 3]에 정리하였다(조동성, 2014). 소결하면, 한국 사례의 핵심 문제는 성과 부재라기보다 성과의 자산화 메커니즘 부재에 있다. 즉, 절감량이 존재해도 그것을 표준화·인증·거래·금융화하는 연결고리가 설계되어 있지 않다는 점이 가장 큰 제약이다.

[표 3 : ser-M 기반 WCS 성공요인 비교 분석 매트릭스]

	주체(S)	환경(E)	자원(R)	메커니즘(M)	주요 성과(O) / 해석
이탈리아 (TEE)	GSE 평가·인정, GME 시장운영, ESCO·자발참여 허용	EED 연간의무, 추가성 원칙, 요금상환 상한 250 €/TEE	MTEE-OTC 거래접근, 표준·분석·실적 MRV, 연차보고(시장·발급 실적) 공개	시장 거래+안정화 장치 결합 비용최소·이행확실성 동시 달성	SER+RSE : 거래환경 창출과 규칙 보정의 결합
프랑스 (CEE)	DGEC/PNCEE 집행, 의무자+비의무자 참여, 취약계층 의무 지원	부분 경쟁 시장, 정책 예측 가능성 제고	민간투자 유도(의무자 중심) EMMY 레지스트리 데이터 인프라	kWh cumac 산정, 관리형 시장	SER+RSE : 가치평가 규칙과 집행체계의 결합
덴마크 (EEO)	DEA 운영, 정부·공급자 협정 기반, 높은 민간 신뢰	탄소중립 선도국, 협력적 시장 구조	지역난방 연계 기술, 기업 간 직접 거래 인프라	이월, 양자 이전, 차기 보전	ERS+RES : 유연한 이행과 자원배치 최적화
대한민국 (EERS)	의무공급자 소극적 참여, 추진 의지 제한	의무공급자 독점, 경쟁 환경 부재, 정책 연계 미흡	정부 용자 의존, 거래 플랫폼 부재, MRV성과 데이터 신뢰성 미흡	획일적 목표부여, 경직적 운영, 보상 구조 부재	RES+ERS : 실적관리 중심, 자산화 메커니즘 부재

V. 개선방안

ser-M 분석 결과, 국내 EERS의 한계를 보완하려면 S-E-R-M을 개별 요소로 보완하는 방식만으로는 부족하다. 메커니즘(M)을 설계의 중심에 두고 제도 구조를 재편할 필요가 있다. 따라서 국내 제도개선은 주체·환경·자원을 개별적으로 보완하는 방식보다, 메커니즘(M)을 설계의 중심축으로 두고 역으로 S·E·R을 재배치한다. 이는 해외 사례에서 확인된 성과의 공통분모가 모두 거래·검증·보상·유연성의 운영규칙에 있다.

1. 주체(S) 측면

우선, 전문 조직의 기능 강화와 권한 부여가 필요하다. 현재 한국에너지공단 내 EERS 담당 조직을 WCS 거버넌스를 전담하는 수준으로 강화해야 한다. 이 전담 조직에는 정책 설계와 집행에 필요한 독립적 권한을 부여한다. 주요 역할은 목표 배분, MRV 최종 검증, 거래 플랫폼 관리로 설정한다. 이를 통해 거래·검증 체계의 투명성과 일관성을 확보한다.

또한, 참여 주체 확대와 역할 분담을 위한 로드맵이 필요하다. 초기에는 기존 3개 의무공급자 체계를 유지하되, 단계적으로 의무 대상 범위를 확대한다. 확대 대상에는 민간 발전사와 대형 도시가스사 등을 포함한다. 동시에 ESCO, 대형 에너지소비 기업 등 제3자에게 인증서 발급·매각 참여 경로를 부여한다. 제3자가 시장에서 독립적으로 참여할 수 있어야 한다. 이를 통해 의무공급자 중심 구조에서 발생하는 참여 유인 부족을 완화하고, 시장 위축을 예방한다.

2. 환경(E) 측면

환경 측면에서는 상위 정책과의 통합이 필요하다. WCS 목표를 탄소중립 기본계획의 NDC 목표와 직접 연계해야 한다. 더 나아가 WCS 인증서를 온실가스 배출권거래제(ETS)의 상쇄수단으로 인정하거나, 한국형 녹색분류체계(Green Taxonomy)의 적격 자산으로 명시하는 방안도 고려한다. 이러한 정책 연계는 인증서에 외부 경제적 가치와 공신력을 부여하고, 거래의 예측 가능성을 높여 민간 자금 유입의 기반을 형성한다(이성근 & 안영환, 2006).

동시에 ESCO 금융 활성화 환경을 조성한다. 금융기관이 WCS 사업에 참여할 수 있도록 녹색금융 프로그램과 연계한 투자 지원을 확대한다. 특히 ESCO 투자 리스크를 낮추기 위해, 절감 성과를 담보로 한 프로젝트 파이낸싱(PF) 구조를 제도적으로 마련해야 한다. 계약 방식도 기존의 성과배분형(EPC) 중심에서, 에너지 사용자가 자금을 조달하고 ESCO가 성과를 보증하는 성과보증형으로 전환을 촉진할 필요가 있다. 이는 정책금융 의존 구조를 완화하고, 효율투자를 비용이 아니라 투자자산으로 평가하는 방안이다. 구체적 전환 방안은 [표 4]에 정리한다.

[표 4 : WCS 성공을 위한 금융 구조 인식 전환]

구분	기존 EERS 자금 조달 모델 (비용 인식)	제안 WCS 자금 조달 모델 (투자 인식)
재원 주체	정부 정책자금 (용자지원), 에너지공급자 내부 비용 처리	WCS 인증서 판매 수익, 녹색금융 연계 민간 투자
ESCO 사업 방식	에너지 절감액 배분 계약 중심, 높은 정책자금 의존도	성과 보증 방식(EPC) 전환 촉진, 프로젝트 파이낸싱(PF) 도입
금융 연계	미흡	녹색분류체계 적합성 명시, 배출권/녹색채권 연계 상품 개발
리스크 관리	미흡	WCS 시장의 유동성 확보 및 거래 가격 상한제 도입

3. 자원(R) 측면

자원(R) 측면에서는 신뢰 가능한 MRV 체계와 전용 거래 플랫폼 구축이 핵심 과제이다. 인증서가 금융적 기능을 갖기 위해서는 절감 성과 데이터의 신뢰성이 확보되어야 한다. 이를 위해 제도 차원의 MRV 절차를 표준 기준으로 운영해야 한다. 또한 절감 성과에 대해서는 제3자 검증을 의무화하여 산정의 객관성과 투명성을 제고한다. MRV 전 과정의 추적 가능성과 위·변조 방지를 강화할 수 있도록 분산원장기술(DLT) 등 데이터 무결성 확보 수단의 적용을 검토한다. 성과 평가를 단순 절감량 중심뿐만 아니라 비용 편익분석(CBA)을 병행하도록 하여 경제적 편익과 탄소저감 효과를 동시에 추구한다. 전용 거래 플랫폼 구축 역시 필수적이다. 인증서의 등록, 발행, 거래, 결제, 이력관리 기능을 통합하는 플랫폼을 구축하여 시장 신뢰를 얻어야 한다. 마지막으로 제도의 안정적 정착을 위해 산정 규칙과 MRV 운영을 수행할 전문인력에 대한 교육·훈련 체계 역시 필요하다.

4. 메커니즘(M) 측면

메커니즘(M) 측면에서 현행 EERS는 단기 절감 중심 규칙으로 인해 장수명 설비의 투자경제성을 반영하지 못한다. 이를 보완하기 위해 프랑스 CEE의 kWh cumac 산정 방식을 공식 인증·발급 기준으로 채택해야 한다. kWh cumac은 절감가치의 평가-등록-거래를 하나의 규칙으로 정립하여, 의무공급자가 효율투자를 단기 비용이 아니라 장기 자산으로 인식하도록 유도한다. 이 조치는 제도적 거래환경을 새로 구성한다는 점에서 환경창조(SER)적 측면이 있다.

동시에 목표 및 인센티브 설계를 유연화할 필요가 있다. 덴마크 EEO와 같이 연도 간 이월(banking), 의무자 간 이전, 직접사업과 증서매입 간 비용 최소 경로 선택을 허용하고, 무작위 점검과 차기 보전(make-good)을 결합하면 운영·행정 인프라를 활용해 시장 운영 규칙을 정교화할 수 있다. 이는 기존 자원을 지렛대로 규칙과 집행을 고도화한다는 점에서 환경혁신(RSE)으로 분류된다.

시장 도입기 가격 변동성에 대해서는 이탈리아 TEE 사례를 참조하여 요금상한 상한 등 가격 안정화 장치를 검토할 필요가 있다. 이는 가격·거래 규칙을 조정해 예측가능성을 높이는 조치로서 환경혁신(RSE)에 해당한다. 제3자 검증과 투명한 MRV를 통해 데이터 무결성과 추적성을 제고하고, CBA와 탄소감축 동시평가를 제도화하면 성과 규칙과 운영지식을 재설계하는 자원혁신(ESR)이 강화된다. 또한 전담조직과 전문인력을 확충하여 플랫폼 운영과 검증 기능을 통합하면 핵심 운영자원을 신규로 구축하는 자원창조(SRE)가 촉진되며, 제도 개편의 지속가능성을 뒷받침한다. 이러한 맥락에서 본 연구가 제안하는 WCS 성공을 위한 자원(R) 및 메커니즘(M) 개선 방안은 [표 5]와 같다.

[표 5 : WCS 성공을 위한 자원(R) 메커니즘(M) 개선안]

개선 요소	개선 방향	주요 내용
절감량 산정 기준	프랑스 kWh cumac 방식 참조	장기 수명/할인율을 적용한 환산 절감량 계산 표준화
M&V 시스템	제도 MRV 체계 구축	제도 수준 MRV 운영(수집-보고-검증)
성과 지표	비용 효과 분석(CBA) 의무화	단순 절감량 외 경제적 편익 및 탄소 저감 효과 동시 평가
전문 인력	WCS 및 M&V 전문가 양성	측정, 보고, 검증을 전담하는 전문 인력 교육 시스템 구축

5. 단계적 로드맵

개선방안을 시계열적으로 구조화하면 다음과 같다. 핵심은 단기에는 신뢰 가능한 데이터와 통치구조를 먼저 확보하고, 중장기에는 절감성과의 유통·가격·금융화 기능을 단계적으로 확대하는 것이다.

구분	기간	우선 과제	기대 효과
단기	1-2년	법적 근거 정비, 전담 거버넌스 지정, 표준 MRV 수립, 시범 레지스트리 구축, 제한적 제3자 참여 파일럿	제도 신뢰 확보와 데이터 축적
중기	3-5년	수명가중 절감량 산정 도입, 인증서 발급·이전 본격화, banking-제한적 차입·의무자간 이전 도입, 독립 검증체계 정착	시장형 인센티브와 비용효율성 개선
장기	5년 이상	가격안정장치 정교화, 대형 수요자·민간공급자 참여 확대, 녹색금융·정책수단 연계 고도화	절감성과의 자산화와 민간자본 유입 확대

VI. 결론

ser-M 프레임워크 분석 결과, 국내 EERS는 주체의 소극적 참여, 독점적 시장구조와 정책 연계 부족, 정책금융 의존과 인프라 미비, 이행수단 경직성과 보상 부재가 결합된 구조적 한계를 보인다. 이들 요인은 EERS 제도 성과와 확장성을 제약한다. 해외 WCS 사례는 단일 요소의 우수성보다, 주체-환경-자원-메커니즘의 결합이 성과를 좌우함을 시사한다. 참여 주체의 역할 설계, 예측 가능한 규칙과 정책 환경, 신뢰 가능한 데이터-거래 인프라, 시장 기반 인센티브가 함께 작동할 때 시너지가 발생한다. WCS 도입은 에너지 절감의 기술적 성과를 거래 가능한 인증서로 표준화하여 경제적 가치로 전환하는 메커니즘을 구축하는 것이다. 성과가 구체화되면, 의무자와 제3자는 투자·구매·거래 중 비용 최소 경로를 선택할 수 있다. 이 과정에서 절감 실적은 단순 비용이 아니라 현금흐름을 창출할 수 있는 자산으로 인식될 수 있다. 그 결과 민간 금융의 유입 가능성이 확대되고, 기술혁신과 규모 확장이 촉진될 수 있다. 따라서 국내 WCS 도입은 부분적 보정만으로는 충분하지 않다. 메커니즘을 중심축으로 두고, 주체의 권한·역할 재설계, 정책 연계와 예측 가능성 제고, 거래 플랫폼·MRV·금융 인프라 확충을 동시에 추진해야 한다. 통합 설계가 구현되면, 에너지 효율 부문은 정부 재정 중심 구조에서 시장 유인 중심 구조로의 이행이 가능해진다. 이는 ESCO의 정책자금 의존을 완화하고, 절감 성과를 경제적 자산으로 전환하는 가치 창출 경로를 형성한다. WCS는 ETS·RPS 등과의 정합적 연계를 통해 정책 연계 효율을 높이고, 수요 측 에너지 절약을 통해 에너지 안보와 공급 리스크 완화에도 기여 가능하다. ser-M 기반의 통합 접근이 가능할 경우 WCS는 NDC 달성을 뒷받침하는 시장 기반 수단으로 기능할 수 있다.

본 연구는 한국 EERS의 개선방향을 단순한 제도 도입 찬반이 아니라 메커니즘 설계 문제로 재해석하였다. 사례비교 결과, 이탈리아는 거래시장과 안정화 장치의 결합, 프랑스는 장기 절감가치의 제도화, 덴마크는 유연한 의무이행 규칙을 통해 서로 다른 방식으로 성과를 창출하였다. 반면 한국은 공기업 중심의 시범운영 성과가 존재함에도 불구하고, 그 성과를 거래·금융화하는 연결 메커니즘이 부재하여 확장성과 투자유인이 제한되고 있었다.

학술적으로 본고의 기여는 세 가지다. 첫째, EERS/WCS 문헌을 ser-M이라는 메커니즘 기반 관점으로 재구성하여 국가별 제도 차이를 설명했다. 둘째, 사례의 정성적 설명을 S-E-R-M-O 구조와 코딩 기준에 따라 재정리함으로써 비교분석의 타당성을 높였다. 셋째, 기존 국내 연구가 상대적으로 약하게 다루었던 성과의 자산화 메커니즘과 ‘단계적 도입 로드맵을 함께 제시하였다.

실무적으로는 한국형 WCS 도입을 위해 구축의 우선순위를 제시하였다. 단기적으로 법적 근거 정비, 전담 거버넌스 지정, 표준 MRV와 시범 레지스트리 구축이 중요하다. 중장기적으로는 제3자 발급·거래 확대, 장기 절감가치 산정 가격안정장치 마련해야 한다. 이러한 체계가 정착되면 에너지효율 향상은 규제 이행 비용이 아니라 민간자본이 참여할 수 있는 투자대상으로 재해석될 수 있다.

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Abstract

Policy Recommendations to Improve Korea's EERS Derived from the SER-M Model

A case study focusing on the adoption of a white certificate scheme

Heegyu Kim

Jinhee Choi

Abstract

This study analyzes the institutional improvements required for South Korea's Energy Efficiency Resource Standard (EERS) to effectively establish demand-side efficiency. To overcome the structural limitations of the current Korean EERS, this research examines the adoption of a White Certificate Scheme (WCS), which converts verified energy savings into tradable certificates. Using a multiple-case study approach, the study compares Italy's TEE, France's CEE, Denmark's EEO, and Korea's EERS, interpreting them through the ser-M framework—where Subject (S), Environment (E), and Resource (R) are linked to Performance (O) through specific Mechanism (M). The comparative analysis reveals that performance differences in overseas cases stem from mechanism design—such as the scope of third-party participation, standardized Measurement, Reporting, and Verification (MRV), national registries, trading and transfer rules, and price stabilization—rather than mere obligation levels. In contrast, Korea has struggled to transform energy efficiency outcomes into investable assets for private finance due to a public-utility-centered implementation structure, annual savings-based evaluation metrics, the absence of trading platforms, and heavy reliance on

policy finance. Accordingly, this study proposes establishing dedicated governance, expanding third-party issuance and trading, adopting lifetime-weighted savings (e.g., kWh cumac) calculations, and standardizing MRV with independent verification. It also suggests building registry and trading infrastructure and introducing flexible rules, including banking, limited borrowing, and inter-obligor transfers. Furthermore, a phased roadmap consisting of short-term establishment and mid-to-long-term settlement tasks is presented to enhance the policy utility of the scheme. This research holds academic significance by expanding the discourse from a simple system introduction to a mechanism-centered comparative analysis, providing a benchmark for designing a Korean-style WCS. Ultimately, it offers a strategic direction to transform energy efficiency activities into investable assets that attract private capital and promote long-term technological innovation.

Keywords: Energy Efficiency Resource Standard(EERS), White Certificate Scheme(WCS), ser-M, Mechanism, Measurement, Reporting, and Verification (MRV), Certificate trading, Certificate Trading Market / Registry

약자가 강자를 이기는 전략분석: SER-M 분석을 통한 접근
— K마트의 몰락과 Walmart의 성공전략 분석 —

How the Underdog Defeats the Strong: Strategic Analysis through
SER-M Framework

— *Kmart's Decline and Walmart's Success Strategies* —

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Received Mar. 7. 2026 Accepted Apr. 18. 2026

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Abstract (English)

국문 요약

1962년 동시에 할인점 사업을 출발한 K마트와 Walmart는 40년 후 극명하게 다른 운명을 맞이하였다. K마트는 2002년 1월 미국 파산법 11조를 신청하며 미국 소매유통업 역사상 최대 규모의 파산 사례가 되었으며, Walmart는 같은 해 연 매출 2,180억 달러, 총 4,414개 매장을 운영하는 명실상부한 글로벌 최대 소매기업으로 성장하였다.

본 연구는 이러한 전략적 역전 현상을 SER-M 프레임워크와 비중순서모델(Weight-Sequence Model, W-S 모형)을 통해 체계적으로 분석한다. 연구 목적은 세 가지이다. 첫째, 두 기업의 전략적 차이를 체계적으로 규명한다. 둘째, 약자였던 Walmart가 강자를 역전하는 과정에서 나타난 전략적 시퀀싱과 자원배분의 패턴을 도출한다. 셋째, 비대칭 경쟁상황에서 약자 기업이 활용할 수 있는 전략적 함의를 제시한다.

분석 결과, Walmart의 성공은 네 가지 상호강화적 전략 선택에서 비롯되었다. 창업기(1962~1969)의 환경(E) 우선 접근: 인구 5만 명 이하 소도시를 대상으로 직접 경쟁을 회피하여 운영비용을 30~40% 절감하였다. 성장기(1970~1979)의 자원(R) 집중 투자: 크로스 도킹 시스템 도입으로 재고유지 비용을 80% 절감하고 모방 불가능한 물류 경쟁우위를 확보하였다. 통합기(1980~1989)의 주체(S) 강화: 창업주 철학의 제도화와 위성통신 시스템 투자로 실시간 재고 관리를 실현하였다. 확장기(1990~2002)의 S·E·R 균형 발전: 글로벌 확장과 Retail Link 데이터 플랫폼 구축으로 폭발적 성장을 이루었다.

반면 K마트는 전 기간에 걸쳐 모든 SER-M 요소에서 보통(Medium) 수준을 유지하며 어느 요소도 탁월하게 발전시키지 못하는 "평균으로의 회귀" 현상을 보였다. 이론적으로 본 연구는 W-S 모형을 통해 SER-M 프레임워크를 동적으로 확장하고, 약자 역전 메커니즘의 통합 모델을 제시하며, 메커니즘(M)의 매개 역할을 규명하는 세 가지 기여를 제공한다. 실무적으로는 비대칭 경쟁 상황에 처한 스타트업·중소기업·신규 진입자를 위한 4단계 전략 로드맵을 제시한다.

주제어: SER-M 프레임워크, 비중순서모델(W-S 모형), 전략적 시퀀싱, 비대칭 경쟁, 약자 역전 전략, Walmart, Kmart, 지속가능한 경쟁우위

I. Introduction

1. Research Background

Kmart, a leading player in the American retail industry in the late 20th century, faced bankruptcy in 2002. Meanwhile, Walmart, which began around the same time, grew into the world's leading retailer. Founded in 1962, Walmart was a small discount store in a small town in Arkansas, while Kmart, with its roots in the S.S. Kresge Company and its nationwide distribution network, was already a powerhouse. However, 40 years later, the two companies faced starkly diverging fates. This reversal is considered a prime example of the importance of differing management strategies and governance structures in determining corporate success or failure.

Kmart reigned supreme as the largest retailer in the United States in the 1970s and 1980s, serving as a benchmark for the industry. Its success stemmed from a strategy of offering high-end branded goods at low prices and its focus on large, metropolitan locations. Walmart, on the other hand, was a latecomer, initially operating in relatively small towns. However, its "Every Day Low Price" (EDLP) strategy and logistics innovations allowed it to overtake Kmart and become the industry leader.

These contrasting results go beyond simple differences in management strategy and highlight the importance of corporate governance (ownership vs. professional management), long-term investment, innovation capabilities, and a business diversification strategy based on core competencies. The cases of Walmart and Kmart go beyond simple success and failure stories to offer rich lessons that demonstrate how prioritizing resource allocation in market environments, executing long-term, consistent strategies, and establishing innovative mechanisms can lead to competitive advantage.

2. Research Objectives

This study aims to elucidate the conditions for securing long-term competitiveness and sustainable growth through the cases of Kmart and Walmart. Specifically, it focuses on the process by which a weaker company overcomes a stronger one in an asymmetrical competitive environment. By analyzing the mechanisms by which Walmart, initially disadvantaged in resources and market dominance, successfully reversed its course through systematic strategic execution, this study aims to present a practical strategic model that can be utilized by startups, SMEs, and new entrants.

The specific research objectives are as follows: First, to systematically identify the strategic differences between the two companies. Second, to derive the strategic sequencing and resource allocation patterns that emerged during the process of Walmart, once the underdog, overcoming the strong player. Third, to suggest strategic implications that the underdog company can utilize in an asymmetrical competitive environment.

This study employs the SER-M framework – a multidimensional strategic analysis tool comprised of four dimensions: Subject, Environment, Resources, and Mechanism. Subject refers to governance structure, leadership characteristics, and organizational culture. Environment refers to target market selection, customer segmentation, and competitive environment awareness. Resources refer to logistics efficiency, technology investment, and financial soundness. Mechanism includes diversification strategy, decision-making speed, and innovation systems.

3. Research Questions

To achieve these objectives, the following exploratory research questions are established.

RQ1: How did the strategic sequencing of Walmart and Kmart differ across their respective growth stages?

RQ2: Among the SER-M elements (S, E, R), which element carried a relatively higher weight at each growth stage, and what is the relationship between that ordering and corporate performance?

RQ3: In the process of a weaker firm's competitive reversal, how does the Mechanism (M) connect the S, E, and R elements to create sustainable competitive advantage?

This study examines these research questions through exploratory case analysis. Given the limitations of a single-industry, two-firm sample, the findings are presented as tentative propositions rather than definitive conclusions, and statistical causal verification is left as a task for future research.

4. Scope and Structure

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The temporal scope of the study is 40 years, from 1962, when the two companies opened

their discount stores, to 2002, when Kmart went bankrupt. The spatial scope is centered on the U.S. retail market, but also partially includes global market entry strategies.

The structure of the paper is as follows. Chapter II explains the theoretical background and analytical framework, covering asymmetric competition theory, the SER-M model, and the Weight-Sequence Model. Chapter III describes the research methodology and data. Chapter IV presents case analysis of the strategic differences between Kmart and Walmart. Chapter V analyzes the causes of Kmart's decline and the factors behind Walmart's success using the SER-M framework. Chapter VI discusses the main findings, theoretical contributions, practical implications, limitations, and future research directions.

II. Theoretical Background and Analytical Framework

1. Asymmetric Competition Theory

Asymmetric competition refers to a competitive situation between firms with significant differences in market position, resource size, and capabilities. Traditional competitive theory posits that first movers possess advantages over later entrants in areas such as market dominance, economies of scale, learning effects, and customer loyalty (Lieberman & Montgomery 1988). However, historically, there have been numerous instances in which late entrants have overtaken early movers in numerous markets. This is believed to stem from differences in strategic approaches, not simply resource allocation.

Chen and Miller(1994) proposed a "bypass strategy" as a strategic approach for weaker firms to counter stronger competitors. This strategy avoids direct conflict with the stronger firm and targets market segments or customer segments overlooked by the stronger firm. D'Aveni's(1994) concept of "hypercompetition" suggests that weaker firms can erode the advantages of stronger firms through continuous innovation and redefinition of the rules of competition.

2. SER-M Framework

The SER-M framework, based on Cho's(2007) strategic management theory, is a multidimensional approach for systematically analyzing a company's circumstances and strategic choices. Traditional management strategy paradigms have explained corporate phenomena from the perspectives of subject, environment, and resources, but they have limitations in explaining the long-term success of companies that consistently achieve a certain level of performance. In particular, Koo and Lee(2008) empirically utilized the SER-M framework to analyze how the importance of strategic elements varies according to a company's growth stage. They emphasized that a company's strategic choices dynamically evolve over time and that the interaction between these elements plays a key role in establishing long-term competitive advantage.

The SER-M framework consists of four core elements: Subject, Environment, Resources, and Mechanism. First, Subject encompasses elements related to the decision-making body, such as the company's governance structure, leadership, and organizational culture. Second, Environment refers to the company's chosen market environment and competitive landscape, with key variables such as target customer selection, geographic market selection, and competitive intensity. Third, Resources encompass the tangible and intangible assets the company possesses and utilizes, including physical infrastructure, technology, systems, financial resources, and human resources. Fourth, Mechanism refers to the organizational systems and processes that effectively connect and implement the three elements, including decision-making structures, performance management systems, learning mechanisms, and innovation systems(Cho 2007; Koo & Lee 2008).

The core of the SER-M paradigm is that sustainable growth is possible when individual elements of a company's environmental resources combine to form a unique mechanism within the company, which in turn creates a long-term competitive advantage that differentiates the company from others.

Existing SER-M research(Cho 2007; Koo & Lee 2008) has primarily focused on statically comparing strategic elements at specific points in time or analyzing relationships among elements within a single growth stage. In contrast, this study combines the W-S Model to dynamically track changes in the weight and sequence of strategic elements over a 40-year longitudinal timeline – a clear differentiation from prior research, constituting a dynamic extension that complements the static limitations of existing SER-M theory.

The detailed structure and theoretical background of the SER-M framework are presented in Appendix A. A summary of prior research on the SER-M framework is provided in <丑 1>.

<Table 1> Summary of Prior Research on the SER-M Framework

Literature	Research Type	Key Content	Role in Text
Cho & Lee (1998b) Mechanism-based strategic analysis: A dynamic approach to sustainable competitive advantage	Journal Article	Introduced the initial concept of SER-M. Emphasized dynamic competitive advantage	Explains theoretical background and foundational concept of SER-M
Cho & Lee (1998a) A dynamic approach to strategy: SER-M paradigm	Book	Theoretical expansion of the SER-M paradigm with case-based explanation	Structural explanation and definition of the SER-M framework
Koo & Lee (2008) A study on selection, learning, and adjustment mechanisms by growth stage	Journal Article	Empirical analysis of SER-M elements using technology-intensive venture firms	Used as empirical application case of SER-M
Cho (2007) Strategic management: A mechanism-based approach	Book	Established mechanism-based strategic management theory and integrated SER-M	Summarizes SER-M theory and explains mechanism-centered view
Seoul National University Mechanism Research Group (2006)	Research Report	Expanded SER-M into a mechanism-based management paradigm	Supplements explanation of organizational execution structure of SER-M

Reference: Cho & Lee (1998); Koo & Lee (2008); Cho (2007); Seoul National University Mechanism Research Group (2006)

3. Weight-Sequence Model (W-S Model)

The Weight-Sequence Model (W-S Model) is a dynamic analysis framework newly proposed in this study. It is a tool for analyzing how a company's strategic elements are weighted and developed over time. This model was developed by combining existing corporate growth stage theories (Miller & Friesen 1984; Quinn & Cameron 1983; Kazanjian 1988) and the SER-M framework (Cho 2007; Cho & Moon 2022). It overcomes the limitations of static strategic analysis and enables a time-series understanding of which strategic elements a company focuses on at each growth stage.

The weight determination of the W-S model followed a three-step procedure: (1) Literature-based initial weight setting – items repeatedly identified in prior studies as the primary strategic priorities for each growth stage were allocated across the E, R, and S dimensions. (2) Quantitative data calibration – the initial weights were refined using each firm's actual CAPEX composition, executive statements from annual reports, and organizational structure changes disclosed in SEC Form 10-K filings. (3) Triangulation validation – the directional validity of the weights was verified through cross-comparison of academic literature, primary disclosure documents, and secondary industry reports.

Although a systematic procedure was applied, the possibility that the researcher's interpretation partially influenced the final weights cannot be entirely ruled out. Future research should derive weights more objectively through the Delphi technique or AHP. In this study, a sensitivity analysis was additionally conducted by adjusting weights within a $\pm 10\%$ range, confirming that the direction of key conclusions does not change significantly. The Weight-Sequence Model is presented in Appendix B.

III. Research Methodology

1. Research Design

The research design was a case study comparing and analyzing the mechanisms by which Walmart and Kmart developed their long-term competitive advantage. A mixed-methodology approach was applied, combining quantitative time series analysis and qualitative literature review. The analysis covered approximately 40 years, from the early 1960s to the early 2000s, a period when the two companies' strategic differences were evident.

2. Data Collection

To deeply analyze the context of strategy execution, various types of data were collected. First, primary sources included official annual reports and SEC filings (e.g., Form 10-K) issued by both Walmart and Kmart during the relevant period (1962–2004). Furthermore, historical and management philosophy-related materials posted on the companies' official websites were used as reference material to supplement the context of past strategies.

Meanwhile, secondary sources included case studies published by Harvard Business School and the Harvard Business Review, academic papers on retail distribution, court documents related to the Kmart bankruptcy, and industry analysis reports (Bradley et al. 2002; Gilson & Abbott 2009). These sources provided external evaluations and interpretations of strategic choices and implementation outcomes, thereby ensuring the objectivity and validity of the case comparisons.

To empirically analyze the financial results of strategy implementation, key annual quantitative data from Walmart and Kmart were collected. In cases where data for certain items were missing for some years, linear interpolation was applied to fill in the missing values. Specifically, linear interpolation was applied only for periods where data for a given year could not be obtained from official sources: for Walmart, selected items for 1963–1969, 1971–1974, and parts of 1976–1979; and for Kmart, similar items for 1963–1969, 1972–1974, and parts of 1976–1979. Interpolated figures are indicated in Φ with an asterisk (*).

In the analysis of strategic transition points, interpolated figures were not used directly; judgments were based solely on data confirmed from official sources. To complement the limitations of interpolation, a Robustness Check using only officially confirmed data years was conducted, confirming that the core analytical conclusions remain unchanged. Φ 2> and Φ 3> summarize Walmart vs. Kmart's key events, store counts, and annual total revenues between 1962 and 2004.

<Table 2> Key Events and Store Count Changes: Walmart vs. Kmart

Year	Walmart Key Events	Walmart Store Count	Kmart Key Events	Kmart Store Count
1962	First store opened (Rogers, Arkansas)	1	18 Kmart stores opened	18
1970	Listed on NYSE, first distribution center opened	38	Nationwide expansion began	800+
1975	Expanded into southern regions	125	Surpassed \$7 billion in sales	1,200
1980	Introduced tech-based inventory management	276	Became the largest U.S. retailer	1,800
1983	Opened the first Sam's Club	600+	Intensified competition, merger talks with Sears began	2,000+
1990	Completed national expansion, began international entry	1,528	Store count plateaued, competitiveness declined	2,400
1995	Entered Canada and Mexico, strengthened IT-based SCM	3,000+	Store count stable, strategic confusion persisted	2,300
2000	Became the world's largest retailer	3,989	Lacked online strategy, competitiveness weakened	2,165

Year	Walmart Key Events	Walmart Store Count	Kmart Key Events	Kmart Store Count
2002	\$218 billion in revenue, 4,706 stores	4,706	Filed for bankruptcy protection (Chapter 11)	1,500
2004	Surpassed 5,000 stores, continued global expansion	5,000	Revenue decline continued, reduced to 1,200 stores	1,200

Reference: *Walmart Inc. Annual Reports (1962-2004)*; *Kmart Corporation Annual Reports (1962-2004)*; *Transformco (n.d.)*; *GlobalData (2022)*; *SEC EDGAR Filings*

<Table 3> Annual Total Revenue of Walmart vs. Kmart (1962-2004) (Unit: Million USD)

Year	Walmart Total Revenue	Kmart Total Revenue
1962	1 *	1,700 *
1965	9 *	3,100 *
1970	31 *	6,500 *
1975	340 *	7,000 *
1980	1,200 *	12,000 *
1985	8,400 *	23,000 *
1990	25,800	32,000
1995	93,600	34,000 *
1998	137,600	33,700 *
2000	165,000	36,000
2002	218,000	30,000 *
2004	256,000	28,000 *

Note: (*) indicates figures reconstructed from secondary sources.

Reference: *Walmart Inc. Annual Reports (1962-2004)*; *Kmart Corporation Annual Reports (1962-2004)*; *Harvard Business Review*; *Statista*; *Dazeinfo (secondary sources for historical reconstruction)*

3. W-S Model Application Procedure

The W-S model application process consists of four steps. Step 1 involves deriving key factors. A literature review identified key factors in the dimensions of environment (E), resources (R), and subject (S). The weights for each factor were then determined based on prior research and expert advice. Step 2 involved a time-series strategic analysis, which chronologically arranged the two companies' strategic decisions and identified the starting point for each factor's strengthening.

Step 3 involved quantitative analysis, which compared predicted and actual performance by reflecting the weights and sequences over time. Sensitivity analysis assessed the impact of weight changes on the results, verifying the robustness of the model. Step 4 involved qualitative validation, cross-validating the quantitative analysis results with case studies and industry reports. Any sudden performance changes not explained by the model were supplemented by qualitative factors such as management turnover and organizational conflict.

4. Validity and Robustness

Validity was confirmed by comparing primary, secondary, and tertiary data through triangulation to confirm factual relationships, distinguishing long-term trends from temporary fluctuations through time series pattern analysis, and verifying the validity of the interpretation through review by retail distribution industry experts. The definitions of quantitative variables and the handling of missing values are detailed in Appendix C.

IV. Case Study

1. Establishment and Early Growth Strategies of Kmart and Walmart

In 1962, two key players emerged in the American retail industry. Kmart, a modern discount store model, was founded in Michigan by S.S. Kresge Company, a large chain. That same year, Sam Walton opened the first Walmart in Rogers, a small town in Arkansas.

The two companies displayed distinct strategic differences from the outset. Kmart leveraged its existing distribution network to pursue a strategy of large-scale stores (5,000 to 10,000 square meters) located outside of city centers and discounting branded products. This was the dominant retail model at the time, aiming for rapid market penetration and growth through economies of scale.

Walmart, on the other hand, targeted the niche market of small cities with populations under 50,000. This was a strategic move to avoid the competitive environment centered on large cities and establish a stable base in a relatively uncompetitive market. Sam Walton personally piloted small planes to analyze small-town locations, thereby identifying market opportunities overlooked by competitors.

2. The Turning Point of Governance Structure and Management System

Entering the 1970s, a critical difference emerged in the two companies' governance structures. Kmart transitioned to a professional management system in 1977, strengthening its centralized decision-making structure. While this was part of an organizational restructuring aimed at achieving economies of scale, it actually led to frequent management turnover and a decline in strategic consistency. During this period, the average tenure of Kmart's CEO was only eight years. <Table 4> shows the tenure of Kmart's CEOs in the case study.

<Table 4> Kmart CEO Tenure (1962-1995)

CEO Name	Start Year	End Year	Tenure (Years)	Major Career & Achievements
Harry B. Cunningham	1962	1972	10	Last CEO of the founding era. Retired as Chairman and CEO in 1972
Robert E. Dewar	1972	1979	7	Became President in 1970. Retired as Chairman and CEO in 1979
Bernard M. Fauber	1980	1987	7	Promoted from Vice Chairman to Chairman and CEO. Retired in 1987
Joseph E. Antonini	1987	1995	8	Pursued aggressive diversification. Resigned due to financial difficulties
Average			8	Increased instability after transition to professional management

Reference: *Kmart Corporation Annual Reports (1962-2004)*

Walmart maintained a structure of ownership and management, with the Walton family, the founders, participating in key decision-making. This structure enabled long-term project execution and ensured stability, with an average tenure of 19 years for executives. In particular, founder Sam Walton's "always low prices" philosophy was deeply ingrained throughout the organization. <Table 5> shows the tenure of Walmart's CEOs in the case study.

<Table 5> Walmart CEO Tenure (1962-1995)

CEO Name	Start Year	End Year	Tenure (Years)	Major Career & Achievements
Sam Walton	1962	1988	26	Founder. Established "Every Day Low Price" philosophy. Built the Walton family ownership system
David Glass	1988	2000	12	Continued Walton's philosophy. Expanded globally and strengthened IT investment. Maintained close ties with the Walton family
Average			19	Strategic consistency maintained through the ownership management system

Reference: *Walmart Inc. Annual Reports(1962-2004)*

3. Logistics Innovation: Direct Delivery Systems and Satellite Communications

Since the late 1970s, Walmart and Kmart adopted distinctly different approaches to logistics innovation. In 1977, Walmart pioneered the direct delivery system, moving incoming products directly onto delivery trucks rather than storing them in warehouses. This innovation significantly reduced inventory storage costs and preserved product freshness.

In the 1980s, satellite communication systems, EDI, and barcode systems improved inventory accuracy. Technological innovations, such as supply chain efficiency through data integration platforms, accelerated. In contrast, Kmart clung to its traditional warehouse system and focused on consumer marketing, delaying the introduction of a POS system until the 1990s.

4. The Light and Shadow of Business Diversification Strategy

In the 1980s and 1990s, Kmart and Walmart demonstrated contrasting approaches and outcomes in their diversification strategies. Kmart pursued diversification into unrelated businesses, such as Waldenbooks (books), Sports Authority (1987), Builders Square (home centers), Payless (shoes), and OfficeMax (1988). However, these ventures failed to generate synergy with its discount store operations and instead resulted in resource diversification and management confusion.

In contrast, Walmart adopted a diversification strategy that expanded the core competencies of its existing discount store business. It successfully introduced Sam's Club, a membership-based warehouse club, in 1983, and Supercenters with significantly expanded food sections in 1988. This strategy effectively leveraged its existing logistics network and purchasing power to generate significant synergy effects.

V. Strategic Analysis: The Fall of Kmart and the Success of Walmart

Launched simultaneously in 1962, the two companies faced starkly different outcomes 40 years later. Kmart filed for bankruptcy in 2002, becoming the largest bankruptcy in U.S. retail history, while Walmart grew into the world's leading retailer. This chapter systematically analyzes the causes of Kmart's decline and the factors behind Walmart's success using the SER-M framework. Specifically, it compares the strategic choices and execution of the two companies across four dimensions – subject, environment, resources, and mechanism – to identify the key mechanisms by which the weaker overtook the stronger.

1. The Fall of Kmart from a SER-M Perspective

Kmart's downfall was not a single strategic failure, but a structural problem stemming from the breakdown of the organizational mechanisms supporting strategy execution and the imbalance between SER-M elements. A case study by Harvard Business School found that despite attempts at restructuring and asset sales following the intervention of ESL Investments, Kmart failed to create synergies with its core businesses and lost its strategic direction (Gilson & Abbott 2009). Analyzing the SER-M framework, a complex combination of factors – actual instability of the company's leadership, failure to adapt to the environment, inefficiency in resource allocation, and weakened execution mechanisms – continued to weaken its competitiveness.

1) Subject: Breakdown of Strategic Consistency

As a subject, due to the breakdown of strategic consistency, Kmart had frequent CEO changes since switching to a professional management system, and the average tenure was only eight years. This hindered strategic consistency and the continuity of organizational learning, preventing the inheritance of leadership philosophies and organizational culture. According to Fama & Jensen's (1983) agency problem theory, this structure leads to short-term performance-focused decision-making, making it difficult to implement long-term investments and innovations.

2) Environment: Misjudgment of the Competitive Landscape

Environmentally, the company misjudged the competitive environment. While initially effective, its location strategy centered on large cities became a vulnerability after the 1980s due to intensifying competition and rising operating costs. Targeting high-income consumers was also a strategic mistake, overlooking the changing consumption patterns and increasing price sensitivity of the middle class. This led to a failure to strategically adapt to changing circumstances.

3) Resources: Failure of Strategic Resource Allocation

Regarding resource utilization, Kmart failed to strategically allocate resources, focusing resources on marketing and external expansion rather than improving logistics systems. The introduction of a POS system was delayed by more than a decade, and supply chain efficiency fell short of the industry average. As Hamel & Prahalad(1994) emphasized, the decline in core competencies stems from misallocation of resources, and Kmart is a case study in which the company failed to secure long-term competitiveness.

4) Mechanism: Disconnect in the Execution System

The mechanism can be seen as a disconnect in the execution system. The unrelated diversification strategy failed to create strategic synergy, and the lack of collaboration between departments made integrated project execution difficult. The decision-making structure was rigid, hindering on-site responsiveness. According to Mintzberg's(1983) theory of mechanistic bureaucracy, this structure is a key factor hindering adaptability to change and innovation capacity.

2. Walmart's Success Factors from a SER-M Perspective

Walmart is a prime example of a company that went beyond a simple low-price strategy and organically combined strategic consistency and execution mechanisms to build a sustainable competitive advantage. According to a case study by Harvard Business School, Walmart dominated markets in less competitive smaller cities and secured customer loyalty through its "everyday low price (EDLP)" philosophy and logistics innovation(Bradley et al. 2002). This strategy was realized through the alignment and interaction of the SER-M elements.

1) Subject: Internalized Strategic Philosophy

Walmart maintained strategic consistency and organizational culture throughout the 26-year and 12-year tenures of founder Sam Walton and successor David Glass(History Tools 2025). They internalized the core philosophies of "customer centricity" and "always low prices" throughout the organization, enabling strategic consistency that remained unshaken even by management turnover. Their long-term tenure enabled the accumulation of organizational learning and execution routines, which in turn enhanced the stability and reliability of strategy execution. This case empirically demonstrates the advantages of ownership management, as suggested by Fama & Jensen(1983), namely, minimizing agency problems and persevering with long-term investment.

The Walton family maintained a balanced governance structure, delegating appropriate operational authority to professional managers while maintaining ongoing involvement in key decision-making. In particular, large-scale long-term investments, such as the satellite communications system in the 1980s, would have been difficult to approve under a professional management system focused on short-term performance. The organizational routines and learning outcomes emphasized by Nelson & Winter(1982) were effectively achieved through the ownership-management system.

By establishing an "employee-first" organizational culture, the company treated employees not as mere labor but as "Associates," partners with the company. The profit-sharing system, introduced in 1971, gave employees a direct stake in the company's performance. Specific behavioral principles, such as the "Sundown Rule" (replying to business requests before sunset) and the "10-Foot Rule" (greeting customers within three meters), served as mechanisms for transforming organizational culture into tangible action.

2) Environment: Superior Niche Market Strategy

From an environmental perspective, Walmart's most innovative strategic choice was to target small cities with populations of less than 50,000, demonstrating the wisdom of avoiding competition through a niche market strategy. This strategy, a classic example of the "bypass strategy" proposed by Chen & Miller(1994), avoids direct conflict with established competitors and preemptively captures overlooked market segments. From Porter's(1980) perspective on competitive strategy, Walmart strategically selected an environment with the most favorable industrial structure. This location strategy provided three key advantages: first, it secured a cost advantage by reducing rent and labor costs by 30-40%; second, it generated stable profits in a monopolistic market environment due to the lack of competition; and third, it built strong customer loyalty through close relationships with local communities.

Walmart demonstrated its ability to anticipate and proactively respond to changes in the market environment. During the economic downturn of the late 1980s, it accurately captured the declining disposable income and increasing price sensitivity of the middle and lower classes. Its "Every Day Low Price (EDLP)" strategy went beyond simple pricing policy and was a strategic positioning strategy aimed at consumer sentiment in an era of economic uncertainty.

3) Resources: Logistics Innovation and Cross-Docking Revolution

The most prominent feature of Walmart's resource investment strategy was preemptive and large-scale investment in logistics infrastructure. The cross-docking system, introduced in 1977, was an innovative method of transferring incoming goods directly to delivery trucks rather than storing them in warehouses. This reduced inventory holding costs by approximately 80% and shortened the delivery cycle from once a week to three times a week. This was a classic example of a valuable, rare, inimitable, and non-substitutable resource, as suggested by Barney(1991). With an 85% ownership rate and an optimized average delivery distance of 125 miles, the independent logistics fleet provided a fundamental competitive advantage over Kmart, which relied on external logistics providers.

The proactive investment strategy in technological resources went beyond simple automation and aimed to build an integrated ecosystem. The early introduction of a computer system in 1972, the adoption of a barcode system in 1975, the establishment of a satellite communications system in the 1980s, and the adoption of EDI in the 1990s demonstrate a systematic and proactive technological investment sequence. The company's consistent investment of more than 3% of sales in technological innovation stands in stark contrast to Kmart, which was even 10 years late in implementing a POS system.

Walmart strategically allocated financial resources based on priorities, minimizing advertising expenses and converting those costs into price competitiveness. The \$24 million invested in a satellite communication system in the 1980s led to significant cost savings in the long term by enabling real-time monitoring of stores and trucks, immediate inventory adjustments, and logistics optimization.

4) Mechanism: Related Diversification and Hub-and-Spoke Expansion

The strategy of diversification and synergy creation through an excellent execution-oriented organizational culture verifies the superiority of related diversification as argued by Rumelt(1982). Sam's Club, launched in 1983, and Supercenter, introduced in 1988, were related diversifications that directly utilized the core competencies of existing discount store operations. These new formats created powerful new businesses by sharing existing logistics networks, purchasing power, customer data, and operational know-how. From the perspective of Prahalad & Hamel's(1994) core competency theory, Walmart expanded its core competencies of "low-cost logistics and operations," "data-based decision-making," and "supplier negotiation power" into new business areas.

Through organizational learning systems and continuous improvement, Walmart established a culture of "learning through failure." By sharing and analyzing failure cases at headquarters every Saturday morning, the entire organization prevented the same mistakes from being repeated. From the perspective of Argyris & Schön's organizational learning theory, Walmart went beyond single-loop learning and practiced double-loop learning, which involves reexamining fundamental assumptions. A data-driven decision-making culture was fostered through the "Retail Link" data integration platform, analyzing 14 terabytes of data daily.

<Table 6> presents the factors that led to Kmart's downfall and Walmart's success from the SER-M perspective.

<Table 6> SER-M Perspective on the Fall of Kmart and the Success of Walmart

SER Type	Analytical Item	Trap of the Strong (Kmart)	Strategy of the Weak (Walmart)
Subject	Governance Structure	Short-term pressures of professional management; reduced resource flexibility; decreased motivation for innovation	Ownership and management; long-term focus; strategic consistency; innovation and sustainability
	Organizational Culture	Stagnant success formulas; resistance to change; learning gaps	Maintaining experimental spirit; flexible adaptation; continuous learning
Environm ent	Market Positioning	Densely competitive areas; high operating costs; difficulty in differentiation	Niche preemption; low competitive intensity; clear differentiation
	Change Sensitivity	Status quo tendency; insensitivity to market changes; late response	Innovation-oriented; predictive behavior; preemptive response

SER Type	Analytical Item	Trap of the Strong (Kmart)	Strategy of the Weak (Walmart)
Resources	Resource Allocation	Maintenance-oriented: short-term marketing focus; insufficient investment in innovation	Investing in future capabilities; strengthening technology base; long-term projects
	Pursuit of Efficiency	Incremental improvement: partial optimization; maintaining inertia	Fundamental innovation: system optimization; paradigm shift

Reference: Cho, D. S. (2007); Cho & Lee (1998); Seoul National University Mechanism Research Group (2006)

3. Strategic Sequencing: Comparing the Temporal Development of Walmart and Kmart

One of the key factors that determined the success or failure of Walmart and Kmart was the temporal sequencing of strategic choices and the differences in resource allocation across stages. Walmart systematically shifted its strategic focus on SER elements according to its growth stages, while Kmart repeatedly made sporadic and reactive choices at each stage, without a consistent strategic direction. This section compares and analyzes the two companies' strategic focuses and their outcomes across different periods using the Weight-Sequence Model.

1) Start-up and Early Expansion (1962-1970): A Critical Point in Environmental Choice

In the early days of its environment (E)-centric strategy (1962-1969), Walmart strategically invested heavily in proactively securing environmental factors. During this period, its niche strategy, targeting small towns with populations under 50,000, offered three key advantages: first, the lack of competition minimized entry barriers, allowing entry even with limited resources; second, lower operating costs compared to large cities provided a foundation for price competitiveness; and third, a stable profit base created long-term investment capacity.

From its inception, Kmart committed a strategic miscalculation in environmental selection through aggressive expansion focused on large cities (1962-1970). Building on its existing distribution network of S.S. Kresge Company, Kmart opened its first store in 1962 and expanded nationwide to over 500 by 1970. While this aggressive expansion led to short-term gains in market share and sales, it also presented structural vulnerabilities: the city-centric strategy exacerbated operating costs, undifferentiated expansion intensified price competition, and the rapid pace of expansion led to a focus on scale over profitability per store.

2) Growth and Capacity-Building (1970-1980): The Light and Dark Side of Resource Investment

After securing a stable market base, Walmart shifted its strategic focus to resource (R) accumulation (1970-1979), focusing on logistics and technological infrastructure. In 1970, Walmart established its first distribution center in Bentonville, Arkansas, beginning the development of its own logistics network. In 1977, it introduced the industry's first cross-docking system. This resulted in an 80% reduction in inventory holding costs and a shortened delivery cycle from once a week to three times a week. By establishing its own trucking system, Walmart increased its self-transportation ratio to 70% by 1979.

Kmart invested heavily in the resource (R) element during this period (1971-1980), focusing on marketing-focused, superficial investments. It focused on short-term marketing expenses such as store interior design, advertising, and promotions rather than improving logistics infrastructure. In 1976, it boasted 1,647 stores – the largest number in the industry – but profitability per store was stagnant. The transition to a professional management system in 1977 intensified pressure for short-term performance.

3) Organizational Integration and Cultural Settlement (1980-1990): Differences in Strengthening the Subject

Walmart strengthened its execution capabilities through subjectivity (S) (1980-1989). In the 1980s, it significantly balanced its strategic weighting of environment (E), resources (R), and subject (S). This period marked a shift in strategic focus from hardware (infrastructure) to software (culture and people). The company significantly expanded its profit-sharing program, introduced in 1971, to provide an average of \$7,000 in compensation to long-term employees. In the early 1980s, the company invested \$24 million in a satellite communications system. By 1987, it had grown to 1,198 stores, ranking third in the industry, with sales reaching \$15.8 billion.

management. While it seemingly maintained balanced allocations of E, R, and S, in reality it exhibited a lack of strategic consistency – a phenomenon of "reversion to the mean." By 1990, the company operated 13 different retail formats, but there was little synergy between them. Although the company belatedly began implementing a POS system in 1989, it was already more than a decade behind Walmart in technology.

4) Maturity and Outcomes Bifurcation (1990–2002): Identifying Winners and Losers

The performance divergence observed in this period cannot be fully explained by internal strategic differences alone. The 1990–1991 economic recession severely constrained the spending capacity of Kmart's core customer base of low-to-middle income households, while Kmart's resource structure, fragmented by unrelated diversification, was structurally more vulnerable to external shocks. In contrast, Walmart's EDLP strategy and efficient supply chain provided a structural buffer against economic fluctuations. Nevertheless, internal strategic failures – delayed logistics investment, unrelated diversification, and the absence of strategic consistency – are supported as primary causes. Therefore, this study interprets macroeconomic factors as accelerating factors in Kmart's decline, while attributing the root causes to strategic failures across the SER-M elements.

Walmart achieved integrated expansion and global leadership (1990–2002) through balanced investments in E, R, and S. Walmart began full-scale global expansion in 1991, beginning with Mexico, and expanded into Canada, China, and Brazil by 1997. In 1997, Walmart achieved annual sales of \$104.8 billion, surpassing \$100 billion for the first time. In 2000, it opened its Retail Link platform to suppliers, establishing an innovative collaborative model for sharing real-time sales data. By 2002, Walmart operated 4,414 stores with annual revenues of \$244.7 billion and an operating profit margin of 5.9%.

Kmart maintained average allocations of E, R, and S throughout the 1990s but failed to find a breakthrough in any area. Walmart overtook Kmart in sales in 1990. By 1995, Kmart's sales reached \$34.4 billion while Walmart's reached \$93.6 billion. In January 2002, Kmart filed for Chapter 11 of the U.S. Bankruptcy Code, with \$17 billion in debt, immediately closing 283 stores and laying off 67,000 employees.

A comparison of the temporal evolution of Walmart and Kmart through strategic sequencing is summarized in <Table 7> and <Table 8>.

<Table 7> Strategic Weight Analysis of Walmart by Period (Based on the Weight-Sequence Model)

Period	Environment	Resources	Subject	Strategic Outcome
1962–1969	High	Medium	Low	Focused on small-town niche markets
1970–1979	Low	Very High	Medium	Built logistics/IT infrastructure
1980–1989	High	High	High	Balanced capability development
1990–2002	Very High	High	Very High	Executed integrated strategy

Reference: Cho, D. S. (2007); Cho & Lee (1998); Koo & Lee (2008); Walmart Inc. Annual Reports (1970–2002); Kmart SEC Filings; Statista (2025); GlobalData (2022)

<Table 8> Strategic Weight Analysis of Kmart by Period (Based on the Weight-Sequence Model)

Period	Environment	Resources	Subject	Strategic Outcome
1962–1970	Medium	High	Low	Overexpansion in metropolitan markets
1971–1980	Medium	High	Medium	Pursued unrelated diversification

Period	Environment	Resources	Subject	Strategic Outcome
1981-1990	Medium	Medium	Medium	Relied on professional management system
1991-2002	Medium	Medium	Medium	Failed restructuring

Note: Kmart's Environment (E) weight remained "Medium" throughout all periods because the company largely maintained its initial store locations (major urban outskirts) without significant revision. In contrast, Walmart executed a clear environmental transition sequence – small towns → suburbs → global – showing meaningful changes in environmental weight at each stage.

Source: Cho, D. S. (2007); Cho & Lee (1998); Koo & Lee (2008); Walmart Inc. Annual Reports (1970-2002); Kmart SEC Filings; Statista (2025); GlobalData (2022)

VI. Conclusion

This study systematically analyzes the reasons behind the starkly different outcomes of Kmart and Walmart, which launched simultaneously in 1962, one facing bankruptcy and the other achieving global leadership 40 years later, using the SER-M framework and the Weight-Sequence Model. The analysis is ex-post and explanatory in character. The observed relationships between strategic elements and corporate performance are methodologically better interpreted as covariation rather than causation. To reinforce narrative causality, this study: (1) examines the performance trajectory of Walmart before and after its logistics innovation in the early 1970s through time-series comparison; (2) analyzes the temporal sequence between Kmart's unrelated diversification and its profitability decline; and (3) partially compares firms that adopted similar strategies but ultimately failed (e.g., early-stage Target and Ames Department Stores). Statistical causal verification remains a task for future research.

1. Key Research Findings

The most important finding of this study is that Walmart's success stemmed not from random selection but from systematic strategic sequencing. In the initial environmental selection phase, Walmart established a foundation for survival by entering niche markets to avoid competition. In the resource-building phase of the growth period, it built a foundation for competitiveness through preemptive investments in logistics and technological infrastructure. Subsequently, in the integration phase, it focused on developing organizational culture and human resources. In the expansion phase, it achieved sustainable growth through the integrated synergy of SER elements.

Another important finding is that governance structure determines the consistency of strategy execution. Walmart's ownership and management system maintained an average CEO tenure of 19 years, enabling patience and strategic consistency in long-term investments. In contrast, Kmart's professional management system, with an average CEO tenure of only eight years, led to decisions that undermined strategic consistency. This clearly demonstrates the impact of agency problems, as proposed by Fama & Jensen(1983), on actual corporate success and failure.

This study also clearly revealed that qualitative differences in resource investment determine long-term competitiveness. Walmart proactively invested in logistics and technology infrastructure, establishing what Barney(1991) called valuable, rare, inimitable, and irreplaceable resources. Its cross-docking system, satellite communication network, and data integration platform became sources of competitive advantage that were difficult to replicate in the short term.

Another important contribution of this study is that mechanisms are key to connecting SER elements. Walmart's related diversification – Sam's Club and Supercenter – effectively leveraged its existing logistics network and purchasing power to create synergy. Its central expansion model, rapid decision-making structure, organizational learning system, and data-driven decision-making culture functioned as mechanisms that organically connected actors, environments, and resources.

2. Theoretical Contributions

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This study offers theoretical contributions on three levels. First, it advances academic research by dynamically extending the SER-M framework. While existing SER-M analyses

have limited themselves to static element comparisons, this study combines the Weight-Sequence Model to develop a dynamic framework that analyzes changes in the weights and order of strategic elements over time. This provides systematic guidance on which strategic elements a company should focus on at each stage of its growth.

Another significant theoretical contribution is the presentation of an integrated model for the mechanisms of underdog reversal. While previous studies have explained competitive advantage through individual theories such as niche market strategy, resource-based view, and dynamic capabilities, this study integrates these theories within the SER-M framework and adds a temporal context to build a model that comprehensively explains the process by which underdogs overturn the strong.

Another unique contribution of this study is its identification of the mediating role of mechanisms. It empirically demonstrates that mechanisms, which have received relatively little attention in previous research, are key elements in creating sustainable competitive advantage by connecting actors, environments, and resources.

3. Practical Implications

The following practical implications are exploratory insights derived from a single-industry, two-firm case study in the U.S. retail sector. Before applying them as universal prescriptions, boundary conditions such as industry type, market maturity, regulatory environment, and firm size must be carefully reviewed. In particular, the applicability of these insights to Korean and Asian SME contexts must be verified through separate empirical research.

This study suggests that early-stage, underperforming companies – startups, SMEs, and new entrants – should focus on choosing competitively avoidant environments. They should identify niche markets where they don't directly compete with established players and select markets where low operating costs allow for price competitiveness.

As companies enter the growth phase, they must focus on building differentiated core competencies. They must proactively invest in inimitable resources and capabilities, prioritizing long-term infrastructure over short-term marketing efforts. Maximizing operational efficiency through technology and systems, and establishing a unique logistics and supply chain system are the foundations for competitive advantage.

During the integration phase, strengthening organizational culture and human resources becomes crucial. It is essential to establish clear corporate values and principles of conduct, and establish systems that foster a sense of ownership and engagement among employees. Establishing a culture of learning from failure and continuous improvement, along with a long-term human resources management strategy, ensures organizational sustainability.

Once reaching the expansion stage, balanced development and synergy creation must be pursued. Core competency-based diversification must be pursued and a systematic expansion model centered on core hubs must be implemented. Advancing data-driven decision-making systems and integrating sustainable management and stakeholder value are key to securing global competitiveness.

However, the binary conclusion that owner-management is superior to professional management must be interpreted with caution given the limitations of a single-industry, two-firm study. The observation in this study is better understood as an exploratory proposition: that owner-management proved particularly advantageous in the retailing industry's specific capital recovery structure, where returns on large-scale logistics infrastructure investment materialize over an extended period.

4. Limitations and Future Research Directions

This study analyzed the effectiveness of strategic sequencing by applying the SER-M framework and the W-S model, focusing on the representative cases of Kmart and Walmart. However, several limitations exist. Because this study focused on two U.S. retail companies, further validation is needed to determine whether the findings are equally applicable to other industries and countries. In particular, the relative importance of SER-M elements and sequencing patterns may differ in technology-intensive industries, regulated industries, and emerging markets.

model. While the weights were determined through literature review and expert consultation, the possibility that some of the researcher's interpretations were reflected cannot be ruled out. Furthermore, some data from the 1970s and 1980s were obtained using linear interpolation due to the lack of official data. The possibility of survivorship bias is also acknowledged as a limitation of the study.

To overcome the limitations of this study and advance the theory, the following follow-up research is recommended. Comparative studies across various industries and regions are a priority, including exploring the applicability of the model to Asian markets such as Korea, China, and Japan. Refining quantitative methodology is also critical, including the use of the Delphi technique, hierarchical analysis, or machine learning algorithms to determine weights. Reexamining the SER-M model in the era of digital transformation is also an urgent research topic.

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The 40-year journey of Kmart and Walmart, both launched in the same year, 1962, is not a simple story of success and failure. It is a vivid textbook of management strategy, demonstrating how strategic choices determine a company's fate and how the weak can overcome the strong. Walmart's success was no accident — it was the result of systematic strategic sequencing: selecting the right battleground, preemptive investment in logistics and technology, systematic development of organizational culture, and the establishment of mechanisms that organically connect all these elements. Kmart's decline stemmed from the combined failures of all SER-M elements: short-term performance pressures, a rigid strategy focused on large cities, delayed logistics investments, and unrelated diversification.

The most important lesson this study suggests is that the weak must fight differently from the strong. With limited resources, the weak cannot fight on all fronts simultaneously. Instead, they must find niches to avoid competition, build inimitable core competencies, establish a clear organizational identity, and gradually expand their capabilities.

Note: This paper utilized Claude AI (Anthropic, 2025) for sentence refinement and readability improvement of the English manuscript.

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Appendix A. SER-M Framework Components and Theoretical Background

<Table A1> SER-M Framework Components and Theoretical Background

Component	Definition	Key Variables & Examples	Theoretical Basis
Subject	Elements related to decision-making entities, such as governance structure, leadership, and organizational culture	CEO replacement, decision-making structure, organizational culture	Cho (2007); Seoul National University Mechanism Research Group (2006)
Environment	Market environment and competitive context selected by the firm	Target customers, geographic market, and competitive intensity	Cho & Lee (1998)
Resources	Tangible and intangible assets owned and utilized by the firm	Technology, systems, financial resources, human resources	Cho (2007); Koo & Lee (2008)
Mechanism	Organizational systems and processes that connect and execute Subject, Environment, and Resources	Performance management systems, learning mechanisms, and innovation systems	Seoul National University Mechanism Research Group (2006)

Appendix B. Components and Theoretical Background of the Weight-Sequence Model

<Table B1> Components and Theoretical Background of the Weight-Sequence Model

Component	Definition	Measurement Indicators	Theoretical Basis
Weight	Resource allocation ratio for each SER element at a given time	Investment ratio (%), Executive time allocation, Organizational capability focus	Miller & Friesen (1984) Organizational Life Cycle Theory
Sequence	Temporal deployment order of SER elements	Strategy transition points, Stage-wise priorities, Cumulative effects	Quinn & Cameron (1983) Effectiveness Criteria Theory
Transition	Points where strategic focus shifts	Performance inflection points, Organizational structure changes, Investment pattern changes	Kazanjian (1988) Dominant Problem Theory
Synergy	Interaction effects among SER elements	Integrated performance indicators, Cross-effects, Cumulative competitive advantage	Cho (2007); Cho & Moon (2022) SER-M Integrated Theory

Appendix C. Quantitative Variables and Missing Data Handling

<Table C1> Quantitative Variables and Missing Data Handling

Variable Name	Definition & Measurement Criteria	Source	Missing Data Handling
Total Revenue	Annual total revenue (in million USD)	Walmart Inc. Annual Reports; Kmart Corporation Annual Reports; SEC Filings; Statista; Dazeinfo	Linear interpolation (based on consecutive years)
Operating Profit	Profit from operating activities (in million USD)	Walmart Inc. Annual Reports; Industry analysis reports	Linear interpolation or the average of adjacent years

Variable Name	Definition & Measurement Criteria	Source	Missing Data Handling
Total Assets	Total asset size held by the company (in million USD)	SEC Filings; Statista	Supplemented using the average of adjacent years
Store Count	Number of stores in operation during the year	Walmart Inc. Annual Reports; GlobalData (2022); DemandSage; Kmart; Transformco; SEC Filings	Linear interpolation or industry report-based estimation
Growth Rate	Year-over-year revenue growth rate (%)	Self-calculated (based on total revenue)	Applied the average growth rate excluding missing years
Market Share	Retail market share in the given year (%)	Industry analysis reports; IBISWorld; Statista	Used estimates; excluded if interpolation not possible

Reference: Walmart Inc. Annual Reports (1962-2004); Kmart Corporation Annual Reports and SEC Form 10-K filings (1962-2004); Transformco (n.d.); GlobalData (2022); DemandSage; Statista; Dazeinfo; IBISWorld

Abstract

How the Underdog Defeats the Strong: Strategic Analysis through SER-M Framework

– *Kmart's Decline and Walmart's Success Strategies* –

seakun Oh* · yongtack Min**

Kmart and Walmart both launched their discount store businesses in 1962, yet 40 years later they faced starkly different fates: Kmart filed for Chapter 11 bankruptcy in January 2002 – the largest retail bankruptcy in U.S. history – while Walmart had grown into the world's leading retailer, recording annual revenues of \$218 billion. This study systematically analyzes the strategic divergence between these two firms through the SER-M framework and the Weight-Sequence Model (W-S Model), a dynamic analytical tool newly proposed in this research.

The SER-M framework, developed by Cho(2007), explains corporate strategy through four dimensions: Subject (governance structure, leadership, and organizational culture), Environment (market selection and competitive positioning), Resources (logistics, technology, and financial assets), and Mechanism (decision-making systems, learning routines, and diversification logic). The W-S Model extends SER-M by tracking how the relative weight assigned to each of these elements shifts across four growth stages – start-up, growth, integration, and expansion – enabling a time-series analysis of strategic sequencing.

Three research questions guide the analysis: (RQ1) How did the strategic sequencing of Walmart and Kmart differ across their respective growth stages? (RQ2) Which SER-M element carried a relatively higher weight at each stage, and how did that ordering relate to corporate performance? (RQ3) In the process of a weaker firm's competitive reversal, how does the Mechanism (M) connect the S, E, and R elements to create sustainable competitive advantage?

The analysis reveals that Walmart's success stemmed from four mutually reinforcing strategic choices. First, an Environment-first approach in the start-up phase (1962-1969): by targeting small towns with populations below 50,000, Walmart avoided direct competition, reduced operating costs by 30-40%, and secured a stable revenue base. Second, intensive Resource investment during the growth phase (1970-1979): the industry-pioneering cross-docking system (1977) cut inventory holding costs by 80%, and a proprietary trucking fleet achieving 85% self-ownership provided an inimitable logistics advantage. Third, Subject strengthening during the integration phase (1980-1989): the founder's "Every Day Low Price" philosophy was institutionalised through profit-sharing, the Sundown Rule, and the 3-Metre Rule, while a \$24 million investment in satellite communications enabled real-time inventory control. Fourth, balanced S-E-R development during the expansion phase (1990-2002): global expansion, the Retail Link data platform, and ESG integration drove explosive growth, with annual revenues reaching \$244.7 billion by 2002.

Kmart, by contrast, exhibited a persistent "reversion to the mean" across all four stages – allocating moderate resources to all SER-M elements without achieving excellence in any. Key failure drivers included: a professional management system averaging only eight-year CEO tenures, which undermined strategic consistency; a metropolitan location strategy that elevated operating costs; a ten-year delay in POS system adoption; and unrelated diversification into Waldenbooks, Sports Authority, Builders Square, and OfficeMax, which dispersed resources and destroyed synergies.

Theoretically, this study makes three contributions. It dynamically extends the SER-M framework through the W-S Model. It proposes an integrated model of the underdog-reversal mechanism by synthesising niche-market strategy, the resource-based view, and dynamic capabilities within a temporal SER-M context. And it identifies the mediating role of Mechanism (M) in connecting S, E, and R to generate sustained competitive advantage. Practically, the paper presents a four-stage strategic roadmap for start-ups, SMEs, and new entrants facing asymmetric competition.

The study acknowledges several limitations: the generalisability of single-industry findings, potential subjectivity in weight determination, incomplete control for macroeconomic variables, and survivorship bias. Future research should extend the W-S Model across industries and regions, derive weights using the Delphi technique or AHP, and apply structural equation modelling to test causal relationships among SER-M elements.

Keywords: SER-M Framework, Weight-Sequence Model (W-S Model), Strategic Sequencing, Asymmetric Competition, Underdog Strategy, Walmart, Kmart, Sustainable Competitive Advantage

Global Competitive Position Shift in a Late-Entrant Food Company:

Theoretical Refinement of the Process Mechanism through a Contrastive Analysis of Samyang Foods and Nongshim

* Byung Moon Yoo

Yong Taek Min **

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This study adopts a focal-case-centered qualitative theory-refining case study design to examine how Samyang Foods, a late-entrant Korean food company, achieved a competitive position shift in domestic and global markets through its flagship brand, Buldak Bokkeum Myun, and to interpret this process through contrastive comparison with the incumbent firm Nongshim. To this end, the study applies an integrated analytical framework linking the Resource-Based View (RBV), the SER-M model (Subject-Environment-Resource-Mechanism), and the Weight & Sequence Model (WSM). The findings suggest that Samyang Foods achieved a competitive position shift from a late-entrant position through the combination of digital content-based viral marketing, emotionally grounded fandom formation, agile product innovation, and staged resource concentration guided by WSM. By contrast, Nongshim tended to maintain traditional marketing and quality-centered strategies, while gradually strengthening digital and content-linked initiatives in later periods. Through the contrastive comparison of the two firms, the explanatory power of the integrated RBV-SER-M-WSM framework becomes clearer, and its enabling conditions and boundary conditions are interpreted more systematically. This study contributes theoretically by refining the process mechanism of late-entrant competitive position shift through the integrative linkage of existing theories. Practically, it provides an analytical framework for designing strategic weight and execution sequence when small and medium-sized enterprises enter global markets under resource constraints. As a focal-case-centered qualitative study, however, the scope of analytic generalization remains limited, and future research should incorporate quantitative approaches and multi-case comparisons. In addition, longitudinal research is needed on changes in competitive dynamics arising from incumbents' strategic learning from late entrants.

Keywords: Late-entrant strategy; digital marketing; fandom strategy; SER-M model; WSM model; Buldak Bokkeum Myun; K-Food; theory refinement; process analysis.

I. Introduction

1.1. Research Background and Rationale

Incumbent market leaders have traditionally secured advantages through vast resources and infrastructure. However, when slow to respond to change or when organizational agility is compromised, such firms frequently create openings for challengers. In particular, small and medium-sized enterprises leveraging emotional engagement, digital content, and agile product innovation have increasingly emerged as challengers to established incumbents.

Received Mar. 6. 2026 Accepted Apr. 20. 2026

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In the Korean ramen market, Nongshim occupied the dominant leadership position, while Samyang Foods ranked third behind Nongshim and Ottogi (Nongshim, 2024; Samyang Foods, 2024). Yet the digitalization and globalization of the 21st century are fundamentally transforming existing industry structures.

The launch and subsequent success of Buldak Bokkeum Myun at Samyang Foods, then a non-leading player in the market, represents one of the most salient examples of these trends. As of 2024, Samyang Foods' overseas sales ratio stands at 77.3%, and the single brand Buldak Bokkeum Myun exceeded KRW 1 trillion in revenue (Financial News, 2025). In May 2024, Samyang Foods surpassed domestic market leader Nongshim in market capitalization, marking a symbolic competitive position shift (ETtoday, 2024).

1.2. Research Objectives

This study aims to analyze the process and conditions through which Samyang Foods achieved a competitive position shift from a late-entrant position through Buldak Bokkeum Myun, and to theoretically refine the strategic structure and execution mechanism underlying that shift. Specifically, this study pursues the following objectives.

First, to refine the integrative linkage logic of three theoretical frameworks – RBV, the SER-M model, and WSM – and to apply them to the Samyang Foods case to analyze the late-entrant competitive position shift mechanism in a process-centered manner.

Second, to derive the enabling conditions and boundary conditions of the integrated framework through contrastive case comparison with Nongshim, and to explore the scope of analytic generalizability and implications within limited bounds.

Third, to present a practical analytical framework that small and medium-sized enterprises can use to establish strategic weight and execution sequence when entering global markets with limited resources.

1.3. Research Questions

In this study, a competitive position shift refers not to a complete reversal of total revenue-based market dominance, but to a transition in which a late entrant comes to surpass or substantially threaten the incumbent in terms of profitability (operating profit margin), capital market valuation (market capitalization), global brand expansion (overseas revenue share), and strategic momentum (growth rate). Accordingly, Samyang Foods' competitive position shift in this study encompasses the substantive changes in competitive dynamics observable across these composite criteria, even as Nongshim maintains advantages in total revenue and domestic market share.

This study is guided by the following three research questions:

RQ1. How were the core resource combinations and strategic weight and execution sequence that enabled Samyang Foods' competitive position shift formed and combined?

RQ2. How does the RBV - SER-M - WSM integrated analytical framework explain the process mechanism of a late entrant's competitive position shift, and what theoretical refinement does the linkage of the three theories provide?

RQ3. How do the enabling conditions and boundary conditions of the mechanism emerge through contrastive case comparison with Nongshim?

II. Theoretical Background

2.1. Prior Literature on Late-Entrant Strategy

Kim and Mauborgne's (2005) Blue Ocean Strategy emphasized the importance of creating new market spaces free from competition. Rather than benchmarking competitors, successful firms redefine the competitive elements of an industry, pursuing strategies that dissolve existing market boundaries through value innovation.

Chen and Hambrick (1995) studied the conditions and performance of competitive actions taken by small firms against large ones, finding that small firms execute competitive actions more rapidly though at smaller scale. D'Aveni's (1994) hypercompetition theory argues that in rapidly changing competitive environments, a series of temporary advantages is more realistic than sustained competitive advantage, with successful firms continuously destroying and recreating their own advantages rather than resting on existing ones.

Core elements of challenger strategies include: first, agility – the organizational capability to rapidly sense and respond to environmental change as defined by Lu and Ramamurthy (2011). Second, emotion-based content: per Berger and Milkman (2012), content eliciting high-arousal emotions is shared more frequently on social media, and challenger firms strategically leverage such emotional stimulation. Third, fandom building – based on Kozinets' (2001) concept of tribal marketing, forming community consciousness centered on products. Fourth, digital channel utilization – overcoming the limitations of mass advertising by exploiting the interactivity, personalization, and real-time responsiveness of digital marketing as analyzed by Kannan and Li (2017).

2.2. Resource-Based View (RBV) and VRIO Analysis

The Resource-Based View is a core theory in strategic management that holds competitive advantage derives from the characteristics of internal resources rather than external environments. Penrose (1959) defined the firm as "a collection of productive resources," arguing that firm growth is constrained by the limits of managerial resources and that the same resources may be utilized differently across firms, generating performance differences.

Wernerfelt (1984) first systematized the RBV concept, arguing that viewing a firm as a bundle of resources is more useful for strategic analysis than viewing it in terms of

product-market position, and defining resources as all tangible and intangible assets semi-permanently tied to a firm at a given point in time. It was Barney's (1991) research that developed RBV into a complete theoretical system. Barney (1991) argued that for sustainable competitive advantage, resources must simultaneously satisfy four conditions: ① Value, ② Rarity, ③ Inimitability, and ④ Organization – presenting an analytical framework that would later develop into the VRIO framework. Three sources of inimitability are identified: unique historical conditions, causal ambiguity, and social complexity.

2.3. SER-M Model: Concept and Application

2.3.1. Theoretical Foundation and Development Background of SER-M Model

The SER-M model is an integrated analytical framework developed and applied by Cho and researchers in the field of strategic management (Cho & Lee, 1997; Cho, 2006; Cho & Moon, 2022), categorizing strategic structure into four elements: Subject, Environment, Resource, and Mechanism. While Andrews (1971) defined strategy as the pursuit of fit between a firm's internal resources and external environment, this analytical framework had the limitation of insufficiently addressing dynamic interaction among elements and the execution process.

The SER-M model introduced Mintzberg's (1987) emergent strategy concept to overcome this limitation. In this study, the SER-M model, as noted above, is utilized as an analytical tool for interpreting the interactions among Subject, Environment, Resource, and Mechanism, rather than as an independent theoretical system. Mintzberg (1987) emphasized that actual strategy is a combination of deliberate and emergent strategies, and that strategy formation and execution constitute a cyclical, dynamic process. The Mechanism (M) element of SER-M is designed to enable systematic analysis of this dynamic interaction.

2.3.2. SER-M Application Methodology for Asymmetric Competition

The SER-M model provides an integrated framework for systematically analyzing a challenger's competitive position shift against an incumbent. In Samyang Foods' case: on the Subject (S) dimension, a strategic shift in leadership occurred; on the Environment (E) dimension, favorable conditions of growing K-Food demand and SNS ecosystem development were captured; on the Resource (R) dimension, content production capability, derivative product development ability, and a global distribution network were held; and on the Mechanism (M) dimension, challenge content activation, fandom building, and global diffusion through challenge content combined with product localization enabled the firm to position itself as one selling cultural experiences beyond mere product sales.

2.4. Weight & Sequence Model (WSM)

The Weight & Sequence Model (WSM) is a strategy execution model for resource-constrained firms that maximizes market impact by optimizing the relative weight and sequence of strategy execution (Cho & Moon, 2022). The model complements the limitation of existing strategy theories – which primarily focused on strategy content – by systematizing the importance of the execution process and sequence.

WSM's theoretical foundations draw on Rumelt's (2011) Good Strategy framework and Porter's (1996) concept of trade-offs for the Weight dimension – defining good strategy as diagnosing challenges clearly and concentrating resources and actions to address them. The Sequence dimension addresses in what temporal order strategic elements should be executed. Moore's (1991) Technology Adoption Life Cycle provides important insights for the Sequence concept, arguing that different marketing strategies are required at each stage.

2.5. Integrated Analytical Framework: The Linkage Logic of RBV – SER-M – WSM

In the integrated analytical framework of this study, RBV, SER-M, and WSM do not operate as theories applied sequentially in separate stages. Rather, they function as an integrated analytical system that explains the competitive position shift of a late entrant in a complementary manner by addressing, respectively, the evaluation of resource conditions, the interpretation of interactions among subject, environment, resource, and mechanism, and the design of execution weight and sequence.

The theoretical refinement proposed in this study lies precisely in this integrative linkage: the three frameworks are not treated as isolated explanatory tools, but as mutually reinforcing analytical dimensions within a single process model of competitive position shift. This constitutes the core theoretical refinement of the integrated framework presented by this study.

2.6. Prior Research Review and Research Differentiation

Existing studies on late-entrant strategy have shown several limitations. First, many rely on single-theory explanations and therefore fail to capture the complexity of strategy execution processes. Second, much of the literature is heavily biased toward Western firm cases, leaving insufficient room for the analysis of strategies grounded in cultural content such as K-Food and K-Contents. Third, prior work has often focused on static resource-outcome structures without adequately addressing the time-series process of strategy execution. Fourth, relatively little attention has been paid to the enabling conditions and boundary conditions of strategic mechanisms through contrastive comparison with incumbent firms. This study differs from prior research in that it applies an integrated RBV – SER-M – WSM framework, attempts theoretical refinement in the K-Food context, adopts a process-tracing-based time-series analysis, and derives boundary conditions through a contrastive case.

III. Research Methodology

3.1. Research Design: Focal-Case-Centered Qualitative Theory-Refining Case Study

This study is designed as a focal-case-centered qualitative, theory-refining case study, with Samyang Foods as the focal case and Nongshim as the contrastive case. Yin (2018) presents case study research as an appropriate design for the in-depth analysis of contemporary phenomena in context, particularly suited for answering "how" and "why" questions. Following Bennett and Checkel (2015), process tracing is employed to interpret and refine the mechanism through which a particular outcome unfolded over time. Accordingly, the study does not seek statistical verification; rather, it aims at the interpretive elucidation of the mechanism underlying late-entrant competitive position shift. The unit of analysis is firm-level strategic behavior and competitive position change centered on Samyang Foods' Buldak brand.

3.2. Case Selection Rationale

3.2.1. Samyang Foods: Justification as an Extreme Case

Flyvbjerg (2006) argues that extreme case selection can contribute to analytic generalization, as extreme cases – where phenomena appear particularly prominently or dramatically – offer the advantage of enabling the clearest observation of mechanisms. The Samyang Foods Buldak Bokkeum Myun case holds justification as an extreme case in the following respects: ① a third-ranked challenger achieved competitive position shift within 12 years – threatening or surpassing the incumbent in profitability, market capitalization, and overseas revenue share; ② overseas revenue share surged from 6.7% (2012) to 77.3% (2024); ③ a single brand (Buldak Bokkeum Myun) achieved KRW 1 trillion in annual revenue; and ④ global fandom was formed through user generated content without advertising expenditure.

3.2.2. Nongshim: Role and Design Logic as Contrastive Case

The rationale for selecting Nongshim as the contrastive case is: ① high contextual similarity as a competitor in the same market; ② the ability to compare the situation in which an incumbent's resource advantage becomes rather a constraint on change (path-dependency); ③ the capacity to interpret comparatively the conditions under which incumbent path-dependency operates as a constraint, and through contrast with Samyang Foods' strategic pathway, to interpret more clearly the enabling conditions and boundary

conditions of the mechanism. Nongshim was selected as the most contrasting reference point with Samyang Foods in terms of scale, brand dominance, and historical standing as the representative incumbent of the domestic ramen market. While Ottogi could also serve as a meaningful comparison, this study focuses on the contrast with Nongshim as providing the sharpest illustration of the incumbent-challenger dynamic.

3.3. Analytical Framework and Propositions

3.3.1. Analytical Proposition 1 (Related to RQ1)

Samyang Foods' competitive position shift is enabled not by the absolute volume of any resource, but through the strategic combination of VRIO-satisfying resources and weight-and-sequence-based execution guided by WSM.

3.3.2. Analytical Proposition 2 (Related to RQ2)

Analytical Proposition 2 (Related to RQ2): The integrative linkage of RBV, SER-M, and WSM functions as a useful analytical framework for interpreting the process mechanism of a late entrant's competitive position shift, insofar as resource condition analysis, the interpretation of subject-environment-resource-mechanism interactions, and the design of execution weight and sequence operate as complementary analytical dimensions within a single integrated process model. This proposition is not intended for statistical testing; rather, it serves as an analytic referent for interpretively refining the process mechanism through qualitative process tracing.

3.3.3. Analytical Proposition 3 (Related to RQ3)

The explanatory power of the RBV - SER-M - WSM integrated framework is stronger when (a) the management subject exhibits strong strategic will and field leadership, (b) environmental changes are interpreted as opportunities rather than risks, (c) resources are concentrated on a core brand or concept, and (d) a cross-functional execution structure is in place. Conversely, resource-abundant incumbents with low strategic focus and slow execution may cede partial competitive position – a boundary condition driven by path-dependency (Arthur, 1989). These propositions are not intended for statistical testing; rather, they serve as analytic referents for the interpretive refinement of the process mechanism.

IV. Case Analysis I: Samyang Foods' Competitive Position Shift Process

4.1. Company Overview and Competitive Environment

Samyang Foods launched South Korea's first instant ramen in 1963, establishing itself as a market pioneer (Samyang Foods, 2024). However, through the 1980s-1990s, Nongshim, Ottogi, and other competitors rapidly expanded market share through aggressive product development and marketing strategies, and Samyang Foods gradually lost its former #1 image. The 1989 "lard scandal" (Joongang Ilbo, 1989) dealt a decisive blow to brand credibility, and Samyang Foods subsequently carried a negative image for an extended period.

In this crisis context, Samyang Foods launched "Buldak Bokkeum Myun" in 2012 as a strategic breakthrough. Initially an experimental product, its differentiated concept of "extreme spiciness" stimulated the curiosity of younger consumers and spread naturally through SNS and YouTube content. Having succeeded in converting the act of eating itself — beyond the flavor alone — into content, Buldak Bokkeum Myun rapidly spread by word of mouth domestically and internationally, generating unprecedented resonance. Thereafter, Samyang Foods expanded Buldak Bokkeum Myun from a single product into a brand category, launching diverse derivative series such as Carbonara Buldak and Cheese Buldak. In overseas markets especially, executing a strategy of fandom-based demand creation rather than simple export, it succeeded in overcoming its past negative image and re-establishing itself as a global brand.

[Table 1 : Samyang Foods' Key Financial Indicators and Market Share (2012-2024)]

Year	Revenue (100M KRW)	Operating Income (100M KRW)	Export Ratio (%)	Market Share (%)	Key Features
2012	3,258	76	6.7	13.8	Buldak launch, recovery
2014	3,146	97	7.1	13.3	SNS expansion begins
2016	3,593	253	25.9	10.7	Export acceleration
2018	4,694	551	42.6	12.2	Product diversification
2021	6,420	654	60.5	10.8	Overseas sales surge
2022	9,090	904	66.6	17.0	Miryang Plant 1 operation
2023	11,929	1,475	67.8	18.0	-
2024	17,280	3,446	77.3	18.7	Market cap exceeds Nongshim

Data source: Samyang Foods annual business reports (2012-2024) and Hanwha Investment & Securities Report (2024).

A particularly notable feature of Table 1 is the dramatic shift beginning in 2016, coinciding with the point at which Buldak Bokkeum Myun began going viral on global SNS — after which revenue and overseas share increased at an accelerating pace. Revenue grew 4.8x from KRW 359.3 billion in 2016 to KRW 1,728.0 billion in 2024 over eight years. The overseas revenue share reached 77% in 2024, the highest level among domestic ramen manufacturers. Market capitalization stood at approximately KRW 5.7 trillion at the end of

2024, having already surpassed Nongshim's from May 2024 onward.

A comparative analysis of key financial indicators for both companies is conducted in Chapter V.

4.2. RBV Analysis: VRIO Evaluation of Core Resources and Capabilities

The Resource-Based View holds that resources must possess Value, Rarity, Inimitability, and Organization to form sustainable competitive advantage beyond mere existence. Buldak Bokkeum Myun satisfied all four elements, securing advantage in competition against the incumbent.

Buldak Bokkeum Myun created value as a "content medium" that existing ramen could not provide. Consumers could simultaneously enjoy the flavor while photographing and sharing the act of eating itself, consuming a "story-based experience." This VRIO-based analysis of Samyang Foods is rendered more clearly in contrast with Nongshim's resource conditions, addressed in Chapter V §5.2.

A ramen product centered on extreme spiciness was extremely rare in the domestic and global ramen market. Moreover, the structure for developing this into fandom was so rare that comparable cases are difficult to find. The "blue ocean within the market" created by Samyang Foods with Buldak Bokkeum Myun was an innovation that even competitors had not anticipated.

While extreme spiciness itself may be imitable, the global fandom, SNS challenge culture, and character utilization that Samyang Foods built are extremely difficult to replicate in the short term. In particular, as consumer perception has become fixed on the brand as the "originator" of mukbang content, late entrants may face barriers that are difficult to overcome in terms of brand power within a short period.

Samyang Foods systematically organized a dedicated product development team, overseas export team, and digital content marketing team for the Buldak series. This enabled it to internally execute the cycle of "opportunity capture → product response → diffusion → export expansion."

4.3. SER-M Analysis: Process Tracing of the Competitive Position Shift Mechanism

4.3.1. Subject: Executive Vice Chairman Kim Jeong-su and Management Transformation

The substantive innovation at Samyang Foods originated in the fundamental transformation of strategic direction led by Executive Vice Chairman Kim Jeong-su. As daughter-in-law of the late Honorary Chairman Jeon Joong-yun — who founded Samyang Foods in 1961 and launched Korea's first ramen (Samyang Ramen) in 1963 (Green Post Korea, 2024) — Kim became involved in management during the 1998 IMF financial crisis to save the family business. Observing young people queuing before a spicy steamed chicken restaurant in

Myeong-dong, Seoul in 2011, she identified market potential in extreme spiciness – a discovery that captured how spiciness, for the younger generation, had become a cultural content of challenge and play beyond mere taste. After directly visiting restaurants nationwide and focusing approximately one year on R&D, she launched Buldak Bokkeum Myun in 2012 (HanKyung Magazine, 2023).

Kim's innovative leadership continued after the product launch. Appearing directly on YouTube channels in 2016, she understood the importance of digital marketing and leveraged social media trends such as the "Buldak Challenge" to make the product a global icon. Upon returning to management in 2021 after a 2020 departure, Kim immediately also assumed the role of Head of Overseas Sales, practicing field-centered global management with 100-120 days of overseas travel annually.

In conclusion, the Subject transformation at Samyang Foods was not merely a management change but a paradigm shift in strategic thinking. The extreme spiciness concept could only be realized under the second-generation management regime: the combination of Kim's consumer-centered insight, understanding of the digital era, and bold execution ability drove the transformation from conservative stability-seeking to innovative challenge-taking – the decisive catalyst for the birth of 'Buldak Bokkeum Myun' as a game-changer.

4.3.2. Environment: The K-Contents Ecosystem and Global Spiciness Trend

The environment in which the Buldak Bokkeum Myun strategy unfolded was one combining global interest in K-Food with an SNS consumption culture centered on Generation Z. Challenge content was trending on YouTube and TikTok, and the timing was right for extreme-stimulus content to capture global consumer interest (Hankyoreh, 2021). Samyang Foods actively interpreted external environmental changes as opportunity factors and agilely executed strategies suited to the emotion- and digital-based consumption environment.

It competes directly with domestic competitors Nongshim and Ottogi as well as global firms including Nissin (Japan), Indofood (Indonesia), and Maruchan (USA). The global success of Buldak Bokkeum Myun has thus developed Samyang Foods' capability to rapidly adapt to environmental changes such as localization and product diversification in overseas markets.

4.3.3. Resource: Viral Marketing Capability and Supply Chain Enhancement

Samyang Foods built a marketing system capable of content diffusion within a limited budget. Operating not only its own SNS channels but also viral content generation through collaboration with external creators, this enabled organic diffusion even without advertising expenditure. Additionally, the capability to rapidly develop diverse derivative products and produce localized products reflecting local taste preferences by country played an important role in supporting global export expansion.

Samyang Foods had a traditional ramen manufacturing foundation but deployed the Buldak

Bokkeum Myun strategy from a position of low market share and weakened brand assets (Samyang Foods, 2023). In this context, Samyang Foods created competitive advantage not through total resource volume but through differentiation in strategic utilization methods.

Regarding core resources: first, it operated a content-based marketing organization capable of planning and rapidly executing emotionally stimulating marketing content for YouTube, TikTok, and similar platforms – internally or through external collaboration. This is evaluated as a cultural content-based asset rare in traditional food companies. Second, after the success of Buldak Bokkeum Myun, Samyang Foods rapidly developed derivative products – Carbonara Buldak, Black Bean Buldak, Rose Buldak, and others – securing brand extension assets. The sensory diversity of the product lineup contributed to fixed fandom formation and repeat consumption. Third, Samyang Foods pioneered diverse export channels combining large retailers with online platforms, proactively generating local demand through fandom and viral content. Ultimately, Samyang Foods' resources were strategically positioned based on qualitative attributes of speed, emotionality, fandom, and digital virality rather than economies of scale.

4.3.4. Mechanism: The Time-Series Pathway of Phased Strategic Transition

The execution mechanism of the Buldak Bokkeum Myun strategy was structured sequentially: concept development of extreme spiciness → inducement of domestic YouTube/Facebook mukbang videos → voluntary content generation and challenge boom → global fandom diffusion → connection to localized products.

Samyang Foods set phased concentration and content self-propagation structure as the mechanism core in the Buldak Bokkeum Myun strategy (Samyang Foods, 2023). This execution mechanism is divided into five broad stages:

Stage 1 involved product concept clarification – designing product positioning centered on the intense and simple sensory stimulus of extreme spiciness.

Stage 2 involved content-based distribution structure design – designing a digital communication strategy capable of inducing user-created content (UCC) on YouTube mukbang, TikTok challenges, and similar platforms. This caused Buldak Bokkeum Myun to begin being consumed not merely as food but as experiential content.

Stage 3 involved fandom formation through a community-based strategy that encouraged Generation Z and younger millennial consumers to engage voluntarily with the brand. Repeat consumption, requests for derivative products, and global SNS hashtag challenges supported this.

Stage 4 involved global self-diffusion facilitation structure – with voluntary demand generated as the content spread across nations without separate distribution costs, after which an adaptive distribution structure was built through collaboration with local distributors (Hankyoreh, 2021).

Stage 5 involved localization and product serialization – localizing products considering

per-country spiciness sensitivity, and rapidly developing series products including carbonara, cheese, and rose variants based on consumer feedback. Samyang Foods' mechanism was designed around a structure in which content diffusion preceded and facilitated distribution expansion, and can be evaluated as a case where execution sequence and concentration determined strategic impact.

4.3.5. SER-M Analysis Conclusions

The SER-M analysis of Samyang Foods suggests that the interaction among subject, environment, resource, and mechanism shaped the pathway through which the firm achieved a competitive position shift. A contrastive analysis with Nongshim is presented in Chapter V.

4.4. WSM Execution Strategy: Centered on Weight and Sequence

4.4.1. WSM Strategy Execution Flow

The Buldak Bokkeum Myun strategy unfolded through the following execution flow. In this study, WSM execution is explained through three overarching phases, while each phase is further specified through five detailed execution stages: Phase 1 (Stages 1-2, 2012-2017) refers to concept concentration and content ecosystem activation; Phase 2 (Stage 3, 2016-2018) refers to fandom formation and global organic diffusion; and Phase 3 (Stages 4-5, 2017-2024) refers to localization and derivative brand expansion. From the perspective of weight, Samyang Foods assigned first priority to concept concentration, thereby focusing its limited resources on a single differentiated concept. It distributed second-order weight relatively evenly across SNS marketing, fandom formation, and global expansion, while assigning third-order weight to derivative product expansion. This allocation reflects the core principle of WSM, namely, minimizing resource dispersion while maximizing the effect of sequential execution. The decision to assign first priority to extreme spiciness was grounded in Kim Jeong-su's field observation that a challenger firm such as Samyang Foods could more effectively concentrate resources on an unoccupied blue-ocean concept than compete directly in the already crowded mainstream spicy-ramen segment.

4.4.2. WSM Strategy Execution Analysis of Samyang Foods

Samyang Foods' WSM-based strategy is a case demonstrating that market performance can differ depending on how the relative weight assigned to strategic resources and the execution sequence are structured — more than the absolute scale of resources.

Table 2 organizes these two dimensions together — what weight to assign to each strategic element (Weight) and in what sequence to execute it (Sequence). Samyang Foods' WSM strategy

can be understood as the combination of deciding what to prioritize among extreme spiciness concept, digital content diffusion, fandom formation, global expansion, and derivative product strategy (Weight) – and in what order to execute these elements (Sequence). In terms of Weight, Samyang Foods assigned 1st-priority weight to concept concentration, committing limited resources entirely to a single concept; allocated equal 2nd-priority weight to SNS marketing, fandom formation, and global diffusion; and assigned 3rd-priority weight to the product derivative strategy. This approach minimizes resource dispersion while maximizing the effectiveness of sequential execution – a core principle of WSM.

The rationale behind assigning 1st-priority weight to the extreme spiciness concept traces back to EVP Kim Jeong-su's field observation – observing young people queuing before a spicy steamed chicken restaurant in Myeong-dong, Seoul in 2011. For Samyang Foods, then ranked 2nd or 3rd in the market, the most effective domain for resource concentration was judged to be the blue ocean of extreme spiciness – a position not yet claimed by any competitor, including the leading brand (Shin Ramyun) which had already occupied the mainstream spiciness market.

[Table 2 : Samyang Foods' WSM Weight Rank (W) and Execution Sequence (S) Analysis]

Strategic Element	Weight Rank (W)	Execution Sequence (S)	Samyang Foods' Execution Content
Concept Focus (extreme spiciness)	1st	Stage 1	2012: Single Buldak concept launch and series expansion.
SNS Content Marketing	2nd	Stage 2	2015: YouTube mukbang viral; 2017: TikTok challenge leadership.
Fandom-based Community	2nd	Stage 3	Buldak Challenge, fan art contests, limited-edition goods.
Global Expansion	2nd	Stage 4	2016: 50+ country exports; localized spiciness; multilingual packaging.
Product Derivative Strategy	3rd	Stage 5	Carbonara Buldak (2017), Black Bean Buldak (2018); 10+ variants.

Data source: Authors' analysis based on annual reports and media coverage (2012–2024).

The most notable aspect of Table 2 is the clarity of Samyang Foods' weight allocation and execution sequence consistency. Samyang clearly determined what to weight most heavily at each stage – from concept pre-emption (Stage 1, 1st-priority weight) through SNS/fandom/global diffusion (Stages 2–4, equal 2nd-priority weight) to derivative expansion (Stage 5, 3rd-priority weight) – and executed in sequence accordingly. This combination of weight concentration and sequential execution is interpreted as a core characteristic of late-entrant strategy effectively utilizing limited resources (Hamel & Prahalad, 1993). Comparative WSM analysis between the two firms is synthesized in Chapter V §5.5.

4.5. Integrated Process Model: The Causal Pathway of Resource–Strategy–Outcome

This section interprets the strategic causal pathway of Samyang Foods' competitive position

shift through the integrated lens of RBV, SER-M, and WSM. These three frameworks were not applied as separate theories in a linear order; rather, they operated simultaneously across the entire strategy process as complementary analytical dimensions. At the level of resource conditions, RBV highlights the strategic significance of VRIO-satisfying resources. At the level of strategic interpretation and interaction, SER-M explains how subject, environment, resource, and mechanism interacted throughout the process. At the level of execution design, WSM explains how strategic weight and sequence were configured and adjusted over time. The competitive position shift of Samyang Foods is therefore interpreted as the result of the integrated operation of these three dimensions.

Samyang Foods' rise in global ramen market share and performance trajectory is addressed comprehensively in Chapter V §5.6 from a comparative perspective; this section analyzes Samyang Foods' phased outcomes from a process-tracing standpoint.

This section structurally interprets the strategic causal pathway that enabled the success of Samyang Foods' Buldak Bokkeum Myun strategy. This is not quantitative variable relationship analysis but qualitative analysis through process-tracing, examining how each strategic component connected to culminate in the final outcome.

4.5.1. Core Strategic Components and Flow Analysis of the Strategic Causal Pathway

The three strategic components - digital content-based marketing capability, Generation Z emotional connection, and cross-functional organizational execution agility - did not operate independently. Rather, they interacted in mutually reinforcing ways across the three overarching phases and the five detailed execution stages, thereby generating cumulative outcomes. In other words, digital content-based marketing capability, emotional connection with younger consumers and fandom formation, and cross-functional organizational execution agility should not be understood as separate elements that emerged one after another. Instead, they jointly constituted the process mechanism of competitive position shift by reinforcing one another throughout the strategic pathway. Early concept concentration and content diffusion laid the foundation for fandom formation and global organic spread, and these accumulated effects subsequently strengthened the conditions for localization and derivative brand expansion.

This strategic causal pathway can be interpreted as qualitatively supporting Analytical Proposition 2 of the RBV - SER-M - WSM integrated framework. This pathway also demonstrates the time lag effect of strategy execution, suggesting that global diffusion efforts concentrated between 2016-2018 passed through an incubation period of 3-4 years before materializing as visible market outcomes from 2022 onwards.

4.5.2. Structural Interpretation of Outcome Generation

Samyang Foods' rise in global market share (from 0.7% in 2017 to 1.5% in 2024) is not merely

an improvement in market indicators but the result of the three strategic components and WSM execution sequence operating integrally. From the perspective of Barney's (1991) RBV concept of Sustained Competitive Advantage, the success of Buldak Bokkeum Myun is interpreted as originating from the complex interaction of unique strategic components that competitors cannot easily replicate.

Samyang Foods' achievement of a 19.9% operating profit margin in 2024 – markedly higher than industry peers – can be interpreted as a case of strategic concentration operating significantly in terms of efficiency (Samyang Foods Annual Report, 2024; Nongshim Annual Report, 2024).

This structural interpretation demonstrates that process causal relationships based on strategy execution pathways can be interpreted even without quantitative analysis, suggesting that case interpretation integrating RBV, SER-M, and WSM strategic models through qualitative process-tracing can carry academically meaningful explanatory power.

Through the analysis of this chapter, Samyang Foods' competitive position shift may be interpreted as the result of the integrated operation of VRIO-satisfying resource characteristics, the interactions among subject, environment, resource, and mechanism in SER-M, and the design of weight and sequence in WSM. In this sense, the three frameworks were not applied in separate sequential stages, but functioned together as an integrated process model explaining resource conditions, strategic interpretation, and execution design simultaneously.

V. Case Analysis II: Nongshim Contrastive Case Comparative Analysis

This chapter utilizes Nongshim as a contrastive case to comparatively analyze differences in strategic pathways with Samyang Foods across dimensions, and interpretively derives the enabling conditions and boundary conditions of the integrated framework. Contrastive case comparison allows us to confirm the conditions under which the strategic pathways of Samyang Foods and Nongshim unfold differently.

5.1. Comparative Key Financial Indicators: Samyang Foods and Nongshim

Table 3 shows changes in Nongshim's financial indicators. While Nongshim still exceeds Samyang Foods in absolute revenue scale, it shows a stagnant picture in terms of growth rate and overseas revenue share.

[Table 3 : Nongshim's Key Financial Indicators and Market Share (2012-2024)]

Year	Revenue (100M KRW)	Operating Profit (100M KRW)	Export Ratio (%)	Market Share (%)	Key Features
2012	21,757	969	4.2	65.4	Dominant domestic leader; Shin Ramyun-centered.
2016	22,170	897	6.2	55.2	Overseas expansion initiatives.
2018	22,364	886	5.8	54.0	Growth stagnation; rising input costs.

2021	26,630	1,061	7.2	56.5	Intensifying competition.
2022	31,291	1,122	7.4	56.3	Modest overseas sales growth.
2023	34,106	2,121	8.0	56.0	Marginal profitability improvement.
2024	34,387	1,631	10.0	56.3	-

Data Source: Nongshim annual business reports for each year.

Comparing Tables 1 and 3, the contrast between Nongshim's stable but stagnant growth and Samyang Foods' rapid growth is apparent – an important indicator showing the impact on actual performance of the different strategic approaches of the established leader and the challenger.

Table 4 directly compares key financial indicators for Samyang Foods and Nongshim in 2024, clearly showing the current competitive dynamics. Samyang Foods shows overwhelming advantage in growth momentum and profitability. In particular, Samyang Foods' year-on-year revenue growth of 45% and operating profit margin of 19.9% stand in stark contrast with Nongshim's 0.8% growth and 4.7% margin.

[Table 4 : Comparison of Key Financial Indicators - Samyang Foods vs. Nongshim (2024)]

Category	Samyang Foods	Nongshim
2024 Annual Revenue	1.73 trillion won (45% increase YoY)	3.44 trillion won (0.8% increase YoY)
2024 Operating Profit	344.6 billion won (133% increase YoY)	163.1 billion won (23.1% decrease YoY)
Operating Profit Margin	19.9%	4.7%
Overseas Revenue Portion	77%	10%

Data source: Samyang Foods and Nongshim annual reports (2024).

5.2. Resource Condition Comparison: Scale-Based Resources vs. Qualitatively Specialized Resources

While Samyang Foods and Nongshim compete in the same Korean ramen industry, the nature of their resource bases differs clearly. As the largest domestic ramen company, Nongshim possesses scale-based resources: production facilities (6 domestic, numerous overseas), a large-scale distribution network, and brand trust assets (Shin Ramyun, Chapagetti, etc.). From the perspective of Barney's (1991) RBV, this represents strengths on the Value and Organization dimensions.

Nongshim's scale-based resources also functioned as a factor constraining strategic flexibility in rapidly changing environments. Shin Ramyun, for instance, while possessing high brand loyalty, faced the constraint of difficulty in abruptly transforming that image or utilizing it for emotion-driven challenge content. Nongshim, with Shin Ramyun already positioned as a 'serious national ramen,' was structurally disadvantaged in quickly replicating Buldak Bokkeum Myun-style aggressive spiciness marketing (NICE Credit Information, 2024).

Samyang Foods, by contrast, as shown in Table 5, began from a position of relatively limited resources but built qualitatively specialized resources: content-based marketing capability, derivative product development capability, and fandom-based distribution assets. These resources are interpreted as delivering relatively higher strategic value in the current digital consumption environment — on the Rarity and Inimitability dimensions — than Nongshim's scale-based resources. From Welsh and White's (1981) concept of resource poverty, Samyang Foods can be seen as a case of achieving competitive position shift through bricolage recombination of limited resources (Baker & Nelson, 2005).

[Table 5 : Strategic Resources Comparison - Samyang Foods vs. Nongshim]

Category	Samyang Foods	Nongshim
Product Development Capability	Rapid derivative expansion; agile consumer trend responsiveness.	Stability-oriented; conservative development cycles.
Marketing Resources	Digital & fandom-driven content creation capability.	Traditional quality-focused TV advertising; brand trust maintenance.
Distribution Channel Assets	Fandom-driven; online/ SNS-centered.	Large-scale distribution network; offline retail-based.
Organizational Flexibility	Cross-functional team utilization; execution speed advantage.	Function-based vertical hierarchy; resource control strength.
Strategic Resource Characteristics	Agility, emotionality, virality — quality-based resources.	Stability, quality, scale — quantity-based resources.

Data source: Authors' analysis based on product launch histories and marketing strategies (2012-2024).

Note: Table 5 reconstitutes the analysis in Chapter IV §4.3.3 from a contrastive perspective.

5.3. Subject and Decision-Making Structure Comparison: Centralized vs. Decentralized

The subject characteristics of Samyang Foods were analyzed in detail in Chapter IV §4.3.1. The subject characteristics of Nongshim are examined here from a comparative perspective.

Samyang Foods' subject characteristics stand out in the centralized decision-making structure centered on EVP Kim Jeong-su. The entrepreneurial leadership of directly visiting consumer sites and participating in product development processes aligns with Hambrick and Mason's (1984) Upper Echelons Theory, forming a structure in which strategic will is rapidly transmitted throughout the organization. Concurrently serving as Head of Overseas Sales and practicing 100-120 days of overseas field management annually is a concrete expression of this centralized subjectivity.

Nongshim, by contrast, has adopted a decentralized decision-making structure. It grants considerable autonomy to overseas subsidiaries in the US, China, and elsewhere, and has maintained a conservative subjectivity centered on stability and authenticity. While this is a rational risk-dispersal strategy for a large-scale global firm, structural constraints on rapid response to sudden changes in the digital consumption environment are observed. Specifically, Nongshim's decentralized decision-making structure has structural constraints making it difficult for HQ to rapidly execute experimental content strategies such as TikTok

challenge campaigns company-wide (Nongshim, 2023). This is interpreted as the typical manifestation of path dependency – in which incumbents overly relying on their existing success formula (brand heritage) experience delayed responsiveness to new environmental changes (Arthur, 1989). This Subject-dimension difference implies not merely a management style issue, but that SER-M's S (Subject) element can function as an important constraint on the entire strategic pathway.

[Table 6 : SER-M Comparison Analysis of Subjects (S) – Samyang Foods vs. Nongshim]

Category	Samyang Foods	Nongshim
Production Strategy	Domestic production-centered; HQ control emphasis (Made in Korea).	Globally distributed production; local factories and subsidiaries.
Decision Making	HQ-led; rapid execution; centralized decision-making.	Local subsidiary autonomy; decentralized organizational structure.
Supply Chain	Domestic production → global export; localized distribution.	Integrated production-logistics-sales; large-scale global SCM.
Innovation Approach	Brand concentration; rapid product development and localization.	Locally tailored product development; long-term investment-oriented.
Risk Management	Quality & brand control (domestic production - centered).	Supply chain & market risk diversification.

Data source: Authors' analysis based on Samyang Foods and Nongshim business reports and sustainability reports (2012-2024).

Note: Table 6 synthesizes the analysis in Chapter IV §4.3.1 from a contrastive perspective.

5.4. Environmental Interpretation Comparison: Opportunity-Oriented vs. Risk Management

Samyang Foods' environmental analysis was conducted in Chapter IV §4.3.2. Nongshim's environmental interpretation is characterized by a high degree of domestic market dependence (domestic share approximately 56%; export ratio approximately 10%) (Nongshim, 2023), with digital consumption changes addressed primarily through risk-management and existing-advantage-maintenance lenses. This mode of environmental interpretation contrasts with Samyang Foods' opportunity-oriented approach.

Both companies showed markedly different interpretive modes toward the same external environmental changes. Samyang Foods actively captured the K-Food wave, SNS-centered consumption culture, and Generation Z's challenge-oriented consumption tendencies as opportunities, utilizing them as the core driver of the Buldak Bokkeum Myun strategy. From Duncan's (1972) environmental uncertainty theory, Samyang Foods demonstrated environmental sensing capability – the ability to convert uncertainty into opportunity.

Nongshim primarily responded to the same environmental changes from the perspective of risk management and existing competitive advantage maintenance. Sustaining domestic market share, expanding global production networks, and preserving brand authenticity constituted the basic framework of strategic decisions. This resulted in relatively slower proactive utilization of new environmental opportunities such as SNS-based viral marketing, fandom formation, and content-based distribution. The environmental interpretation

differences between the two firms resulted in substantive strategic pathway differences in strategic execution direction, speed, and cultural impact of brand expansion.

[Table 7 : SER-M Comparison Analysis of Environment (E) - Samyang Foods vs. Nongshim]

Dimension	Samyang Foods	Nongshim
Environmental Perception	Consumer emotional shifts; digital content diffusion; global fandom growth.	Industry saturation; product quality; distribution infrastructure reinforcement.
Market Change Receptiveness	Agile and experimental; emotion-driven trend adoption.	Gradual adaptation; orthodoxy preservation-centered.
Digital Response	TikTok/YouTube-driven; fandom-centered content diffusion.	SNS utilization present but primarily official information-oriented.
Global Strategy	Spicy culture contentization; country-specific localization.	Shin Ramyun-centered universal strategy maintenance.
Environmental Interpretation	Environment perceived as brand innovation opportunity.	Environment managed through risk-control lens.

Data source: Authors' analysis based on each company's marketing strategies and investor relations materials (2012-2024).

Note: Table 7 synthesizes the analysis in Chapter IV §4.3.2 from a contrastive perspective.

5.5. Mechanism and Execution Sequence Comparison: Content Diffusion vs. Distribution Expansion

The core difference in execution mechanisms lies in the sequence of approaches of global diffusion. Samyang Foods chose the innovative sequence of content-driven diffusion → distribution expansion, first generating global demand through digital content and then expanding distribution networks on that basis. This is the reverse of the traditional overseas entry model (build distribution then market) and aligns with Oviatt and McDougall's (1994) Born Global concept.

Nongshim adhered to the traditional approach of securing distribution infrastructure first → then sustaining brand presence. While this approach ensures stability, it tends to reduce flexibility in responding to rapid changes in the digital consumption era. From the perspective of Eisenhardt and Tabrizi's (1995) product development acceleration theory, Samyang Foods' cross-functional organization shows relatively superior market responsiveness compared with Nongshim's functional division-of-labor organization.

[Table 8 : WSM Comparison Analysis of Mechanisms (M) - Samyang Foods vs. Nongshim]

Category	Samyang Foods	Nongshim
Execution Structure	Content-driven network diffusion structure.	Distribution-centered orthodoxy maintenance structure.
Consumer Touchpoint	Voluntary challenge participation; fandom community formation.	Brand awareness maintenance; one-way communication.
Global Diffusion	Content-driven spread → distribution expansion.	Distribution infrastructure → brand maintenance.

Category	Samyang Foods	Nongshim
Product Development	Rapid serialization; cross-functional responsiveness.	Functional division of labor; incremental development.
Core Execution Principle	Agility, viral diffusion, participation facilitation.	Stability, orthodoxy, supply security - centered.

Data source: Authors' analysis based on strategy execution processes and performance data (2012-2024).

Note: Table 8 synthesizes the analysis in Chapter IV §4.3.4 from a contrastive perspective.

The most notable aspect of Table 8 is the fundamental difference in execution structure type. Samyang Foods built a content-centered network diffusion structure suited to the digital era, inducing consumers to voluntarily participate in brand diffusion. This aligns with Jenkins' (2006) prosumer concept from participatory culture theory, making consumers serve not merely as buyers but as content creators and brand propagators. Nongshim, by contrast, adhered to a distribution-network-centered orthodoxy maintenance structure, showing a conservative approach dependent on existing success formulas.

5.6. Timing Comparison: Differences in Strategic Transition Timing

One of the most pronounced differences in both companies' strategic pathways is the timing of introduction of core strategic elements. While Samyang Foods launched Buldak Bokkeum Myun in 2012, led YouTube virality in 2015, and initiated TikTok challenges in 2017, Nongshim only began operating its official YouTube channel in earnest in 2021. This approximately 6-8 year gap is interpreted as an important explanatory factor in the formation of first-mover recognition through digital marketing and fandom-based strategy.

[Table 9 : Global Market Share Comparison - Samyang Buldak Single Brand vs. Nongshim]

Year	Global Ramen Market (USD in billion)	Samyang Buldak Revenue (100M KRW)	Samyang Buldak Revenue Share (%)	Nongshim Total Revenue (100M KRW)	Nongshim Total Revenue Share (%)
2017	34.3	2,560	0.7	22,083	5.7
2018	36.2	2,825	0.7	22,364	5.6
2019	37.4	3,400	0.8	23,439	5.4
2020	41.9	4,100	0.8	26,398	5.3
2021	44.8	4,400	0.9	26,630	5.2
2022	47.7	6,100	1.0	31,291	5.1
2023	49.8	8,400	1.3	34,106	5.2
2024	52.8	10,050	1.5	34,387	4.8

Data source: Korea Agro-Fisheries & Food Trade Corporation (aT, 2025), Euromonitor (2024), Money S (2024).

Notes: (1) 2024 global ramen market: USD 52.8B, calculated using 6.12% CAGR from Fortune Business Insights (2023). (2) Exchange rate: 1,200 KRW = 1 USD (approximate). (3) Buldak Bokkeum Myun 2024 sales: 1.005 trillion KRW (Money S, 2024). (4) This table

synthesizes the performance analysis in Chapter IV §4.5 from a contrastive perspective. (5) Samyang Foods figures represent Buldak Bokkeum Myun single-brand sales only, not Samyang Foods' total revenue. Nongshim figures represent total company revenue. Readers should note this difference in measurement basis when interpreting the comparison.

Table 9 tracks changes in global market share from 2017 to 2024 – comparing Samyang Foods' Buldak Bokkeum Myun single brand (not Samyang Foods' total revenue) against Nongshim (total revenue basis). A sustained upward trajectory for the Buldak Bokkeum Myun brand is observable. The 2.14x increase in global market share of the single Buldak Bokkeum Myun brand – from 0.7% in 2017 to 1.5% in 2024 over seven years – suggests not a one-time success but a sustained competitive advantage creation mechanism. This can be interpreted as satisfying Barney's (1991) RBV definition of Sustained Competitive Advantage, as the result of unique resource combinations that competitors cannot easily replicate. The dramatic growth from 2022 onward as an inflection point (1.0% → 1.3% → 1.5%) coincides with the point at which WSM stages 4-5 (global diffusion → product diversification) strategy began generating substantial effects – suggesting, given the time lag effect, that global diffusion efforts concentrated between 2016-2018 materialized as substantial market outcomes after an incubation period of 3-4 years.

Nongshim's indicators, conversely, can be said to show the inertia-driven underperformance of a firm previously holding market dominance. Nongshim's global market share fell from 5.7% in 2017 to 4.8% in 2024 – a drop of 0.9 pp that, while small in absolute terms, represents a 15.8% contraction in relative market position. While Nongshim's absolute revenue increased (KRW 2.2 trillion in 2017 → KRW 3.4 trillion in 2024), its relative position in the global market continued to weaken.

5.7. Interpretation of Enabling Conditions and Boundary Conditions

The contrastive comparison suggests several enabling conditions under which the integrated framework becomes more analytically useful. First, the explanatory power of the mechanism becomes clearer when the management subject demonstrates strong strategic will and execution leadership. Second, it is strengthened when environmental change is interpreted not as a risk but as an opportunity. Third, concentrated allocation of resources to a core brand or concept appears to be critical. Fourth, the presence of a cross-functional execution structure enhances the mechanism's effectiveness.

By contrast, the analysis also reveals several boundary conditions: an incumbent's resource advantage may operate as path dependency in rapidly changing environments; resource abundance without strategic concentration or execution speed may result in the partial cession of competitive position; and the mechanism appears to be especially pronounced in industries where digital consumption culture and content-based diffusion are highly activated.

VI. Findings and Implications

6.1. Synthesis of Analytical Findings by Research Question

Table 10 summarizes the analytical findings of this study by research question. RQ1 identifies how core resource combinations and strategic weight and execution sequence were formed and combined in the Samyang Foods focal case. RQ2 examines how the integrated RBV-SER-M-WSM framework explains the process mechanism of competitive position shift and what kind of theoretical refinement is generated through the linkage of the three theories. RQ3 interpretively derives the enabling conditions and boundary conditions of the mechanism through contrastive comparison with Nongshim. Table 10 therefore provides a concise overview of how each research question was addressed through specific analytical procedures and logical connections.

[Table 10 : Summary of Analytical Findings by Research Questions]

RQ	Key Analytical Findings	Theoretical Implications
RQ1	The competitive position shift of Samyang Foods was explained by integrating the evaluation of VRIO-satisfying resource characteristics, the SER-M analysis of subject, environment, resource, and mechanism, and the WSM-based interpretation of execution weight and sequence.	The findings suggest that a late entrant's competitive position shift is shaped less by the absolute scale of resources than by the qualitative combination of strategically meaningful resources and the structured design of execution weight and sequence.
RQ2	RBV, SER-M, and WSM functioned as an integrated analytical framework in which resource condition evaluation, strategic interpretation and interaction, and execution weight and sequence operated as mutually complementary dimensions in explaining the competitive position shift of a late entrant.	This integrated framework helps explain process causality that is difficult to capture through any single theory alone, thereby enabling theoretical refinement at the level of the process mechanism rather than the parallel application of separate theories.
RQ3	The contrastive comparison with Nongshim suggests that the mechanism becomes more clearly observable when strong managerial leadership, opportunity-oriented environmental interpretation, concentrated resource allocation, and a cross-functional execution structure are combined.	The contrastive case refines the enabling and boundary conditions of the integrated framework by showing how incumbent path dependency and slower execution may constrain strategic adjustment even under superior resource conditions.

Data source: Synthesis of process-tracing analytical findings of this study (based on Chapters IV, V, and VI).

6.1.1. Findings for RQ1

Consistent with Analytical Proposition 1, Samyang Foods' competitive position shift exhibited a pattern made possible by the joint operation of the strategic combination of VRIO-satisfying resources and weight and sequence based execution according to WSM – rather than the absolute volume of any particular resource. Three core strategic components – (1) the rarity and inimitability of the extreme-spiciness concept, (2) digital

content-based marketing capability, and (3) cross-functional organizational agility – combined with WSM's phased execution sequence to form a strategic causal pathway through which limited resources generated amplified competitive effects.

6.1.2. Findings for RQ2

The findings for RQ2 suggest that RBV, SER-M, and WSM are most analytically useful when they are understood not as theories applied in separate stages, but as an integrated framework that explains, in a complementary manner, resource conditions, strategic interpretation, and execution weight and sequence. RBV clarifies the strategic significance of the firm's resource conditions, SER-M interprets the interactions among subject, environment, resource, and mechanism, and WSM explains how strategic actions were weighted and sequenced. These dimensions do not operate as independent parallel layers; rather, they are combined within a single integrated process model. In this sense, the study demonstrates that the process mechanism of competitive position shift can be explained more rigorously through theoretical integration than through the isolated use of any one framework.

6.1.3. Findings for RQ3

The explanatory power of the integrated framework is most salient when strong managerial leadership, opportunity-oriented environmental interpretation, intensive resource allocation to core brands and concepts, and a cross-functional execution structure are combined.

6.2. Theoretical Implications

This study shows that when RBV, SER-M, and WSM are combined as complementary analytical dimensions addressing resource conditions, strategic interaction, and execution weight and sequence, they provide a more rigorous explanation of the process causality underlying a late entrant's competitive position shift.

First, this study contributes to theoretical refinement by linking RBV, SER-M, and WSM into an integrated explanatory framework for the process mechanism of competitive position shift. Rather than operating as separate theories, the three frameworks complement one another by jointly explaining resource conditions, strategic interaction, and execution design.

Second, this study offers a contextual extension into the K-Food and K-Contents setting. It suggests that the K-Contents ecosystem may function as a strategic environmental variable that reshapes competitive dynamics in ways not fully captured in conventional strategic management research.

Finally, this study provides a practical analytical framework illustrating how resource-constrained firms can design strategic weight and execution sequence under

limited resource conditions.

6.3. Practical Implications

WSM emphasizes that resource-constrained firms must design both the weight and the sequence of key strategic elements, thereby providing a concrete execution framework for SMEs seeking to enter global markets. More specifically, Phase 1 of selective concentration, Phase 2 of fandom-based organic diffusion, and Phase 3 of localization and derivative brand expansion together suggest a practical roadmap through which firms with limited resources may still generate substantial market impact. This case further implies that, in digital marketing, content quality, the ability to induce participation, and the internal cross-functional collaboration structure may matter more than sheer budget size in shaping market responsiveness.

VII. Conclusions

7.1. Research Summary

This study is a focal-case-centered qualitative, theory-refining case study that analyzes how Samyang Foods achieved a competitive position shift in domestic and global markets through Buldak Bokkeum Myun. Applying the RBV - SER-M - WSM integrated analytical framework, three research questions were explored, and the mechanism's enabling and boundary conditions were interpretively derived utilizing Nongshim as a contrastive case. The core findings are as follows. First, Samyang Foods' competitive position shift was enabled by the strategic combination of VRIO-satisfying resources and WSM-guided weight and sequence execution. Second, the RBV - SER-M - WSM integrated framework functions as a useful interpretive tool for understanding process mechanisms that single theories cannot capture. Third, the Nongshim contrastive case yielded a boundary condition – that even resource-rich incumbents can partially cede competitive position in specific domains due to path-dependency and insufficient execution agility.

7.2. Research Limitations

This study acknowledges the following limitations. First, the study is subject to focal-case success bias: as a qualitative case study centered on Samyang Foods, generalization to failure cases or other late-entrant firms is constrained. Second, there is a risk of retrospective interpretation: re-interpreting events on the basis of a known successful outcome may invite post-hoc rationalization, which was mitigated by reviewing Nongshim contrastive case materials and counter-evidence alongside primary sources. Third, the

findings remain context-specific to the K-Food consumer-goods industry, and applicability to other industries or cultural contexts requires further validation. Fourth, the study does not provide quantitative testing of inter-variable relationships; the focus on interpretive elucidation of the process mechanism necessarily constrains the scope of analytic generalization.

7.3. Future Research Directions

Building on this study, future extensions include multi-case comparative research analyzing diverse food brand or SME cases using Samyang Foods as a starting point. Consumer survey-based data collection can empirically measure emotional connection, fandom formation, and product responsiveness.

To address the limitations of this qualitative study, future research should incorporate survey-based designs, experimental methods, and longitudinal analysis. Quantitative approaches such as structural equation modeling may help examine relationships among key constructs more rigorously, while social-media big-data analysis – including sentiment analysis, hashtag tracking, and network mapping – may offer more systematic insights into content diffusion dynamics.

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An Empirical Case Study on Securing Strategic Advantage for SMEs in the Public Procurement Market

An Integrated SER-M $\times$ MBV $\times$ WSM Approach

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Content

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Abstract

This empirical case study examines how AHA Co., Ltd., a small and medium-sized enterprise (SME), secured market share and strategic advantage in the Korean public procurement IFPD market. Adopting a mixed-method design that integrates an in-depth single-case analysis with an exploratory regression on a ten-year panel (2015–2024), the study triangulates qualitative and quantitative evidence within an integrated SER-M $\times$ MBV $\times$ WSM framework. The findings indicate that AHA's leadership is jointly associated with technological resource accumulation (patents), institutional leverage (SME-only product designation), and cooperative-network capabilities. Rather than proposing an entirely new theoretical construct, the study extends the institutional entrepreneurship literature to the SME and cooperative context by specifying a contextual variant—the Institutional-Cooperative Entrepreneurship Mechanism (ICEM)—understood as a context-bound extension and concretization of existing theory rather than a wholly novel construct. Given the single-firm, small-sample design ($N = 10$), the regression results are positioned as exploratory and indicative; causal claims are accordingly tempered.

Keywords: cooperative execution strategy; IFPD market; institutional entrepreneurship; MBV; public procurement; SER-M; SME strategy; strategic asymmetry; WSM; mixed-method research

Received Apr. 29, 2026 Accepted May. 9, 2026

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I. Introduction

This paper examines the process by which AHA Co., Ltd., a small and medium-sized enterprise (SME), secured market share and achieved strategic advantage in the public procurement market despite disadvantages in capital and brand recognition relative to large corporations. Consistent with the empirical orientation of this case study, the paper treats AHA as a revelatory case of the strategic use of government institutions and the cooperative organizational form, and investigates how technology-based SMEs can establish and execute competitive strategies in policy-centered market environments.

The public procurement market represents a unique competitive arena where government policies and institutional frameworks significantly shape market dynamics (Loader, 2015). In Korea, the market size exceeds 150 trillion KRW annually, with SME participation actively promoted through various preferential systems (KPPS, 2024). However, despite these institutional supports, many SMEs struggle to compete effectively against large corporations with superior resources and brand recognition. This paradox—institutional support existing alongside persistent competitive challenges—motivates the central inquiry of this research.

The significance of this paper lies in its integrated analytical approach. While previous research has predominantly examined SME strategies through single theoretical lenses such as the Resource-Based View (RBV) or Porter's competitive strategy framework, this paper integrates three complementary frameworks: SER-M (Subject-Environment-Resources-Mechanism), MBV (Market-Based View), and WSM (Weight-Sequence Model). This integration enables a more comprehensive understanding of how SMEs can leverage institutional mechanisms, build cooperative networks, and execute strategies in optimal sequences to overcome structural disadvantages.

Three research objectives follow from this motivation. The first is to identify the mechanisms through which resource-constrained SMEs secure strategic advantage in the public procurement market. The second is to examine how the integrated SER-M $\times$ MBV $\times$ WSM approach shapes actual execution processes. The third is to explore the conditions under which SMEs, acting as institutional entrepreneurs, can meaningfully influence policy formation and market rule-making. Together, these objectives speak to both theoretical gaps in the SME strategy literature and practical challenges faced by SME managers operating in institution-intensive markets.

This paper adopts a mixed-method approach combining qualitative case study analysis with exploratory quantitative illustration—an empirical case study design in which the quantitative component is used to triangulate, not replace, the qualitative case evidence. The qualitative component follows Yin's (2018) single case study methodology, enabling in-depth exploration of strategic mechanisms. The quantitative analysis is used as

exploratory support to complement the qualitative findings, rather than as a confirmatory test of hypothesized relationships. Data were collected from multiple sources, including government notices, media reports, internal company reports, in-depth interviews (n = 8), Korea Public Procurement Service (KPPS) delivery data (10 years), and patent databases (300+ patents). Reliability of analysis was secured through pattern matching, data triangulation (Eisenhardt, 1989), and inter-coder reliability testing (Cohen's κ = 0.84). Because the dependent variable (Market Share, from KPPS) and the three independent variables (Patent Count from KIPRIS; Designation Status from the Ministry of SMEs and Startups; Cooperative Size from cooperative member records) are drawn from independent government-verified objective sources, common method bias (CMB) is unlikely to be a material concern (Podsakoff, MacKenzie, Lee, and Podsakoff, 2003). All interview research was conducted under ethical approval, and informed consent was obtained from all participants (see Appendix A).

The remainder of this paper is organized as follows: Section 2 reviews the theoretical background, including SER-M, MBV, and WSM frameworks, and develops research hypotheses. Section 3 explains the research design, methodology, hypothesis formulation, and variable definitions. Section 4 presents a case analysis of AHA's strategy execution. Section 5 reports empirical analysis results, including descriptive statistics, correlation analysis, and regression findings. Section 6 discusses theoretical and practical implications, limitations, and concludes with future research directions.

II. Theoretical Framework

1. Resource-Based View and SME Strategy Theory

Strategic approaches for SMEs are discussed around efficient choice and concentration under resource constraints, niche market exploitation, and cooperative network formation. Barney's (1991) Resource-Based View (RBV) emphasizes that firms can secure sustainable competitive advantage through resources that possess four key characteristics: Valuable, Rare, Inimitable, and Non-substitutable (VRIN). For SMEs, intangible assets such as patents, brands, and relational resources often constitute the primary sources of competitive advantage, as these resources are more accessible than the scale-based advantages enjoyed by large corporations.

The RBV framework has been extensively applied to SME contexts, demonstrating that smaller firms can compete effectively by developing unique bundles of resources and capabilities (Wernerfelt, 1984). However, traditional RBV focuses primarily on what resources a firm possesses, paying less attention to how these resources are deployed and integrated over time. This limitation is particularly significant for SMEs operating in asymmetric competition with large corporations, where strategic execution and institutional navigation become critical success factors.

Recent developments in strategic management theory have sought to address these

limitations by emphasizing dynamic capabilities—the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments (Teece, Pisano, and Shuen, 1997). More recent extensions of the dynamic capabilities framework emphasize complementarity with open innovation and ecosystem-level resource integration (Teece, 2020). For SMEs in public procurement markets, dynamic capabilities manifest in the ability to interpret institutional signals, form strategic alliances, and adapt resource configurations in response to policy changes.

2. Public Procurement Market Structure and Institutional Context

The public procurement market is an institution-centered market where national or local governments participate as major purchasing entities, with institutional structures that favor specific enterprise groups according to policy objectives. In Korea, systems such as the 'SME-only competitive product designation system' and 'technology innovation-type SME preferential system' provide structural advantages to qualifying SMEs (Ministry of SMEs and Startups, 2024). These institutional mechanisms fundamentally alter competitive dynamics compared to traditional market competition.

These institutional mechanisms create what Scott (1995) terms 'regulative pillars' that shape competitive dynamics through formal rules, monitoring activities, and sanctioning powers. Unlike traditional markets, where competition is primarily resource-based, public procurement markets feature rule-based competition where understanding and leveraging institutional frameworks becomes a strategic capability in itself. This creates opportunities for SMEs to compete on dimensions other than pure scale or cost efficiency. Recent work on public procurement and innovation further argues that procurement systems function not merely as purchasing channels but as industrial-policy levers, with design choices directly shaping firm behaviour and market structure (Uyarra, Zabala-Iturriagoitia, Flanagan, and Magro, 2020).

The institutional environment of public procurement also includes normative and cultural-cognitive dimensions. Normative elements include professional standards and expectations about appropriate behavior in government contracting. Cultural-cognitive elements include shared understandings about technology categories, quality standards, and evaluation criteria. SMEs that develop expertise in navigating these multiple institutional dimensions can convert institutional knowledge into strategic advantage.

3. SER-M Framework: The Fourth Strategic Paradigm

The SER-M model represents a significant advancement in strategic management theory, developed by Dong-Sung Cho to address the limitations of previous strategic paradigms. Cho and Lee (1997) first academically presented the SER-M model in their paper "A New Paradigm in Strategy Theory: 'ser-M'" published in the Monash Mt Eliza Business Review, arguing that a firm's competitive advantage is determined by the dynamic interaction of Subject (S), Environment (E), Resources (R), and the Mechanism (M) that integrates them.

According to the SER-M framework, Subject (S) refers to the strategic actors, including top management, organizational culture, and collective identity that drive strategic decision-making. Environment (E) encompasses the external context, including industry structure, competitive dynamics, and institutional factors that both constrain and enable strategic action. Resources (R) include both tangible assets (physical, financial) and intangible assets (technological, relational, reputational) that form the basis for competitive positioning.

The critical innovation of SER-M lies in its emphasis on Mechanism (M)—the integrative logic through which subjects interpret environments, deploy resources, and create value. Cho (2006) formally presented the Mechanism-Based View in his book "M-Management: The Fourth Strategic Paradigm." According to him, 20th-century management evolved through subject-centered management (early 1900s), environment-centered management (1960s), and resource-centered management (1980s), while mechanism-centered management that integrates these three elements determines sustainable competitive advantage in the 21st century.

The mechanism component distinguishes SER-M from both Porter's outside-in (MBV) and Barney's inside-out (RBV) approaches by focusing on the 'logic of thinking' and 'principles of action' through which subject, environment, and resources combine to create value. For SMEs facing asymmetric competition, mechanism design becomes particularly critical because it determines how limited resources can be strategically leveraged to overcome structural disadvantages. SER-M is therefore particularly useful for analyzing SME strategies in asymmetric competition with large corporations, as it systematically captures both resource limitations and the creative mechanisms through which these limitations can be transcended.

4. Market-Based View (MBV)

Market-Based View (MBV) is based on Porter's (1980) Five Forces model and designs a competitive strategy centered on industry structure analysis. The five forces—threat of new entrants, bargaining power of suppliers, bargaining power of buyers, threat of substitutes, and competitive rivalry—determine industry attractiveness and strategic positioning opportunities. Porter's framework provides systematic tools for analyzing how industry structure shapes profitability potential and identifies strategic positions that offer sustainable competitive advantage.

In institution-based markets such as public procurement, institutions function as entry barriers or competitive buffers that modify traditional Five Forces dynamics. MBV provides a useful lens for interpreting the institutional environment as a structural variable that shapes competitive dynamics. The 'SME-only competitive product designation' effectively reduces competitive intensity by limiting market participation to qualified SMEs, fundamentally altering the threat of rivalry and new entrants for firms within the protected category.

The application of MBV to public procurement markets requires recognition that government acts simultaneously as industry regulator and primary buyer. This dual role creates unique competitive dynamics where policy changes directly affect market structure. SMEs that develop capabilities for anticipating and influencing policy directions can shape industry structure in favorable ways—a form of institutional entrepreneurship that extends beyond traditional competitive strategy.

5. Weight-Sequence Model (WSM)

The Weight-Sequence Model (WSM) is a strategic analysis framework jointly developed by Cho and Moon, systematically established in their book "Strategic Management in the Age of Artificial Intelligence" (Cho and Moon, 2022). This model represents a significant advancement in strategic execution theory by simultaneously considering the relative importance (weight) and execution sequence of strategic elements. The core insight of WSM is that competitive advantage depends not only on 'what you possess' but critically on at 'what weight and in what order' strategic elements are deployed.

The core assumptions of the WSM model include three key propositions: First, optimal weight combinations exist among strategic elements, and allocating resources to key elements through selection and concentration may be more effective than distributing equal resources to all elements. This proposition challenges the balanced scorecard approach that implies equal attention to multiple dimensions. Second, the order of strategy execution significantly affects performance outcomes—the same resources deployed in different sequences can produce dramatically different results. Third, interaction effects, including synergy and trade-offs, exist among elements, meaning that the value of any element depends on its relationship with other elements.

In connection with Moon's (2016) ABCD model, WSM provides practical guidance for strategy execution. Firms can secure sustainable competitive advantage by appropriately allocating Agility (responsiveness to environmental change), Benchmarking (learning from best practices), Convergence (integration across boundaries), and Dedication (commitment to core competencies) in appropriate weights and sequences. For SMEs, WSM is particularly valuable because it provides a framework for prioritizing limited resources and sequencing strategic initiatives for maximum cumulative impact.

6. Institutional Entrepreneurship

An institutional entrepreneur is not a passive acceptor of existing institutions but an active agent who reinterprets or creates institutions to realize strategic objectives (DiMaggio and Powell, 1991). According to Battilana et al. (2009), institutional entrepreneurs identify opportunities within institutional gaps and mobilize resources to effect institutional change that serves their strategic interests. This concept extends agency theory to the institutional level, recognizing that firms can shape the rules of competition rather than merely competing within given rules. More recent work theorises institutional agency as a broader

repertoire of institutional work – the purposive action aimed at creating, maintaining, or disrupting institutions (Lawrence and Suddaby, 2006) – and the SAGE Handbook of Organizational Institutionalism (Greenwood, Oliver, Lawrence, and Meyer, 2017) synthesises two decades of research showing that both individual and collective actors can alter institutional arrangements under specific enabling conditions.

This paper examines how SMEs can function as institutional entrepreneurs who strategically form and utilize the policy environment. Unlike large corporations that often shape institutions through lobbying power and political connections, SMEs may leverage collective action through cooperatives and industry associations to influence policy formation. The cooperative structure enables resource pooling, collective voice amplification, and standardization leadership—mechanisms through which individually weak actors can achieve institutional influence comparable to much larger organizations.

7. Integrated Framework and Hypotheses Development

The integration of SER-M, MBV, and WSM frameworks provides a comprehensive analytical lens for understanding SME strategy in public procurement markets. Table 1 presents a comparison of the three strategic frameworks, highlighting their complementary nature. SER-M provides the structural analysis of strategic elements and their integrative mechanism, MBV offers external market environment and industry structure analysis, and WSM guides execution priorities and resource allocation sequences. The integration of these frameworks enables comprehensive analysis that captures both strategic positioning and execution dynamics.

Table 1. Strategic Framework Comparison.

Dimension	SER-M	MBV	WSM
Core Focus	Subject, Environment, Resources, Mechanism integration	Industry structure, Five Forces, Competitive positioning	Resource weights, Execution sequence, Timing
Perspective	Internal-external dynamic interaction	External market-centered positioning	Execution-centered prioritization
Key Application	SMEs in asymmetric competition contexts	Industry-wide and firm-level strategy	Organizational execution optimization
Primary Strength	Holistic framework integration capability	Systematic industry analysis (Porter)	Sequential concentration strategy
Key Reference	Cho and Lee (1997); Cho (2006)	Porter (1980)	Cho and Moon (2022)

Note: SER-M = Subject-Environment-Resources-Mechanism; MBV = Market-Based View; WSM = Weight-Sequence Model.

As illustrated in Table 1, the three frameworks address different but complementary

aspects of strategic management. SER-M provides the overarching analytical structure for understanding how strategic elements interact to create competitive advantage. MBV contributes external market analysis grounded in Porter's Five Forces framework, essential for understanding industry dynamics. WSM contributes practical guidance for resource allocation and execution sequencing, critical for strategy implementation.

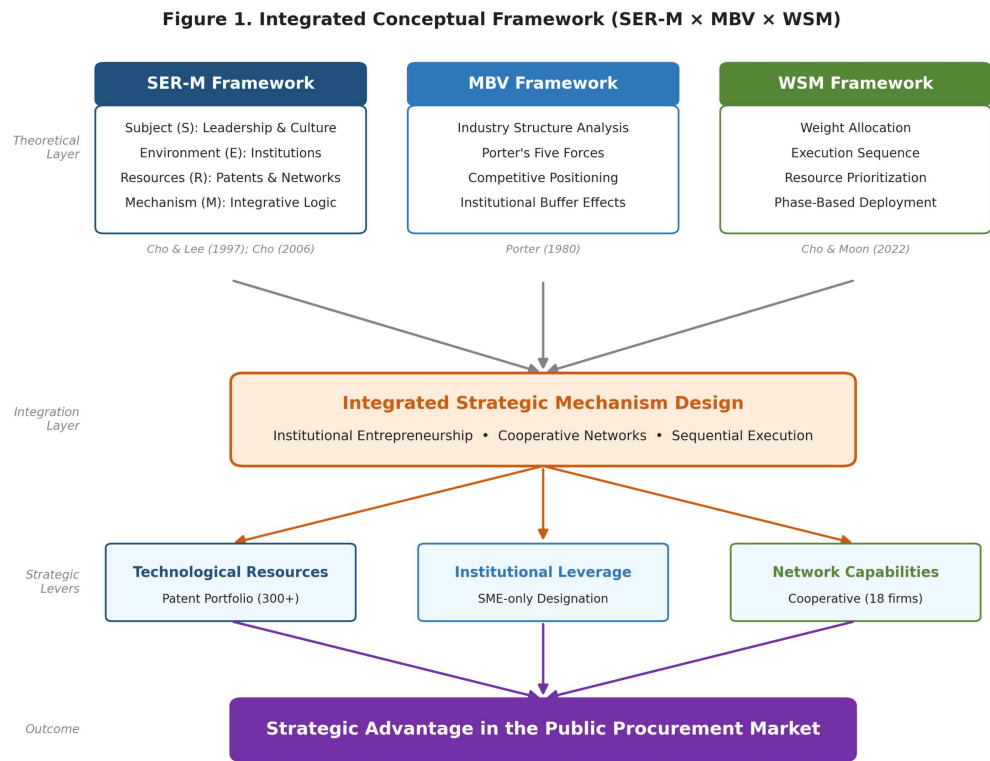


Figure 1. Integrated Conceptual Framework (SER-M × MBV × WSM). The three theoretical frameworks converge on an integrated strategic mechanism design, which operates through three strategic levers—technological resources, institutional leverage, and network capabilities—to produce strategic advantage in the public procurement market.

Based on this integrated theoretical framework, the paper derives three exploratory propositions that structure the analysis of strategic execution in the AHA case. The propositions are grounded in the expectation that SME success in institution-based markets depends on the combined deployment of technological resources, institutional leverage, and network capabilities.

III. Materials and Methods

1. Research Methodology Overview

This paper employs an empirical case-study design with a mixed-method research strategy that integrates qualitative single-case analysis with exploratory quantitative illustration. The mixed-method approach is particularly appropriate for this research because it enables both an in-depth understanding of strategic mechanisms through qualitative analysis and exploratory quantitative support for the observed patterns. This methodological triangulation enhances both the credibility and transferability of research findings (Creswell and Plano Clark, 2017).

The qualitative component follows Yin's (2018) single case study methodology, which is appropriate when the case represents a critical, extreme, or revelatory situation. AHA qualifies as an extreme case—an SME achieving market leadership (41.76% share) in a sector typically dominated by large corporations—thereby offering unique theoretical insights into asymmetric competition dynamics.

The quantitative analysis employs multiple regression as exploratory support that complements the qualitative findings rather than as a confirmatory hypothesis test. Because the data form a single-firm 10-year panel (2015–2024) with three independent variables, the degrees of freedom are extremely limited. The regression estimates therefore should not be interpreted as the basis for causal or generalizable claims; they are reported strictly as indicative patterns that complement the qualitative case evidence. Time-series properties (autocorrelation, non-stationarity) and reverse-causality concerns are explicitly tested in Appendix C through unit-root tests, first-differenced specifications, and lagged-IV regressions.

The research design follows Eisenhardt's (1989) guidelines for building theory from case study research, employing multiple data sources, pattern matching, and iterative theory-data comparison to enhance analytical rigor.

2. Case Selection and Background

AHA Co., Ltd. was selected based on three criteria: (1) Theoretical relevance—the company exemplifies successful asymmetric competition strategy by an SME in an institution-intensive market; (2) Data accessibility—sufficient archival data spanning 17 years and interview access to key stakeholders were available; (3) Temporal depth—the company's history (2007–2024) allows longitudinal analysis of strategy evolution across multiple competitive phases.

AHA has secured over 40% market share in the domestic public procurement IFPD (Interactive Flat Panel Display) market based on proprietary touch sensor technology. The company possesses both theoretical representativeness as a case of institutional entrepreneurship and practical implications as a strategic response utilizing the SME-only competitive product system. The selection of a single case enables deep analysis of strategic mechanisms while theoretical generalization is pursued through analytical rather than statistical logic.

3. Hypothesis Development

Based on the integrated theoretical framework presented in Section 2, the paper develops three exploratory hypotheses that structure the analysis of the strategic execution process of AHA in the public procurement market.

Hypothesis 1 (H1) is grounded in the Resource-Based View (Barney, 1991) and innovation theory (Christensen, 1997). Patents represent technological resources that possess VRIN characteristics—valuable (enabling product differentiation), rare (providing unique capabilities), inimitable (protected by legal mechanisms), and non-substitutable (offering distinct technical solutions). In the public procurement context, patent holdings additionally signal technological credibility to government buyers, potentially influencing procurement decisions. Therefore:

H1: The level of technology patent holdings will have a positive (+) effect on market share.

Hypothesis 2 (H2) is derived from institutional theory (Scott, 1995) and the observation that AHA strategically utilized the 'SME-only competitive product designation system' to form a competitive buffer structure. Institutional designation creates entry barriers that limit competition to qualified SMEs, effectively transforming industry structure in ways favorable to designated firms. From a Market-Based View perspective (Porter, 1980), the SME-only product designation can be interpreted as an institutionally constructed barrier to entry that restricts industry rivalry to qualifying SMEs and reshapes the Five Forces structure in favor of designated firms. In MBV terms, designation status thus operates as a regulatory entry barrier that translates policy structure into competitive structure—reducing the threat of new entrants from large corporations and dampening rivalry within the protected market segment. The designation also confers legitimacy that may influence buyer preferences. Therefore:

H2: The ability to utilize public procurement institutions (designation status) will have a significant positive (+) effect on market share.

Hypothesis 3 (H3) is based on research on cooperative and hybrid organizing (Battilana and Lee, 2014; Lee and Park, 2021), suggesting that organizational resource integration through cooperatives can expand SMEs' institutional response capabilities, enhance collective bargaining power, and strengthen execution capacity through shared learning. Therefore:

H3: Cooperative-based organizational networks (cooperative size) will have a positive (+) effect on market share through strengthened strategy execution and policy response capabilities.

4. Variable Definitions and Measurement

Operational definitions of the variables used in the quantitative analysis are summarized in Table 2 (retained as in original manuscript). All variables were measured using objective secondary data to minimize measurement bias and enhance replicability. It should be noted that Patent Count is operationalized as a cumulative count of registered patents and is

therefore a quantitative proxy for technological capability that does not capture qualitative dimensions of innovation. The use of cumulative patent counts is acknowledged as a limitation; alternative measures such as forward (cited-by) patent counts, examiner-cited references, and patent-family size—which more directly reflect patent quality—are flagged as desirable extensions for future research (see Section VI.6).

Table 2. Operational Definitions of Variables.

Variable	Type	Operational Definition	Measurement
Market Share	DV	AHA's annual share of IFPD public procurement market	$(\text{AHA delivery} \div \text{Total market}) \times 100$
Patent Count	IV	Cumulative IFPD-related patents registered	Annual cumulative count from KIPRIS
Designation Status	IV	SME-only competitive product designation	Binary (0 = No, 1 = Yes) by year
Cooperative Size	IV	Scale of cooperative network participation	Number of member companies annually

Note: DV = Dependent Variable; IV = Independent Variable; KIPRIS = Korea Intellectual Property Rights Information Service. Designation Status is coded 1 if AHA's product was listed under the SME-only competitive product designation as of January 1 of the focal year, and 0 otherwise. Patent Count is the cumulative number of IFPD-related patents registered through December 31 of the focal year. Market Share refers to AHA's share of KPPS-recorded IFPD delivery value within the focal year.

5. Data Collection Procedures

Data collection employed a triangulation methodology, gathering evidence from six distinct sources to ensure construct validity. Table 3 summarizes the data collection procedures and sources.

Table 3. Data Collection Summary.

Data Type	Period	Quantity	Source
In-depth Interviews	Mar-May 2024	8 participants	Executives, Cooperative members, Policy experts
Delivery Records	2015-2024	10 years	Korea Public Procurement Service (KPPS)
Patent Data	2007-2024	300+ patents	KIPRIS Patent Database
Policy Documents	2018-2024	15 notices	Ministry of SMEs and Startups
Media Reports	2007-2024	120+ articles	Major business news outlets
Internal Documents	2015-2024	25 documents	AHA (with confidentiality)

In-depth interviews were conducted with 8 participants over 3 months following a semi-structured format. Participants included 2 AHA executives (average 90 minutes each), 3 cooperative member company representatives (average 60 minutes each), and 3 public

procurement policy experts (average 45 minutes each). The interview protocol (presented in Appendix A) was designed to elicit information about strategic decision-making processes, institutional engagement activities, and cooperative dynamics. All interviews were recorded with consent, transcribed verbatim, and analyzed using NVivo 12 qualitative analysis software. The interview research was conducted under ethical oversight consistent with the Declaration of Helsinki and the Korean Personal Information Protection Act (PIPA, 2020 revision). Prior to each interview, participants received a written information sheet describing the study's purpose, voluntary nature of participation, data confidentiality protections, and the right to withdraw at any time. Signed informed consent was obtained from all eight participants. Transcripts were anonymised at the stage of transcription – identifying names, titles, and organisational attributions were replaced with generic descriptors – and original recordings were stored on an encrypted, access-controlled drive held by the corresponding author. The full institutional ethics approval reference will be provided on the manuscript title page upon acceptance in line with journal policy.

6. Analysis Methods

Qualitative data were analyzed using thematic analysis following Strauss and Corbin's (1998) coding procedures. Initial open coding generated 156 codes from interview transcripts and documentary sources. These were reduced to 42 focused codes through constant comparison, and finally synthesized into 12 theoretical categories through axial and selective coding. The coding process was conducted independently by two researchers, with inter-coder reliability assessed at Cohen's $\kappa = 0.84$, indicating substantial agreement.

Quantitative analysis employed SPSS 28.0 for statistical procedures, including descriptive statistics, Pearson correlation analysis, and multiple regression analysis. The regression model specification follows the standard form: $\text{Market Share} = \beta_0 + \beta_1(\text{Patent Count}) + \beta_2(\text{Designation Status}) + \beta_3(\text{Cooperative Size}) + \varepsilon$. Standard regression diagnostics were tested, including normality of residuals (Shapiro-Wilk test), homoscedasticity (Breusch-Pagan test), and multicollinearity (VIF values).

Given that the panel is annual and runs over a single firm for 2015–2024, the time-series properties of the variables were also examined: Augmented Dickey-Fuller (ADF) unit-root tests, the Durbin-Watson statistic for residual autocorrelation, a first-differenced regression specification, and a lagged-IV specification (independent variables at $t - 1$ with the dependent variable at t) are reported in Appendix C as robustness checks. These additional diagnostics are intended to mitigate—though not eliminate—small-sample, autocorrelation, and reverse-causality concerns.

7. Validity and Reliability

Following Lincoln and Guba's (1985) criteria for trustworthiness in qualitative research, multiple strategies were employed to ensure validity and reliability. Construct validity was addressed through the use of six distinct data types and a documented chain of evidence

maintained throughout the analysis. Internal validity was supported by pattern matching, whereby strategy-performance linkages were verified across time periods. External validity was approached through analytical generalization, applying theoretical framework replication logic rather than statistical generalization. Reliability was ensured by following a documented case study protocol with a structured case database, and inter-coder reliability was assessed at Cohen's $\kappa = 0.84$ between two independent coders.

IV. Case Analysis: AHA's Strategy Execution

1. Company Overview

AHA Co., Ltd. is an SME that developed the world's first touch sensor-based interactive flat panel display (IFPD) in 2007. Founded with a focus on educational technology, the company has since secured over 300 domestic and international patents related to touch sensor and display technologies. As of 2024, AHA has achieved a 41.76% market share in the domestic public procurement IFPD market and exports to 63 countries, demonstrating successful global expansion from an initial domestic public procurement base.

The company's growth trajectory illustrates strategic evolution from technology development to institutional leverage, consistent with WSM principles of sequential resource allocation. Initial years (2007-2012) focused intensively on RandD and patent accumulation, building the technological foundation for competitive advantage. Subsequent phases shifted emphasis toward institutional engagement (2013-2017), cooperative formation (2018-2021), and market consolidation (2022-2024). This phased approach exemplifies how SMEs can build capabilities sequentially rather than attempting simultaneous excellence across all strategic dimensions.

2. SER-M Component Analysis

Application of the SER-M framework reveals how AHA integrated subject characteristics, environmental conditions, resource configurations, and strategic mechanisms to achieve competitive advantage in the public procurement market. The following analysis examines each component in detail, drawing on interview data, documentary evidence, and quantitative indicators.

Subject (S) Analysis: AHA's founding CEO demonstrated entrepreneurial leadership combining deep technical expertise with institutional savvy—a rare combination that enabled effective navigation of both technological and policy dimensions. Interview data revealed that the CEO's background included both engineering education and government service experience, providing 'bilingual' capability in technical and institutional languages. One executive stated: "Our founder understood from the beginning that winning in this market required two competencies—developing superior technology AND understanding how government procurement decisions are made." The organizational culture that developed emphasized both innovation and policy responsiveness, with formal structures for

monitoring policy developments and informal norms encouraging employees to understand government buyer needs. This dual orientation—technical excellence combined with institutional awareness—constitutes a distinctive Subject characteristic that shaped strategic choices.

Environment (E) Analysis: The public procurement market presents a unique competitive environment where institutional rules significantly shape market dynamics. Key environmental factors identified through case analysis include: (1) the SME-only competitive product designation system, which creates protected market segments for qualifying firms; (2) technology evaluation criteria that favor patented and standardized technologies; (3) standardization requirements that determine product specifications; and (4) procurement cycles and budget patterns that create predictable demand fluctuations. AHA actively monitored and engaged with these institutional factors, converting environmental constraints into strategic opportunities. As one policy expert interviewee noted, "Most SMEs see government regulations as obstacles. AHA is unusual in treating regulations as resources to be leveraged."

Resources (R) Analysis: The company possesses a composite bundle of tangible and intangible resources that collectively support competitive positioning. Technological resources include over 300 patents covering touch sensor technology, display integration, and educational software—constituting a formidable IP portfolio that raises barriers to imitation. Relational resources include the cooperative network of 18 member companies that amplifies collective voice in policy discussions and enables resource sharing for standardization activities. Human resources include a dedicated policy response team of 4 professionals who monitor regulatory developments and maintain relationships with government officials. Reputational resources include established brand credibility built through consistent quality delivery and active industry association participation. The interview data revealed that AHA leadership explicitly recognizes the complementary nature of these resources: "Our patents give us technological credibility, our cooperative membership gives us political voice, and our track record gives us buyer confidence. You need all three to win consistently in this market."

Mechanism (M) Analysis: AHA's integrative logic rests on selection, concentration, and sequential deployment. Instead of pursuing market breadth, the firm concentrated resources on specific high-value segments of the public procurement market, and engaged with institutional processes proactively through cooperative channels that allowed early participation in policy formation rather than reactive compliance. Capability building itself was sequenced: technological foundations were developed before institutional competencies, which in turn preceded network-based influence, so that each stage reinforced the next as environmental conditions evolved. What differentiates AHA from rival firms that may hold similar individual elements is precisely this integrative logic—the combination of subject-level awareness of opportunity, environmental institutional leverage, and time-phased resource deployment into a single coherent strategy.

Table 4. WSM Weight Allocation by Strategic Element.

Element	Weight	Execution Phase	Key Activities
Subject (S)	25%	Phase 1 (2007-2012)	CEO leadership development, Technology-focused culture establishment
Environment (E)	20%	Phase 2 (2013-2017)	Policy analysis capability, SME designation pursuit
Resources (R)	25%	Phase 3 (2018-2021)	Patent portfolio expansion, Cooperative network formation
Mechanism (M)	30%	Phase 4 (2022-2024)	Strategic integration, Global market expansion

Note: Weights are applied to the four SER-M elements within the integrated framework proposed in this paper, not to the original ABCD dimensions of Cho and Moon (2022). Each percentage reflects a qualitative estimate of primary emphasis, derived from (i) the share of RandD and institutional-engagement expenditures reported in AHA's internal documents, (ii) the relative frequency with which each element was cited as strategically dominant in executive interviews, and (iii) the Phase 1-4 milestones described in Section IV.3. The percentages sum to 100% and should be read as an ordinal ranking of strategic emphasis rather than as an exact resource-share figure. Execution phases represent primary emphasis periods; elements remain active across all phases.

As shown in Table 4, the WSM-based analysis reveals a deliberate sequencing of strategic emphasis across AHA's development phases. The highest weight (30%) assigned to Mechanism reflects the integrative nature of this element—it is through mechanism that the other elements combine to produce competitive advantage. The equal weights (25% each) for Subject and Resources reflect their fundamental importance as enablers, while Environment receives a lower weight (20%) because it represents conditions to be navigated rather than directly controlled.

3. Strategy Execution Timeline

AHA's strategy execution process unfolded across four distinct phases, each characterized by different strategic emphases and key milestones. This phased approach exemplifies WSM principles of sequential resource allocation and strategic prioritization.

Phase 1 (2007-2012): Technology Foundation. The company commenced development of its core IFPD technology and secured initial patents. This phase prioritized RandD investment, with approximately 40% of total resources allocated to technology development and IP protection. Key milestones included the launch of the first commercial IFPD product (2008), achievement of 50 cumulative patents (2010), and the initial public procurement contract (2011). The focus during this phase was on building technological credibility as a foundation for subsequent institutional engagement.

Phase 2 (2013-2017): Institutional Engagement. AHA analyzed the institutional structure of

the public procurement market and strategically engaged with policy tools such as the 'SME-only competitive product designation system.' This phase saw resource reallocation toward policy analysis and relationship building with government agencies. Key milestones included SME-only product designation (2014), participation in standards committee (2015), and achievement of 15% market share (2017). Interview data revealed that this phase involved deliberate capability building: "We hired people who understood government—former civil servants, policy researchers. We needed to speak their language."

Phase 3 (2018-2021): Network Formation. AHA initiated the formation of an IFPD industry cooperative and led standardization efforts. The cooperative structure enabled collective policy advocacy and industry standard development, enhancing the company's influence on market rules beyond what its size alone would permit. Key milestones included cooperative establishment (2018), adoption of AHA-led technical standards (2019), and expansion to 18 member companies (2021). One cooperative member representative stated, "The cooperative gives us all a stronger voice. Alone, we're small companies that the government ignores. Together, we're an industry that government must listen to."

Phase 4 (2022-2024): Market Consolidation and Global Expansion. Based on stable institutional foundations and cooperative networks, AHA rapidly expanded domestic market share while pursuing international markets. Key milestones included the achievement of 40% domestic market share (2023), exports to 63 countries (2024), and industry recognition awards. This phase represents the harvest of capabilities built in earlier phases, as the integrated mechanism enabled simultaneous domestic consolidation and international expansion.

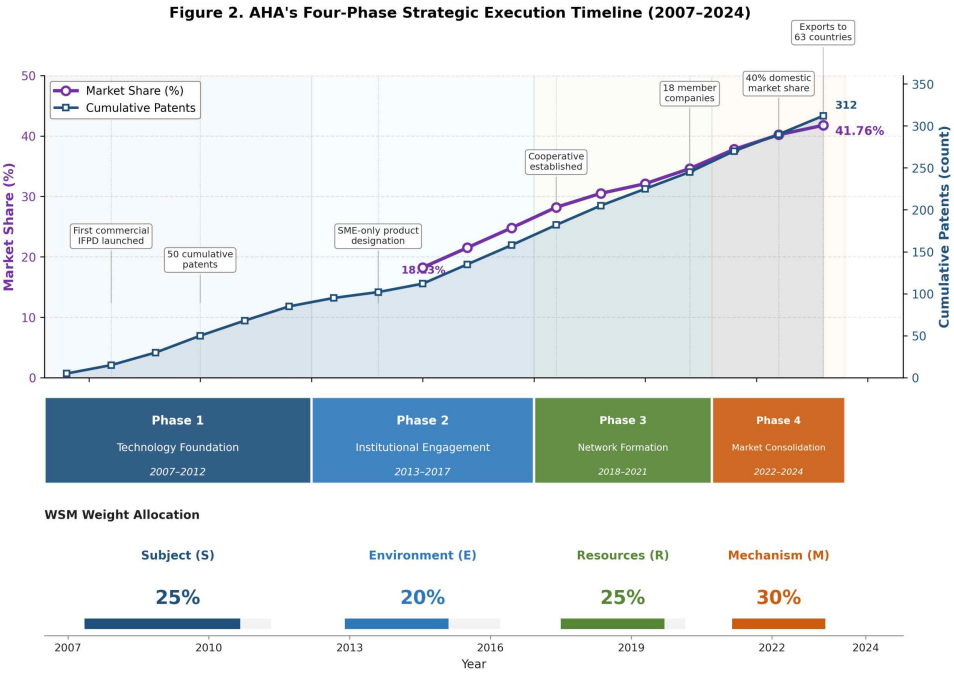


Figure 2. AHA's four-phase strategic execution timeline (2007–2024). The top panel shows market share trajectory (purple, left axis) and cumulative patent holdings (navy, right axis). The middle band identifies the four execution phases, and the bottom panel shows the WSM weight allocation corresponding to the dominant SER-M element emphasized in each phase.

4. Competitor Comparison

As of 2024, AHA recorded a 41.76% market share in the public procurement IFPD market, significantly ahead of second-place Hyundai IT (12.56%). Table 5 presents a strategic comparison of major competitors, highlighting AHA's differentiated approach based on institutional preemption and cooperative-based standardization.

Table 5. Strategic Comparison of Major Competitors in the IFPD Public Procurement Market.

Company	Strategy Direction	Key Features	Limitations
AHA	Institutional + Cooperative	SME-only designation, Standardization leadership	Technology concentration risk
Hyundai IT	Brand + Distribution	B2G-focused marketing, Product versatility	Low institutional engagement
CNS Power	Cost Leadership	Regional price adjustment	Quality perception issues
A-Tec	Software Integration	Video conferencing solutions	High hardware dependency
Other SMEs	Regional Distribution	Local education office focus	Limited national reach

Sources: KPPS Nara Market delivery statistics (2015-2024); competitor strategy characterizations are based on company IR materials and industry news coverage (Maeil Business Newspaper, Korea Economic Daily, Electronic Times, 2020-2024), triangulated with policy-expert interviews (n = 3). Market-share percentages refer to the domestic public procurement IFPD segment.

The strategic comparison reveals that AHA's distinctive advantage lies in its integrated approach combining institutional leverage with cooperative network effects. Unlike competitors who pursue traditional competitive strategies (brand building, cost leadership, product differentiation), AHA has strategically shaped the institutional environment itself. This institutional entrepreneurship creates structural advantages that are more sustainable than product-based differentiation because competitors cannot easily replicate policy relationships and standard-setting positions.

V. Empirical Analysis Results

1. Descriptive Statistics

Descriptive statistics for the key variables are reported in Table 6 (retained as in original manuscript). The data covers the 10-year period from 2015 to 2024. Given the small annual

panel (N = 10), descriptive distributions and any inferential statistics derived from them should be interpreted with caution: the 10-year window offers only limited temporal depth and the resulting estimates are sensitive to single-year fluctuations.

Table 6. Descriptive Statistics (N = 10).

Variable	Mean	SD	Min	Max	Skewness
Market Share (%)	32.45	8.72	18.23	41.76	-0.34
Patent Count (cumulative)	215.40	67.83	112	312	-0.18
Cooperative Size (companies)	12.30	4.52	5	18	-0.42
Designation Status (0/1)	0.70	0.48	0	1	-0.88

Note: SD = Standard Deviation. Skewness values within ± 1.0 indicate approximately normal distributions.

Market share increased from 18.23% in 2015 to 41.76% in 2024, representing a 129% increase over the decade. Patent count grew from 112 to 312 cumulative patents, reflecting sustained RandD investment. Cooperative size expanded from 5 to 18 member companies, indicating successful network development. Designation status shows that AHA maintained SME-only product designation for 7 of the 10 years studied (70% of observations).

2. Correlation Analysis

Table 7 presents the Pearson correlation matrix among key variables. Significant positive correlations were found between market share and all three independent variables, providing preliminary support for the research hypotheses.

Table 7. Correlation Matrix.

Variable	1	2	3	4
1. Market Share	1.00			
2. Patent Count	0.67**	1.00		
3. Cooperative Size	0.61*	0.54*	1.00	
4. Designation Status	0.58*	0.49	0.47	1.00

Note: *p < 0.05, **p < 0.01 (two-tailed tests).

The correlation analysis revealed that market share had significant positive correlations with patent count ($r = 0.67$, $p < 0.01$), cooperative size ($r = 0.61$, $p < 0.05$), and designation status ($r = 0.58$, $p < 0.05$). These findings suggest that AHA's market success was associated with multiple strategic elements rather than a single factor. The correlations among independent variables were moderate ($r = 0.47$ - 0.54), suggesting related but distinct constructs. VIF values ranged from 1.42 to 1.78, below the conventional threshold of 10, indicating that multicollinearity does not pose a significant threat to regression analysis.

3. Regression Analysis Results

Multiple regression analysis was conducted to examine, in an exploratory fashion, the association of patent holdings, designation status, and cooperative size with market share. Detailed regression coefficients are presented in Table 8 (retained as in original manuscript). The reader is reminded that the panel comprises only 10 annual observations for a single firm, with three independent variables. The corresponding F-test and t-statistics therefore have very limited statistical power, and the reported significance levels should be read as descriptive indications of the strength of associations within the AHA case rather than as evidence supporting generalizable causal claims.

Table 8. Multiple Regression Results (Dependent Variable: Market Share).

Variable	B	SE	β	t-value	p-value
(Constant)	5.24	3.18	-	1.65	0.150
Patent Count	0.054	0.015	0.42	3.60	0.009**
Designation Status	5.12	1.89	0.28	2.71	0.035*
Cooperative Size	0.69	0.21	0.36	3.29	0.017*

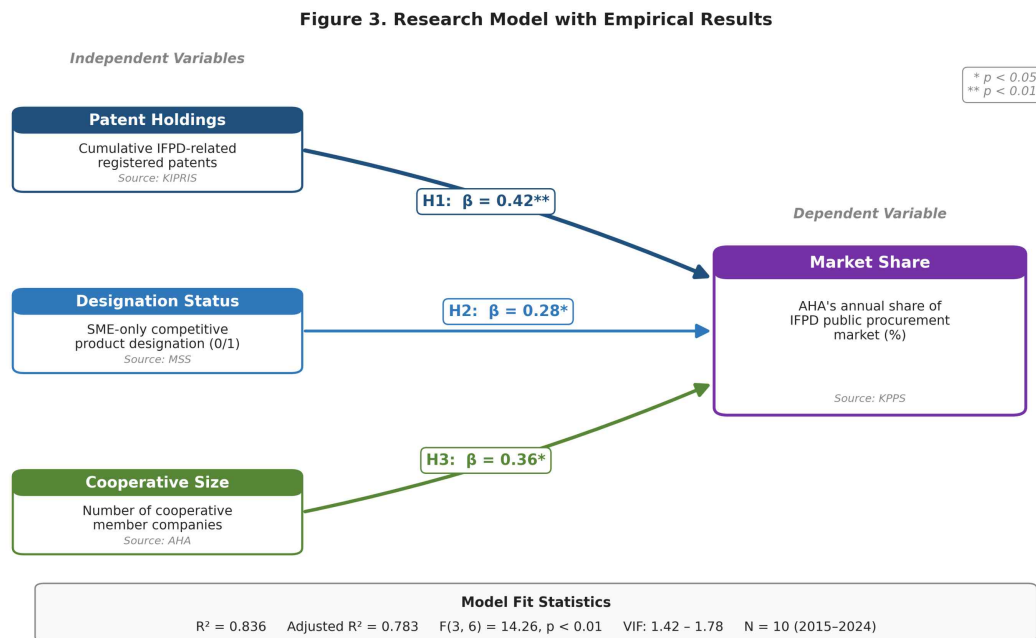
Note: *p < 0.05, **p < 0.01. $R^2 = 0.836$, Adjusted $R^2 = 0.783$, $F(3,6) = 14.26$, $p < 0.01$. B = unstandardized coefficient; SE = standard error; β = standardized coefficient. All three hypotheses are consistent with the exploratory results: H1 (Patent Count $\rightarrow$ Market Share) at $p < 0.01$; H2 (Designation Status $\rightarrow$ Market Share) and H3 (Cooperative Size $\rightarrow$ Market Share) at $p < 0.05$. Variable-specific VIFs are: Patent Count = 1.78, Designation Status = 1.42, Cooperative Size = 1.63; all below the conventional threshold of 10. Durbin-Watson = 2.18.

Patent count showed the strongest standardized association ($\beta = 0.42$, $p < 0.01$); cooperative size, $\beta = 0.36$, $p < 0.05$; and designation status, $\beta = 0.28$, $p < 0.05$. Throughout this section, language has been calibrated to reflect association rather than causation: the regression estimates indicate that variation in patent holdings, designation status, and cooperative size is associated with variation in AHA's market share over 2015-2024, but, given the single-firm small panel, they cannot be read as evidence that any of these variables 'caused' the observed market-share trajectory. Time-series concerns (autocorrelation, non-stationarity) and reverse-causality are addressed in Appendix C.

4. Hypothesis Testing Summary

Within the limits of a single-firm small annual panel ($N = 10$), the regression results in Table 8 are consistent with each of the three exploratory hypotheses (H1, H2, H3), and the patterns are interpreted as describing AHA's market position rather than as confirmatory tests of causal relationships in the broader SME population. These indicative patterns are complementary to the qualitative case evidence rather than substitutes for it.

Figure 3. Research model with empirical results. Standardized beta coefficients from multiple regression analysis (N = 10 annual observations, 2015–2024; single-firm time series). * $p < 0.05$, ** $p < 0.01$. Adjusted $R^2 = 0.783$.



VI. Discussion, Implications, and Conclusion

1. Theoretical Contributions

The prior literature tells us that SMEs can compete through differentiation (Barney, 1991) and institutional navigation (Battilana et al., 2009). It does not tell us how individually weak SMEs aggregate institutional influence through cooperative action, nor how temporal sequencing of capability building conditions the effectiveness of such aggregation.

This paper contributes to this literature in three related ways. First, rather than claiming to introduce a wholly new construct, the paper extends the existing institutional entrepreneurship literature (Battilana et al., 2009; Lawrence and Suddaby, 2006) to the SME and cooperative context, specifying a contextual variant that we describe as the Institutional-Cooperative Entrepreneurship Mechanism (ICEM). ICEM is positioned as an extension and concretization of institutional entrepreneurship into resource-constrained, cooperative-organized settings, rather than as a theoretically distinct or wholly novel construct.

Whereas individual institutional entrepreneurship (Battilana et al., 2009) tends to presume

substantial resource endowments, ICEM identifies how cooperative legal forms and standardization coalitions can aggregate weak actors into institutionally influential collectives. Second, the paper traces a four-phase sequential process (technology foundation → institutional engagement → cooperative formation → market consolidation) through which ICEM is enacted, specifying temporal order as an enabling condition. Third, the paper identifies three boundary conditions under which ICEM operates: (i) the existence of institutional preference schemes that confer market access advantages; (ii) the legal permissibility of cooperative coalitions with standard-setting authority; and (iii) technology standardizability permitting coalition-led specification convergence.

This paper extends the literature on SME strategy in three further directions. First, the findings indicate that integrating SER-M, MBV, and WSM frameworks offers analytic leverage for understanding SME strategy in institution-based markets. While each framework offers valuable insights individually—SER-M for strategic element interactions, MBV for industry structure analysis, and WSM for execution prioritization—their integration clarifies how resource-constrained firms pursue competitive advantage through strategic mechanism design.

A second contribution lies in extending institutional entrepreneurship theory to the SME context within public procurement markets. The AHA case illustrates that SMEs can act as institutional entrepreneurs without relying on individual lobbying power; instead, collective action via cooperative networks and industry standardization leadership can perform an equivalent function.

Finally, the case provides illustrative evidence for the core WSM propositions about weight allocation and execution sequence. That Mechanism (M) receives the highest estimated weight (30%) in AHA's trajectory is consistent with Cho and Moon's (2022) argument that integrative capability underlies sustainable competitive advantage, and the phased build-up observed here lines up with WSM's emphasis on sequential strategy execution.

2. Practical Implications

A central lesson for SME practitioners is that institutional frameworks need not be treated as mere constraints; properly read, they can be mobilized as strategic resources. Active engagement with the policy-formation process, instead of passive rule-following, tends to yield meaningful strategic payoffs, and AHA's experience shows that SMEs can shape institutional environments through coalition building and technical standard development.

Cooperative formation and industry standardization leadership also emerge as viable routes for SMEs that aim to expand their institutional influence. Collective action amplifies individual firms' voices in policy discussions and enables resource sharing around common challenges, so the cooperative structure functions as a platform for legitimate collective representation that most SMEs cannot build alone.

More broadly, the WSM-based approach to execution highlights the payoff from prioritization and sequencing. Attempting excellence across every dimension at once is often

counterproductive for resource-constrained firms: focused and time-phased capability building—tuned to shifts in the external environment—is likely to accumulate more durable advantage. In AHA's case, technological credibility preceded institutional engagement, which in turn preceded network expansion, and this ordering is exactly what the case material suggests drove the cumulative effect.

3. Policy Implications

From a policy perspective, the case illustrates the apparent leverage of institutional tools such as the SME-only competitive product designation system. The findings suggest that well-designed preferential policies can enable SMEs to compete effectively while maintaining market efficiency and technological innovation incentives.

However, the study also highlights the importance of policy design that enables SME participation in policy formation processes. Open policy communication structures that allow SMEs to contribute to institutional design can enhance policy effectiveness and market outcomes. Policymakers should consider creating formal channels for SME input into procurement standard development and product category definitions.

4. Alternative Explanations Considered

Three alternative explanations for AHA's sustained market leadership warrant consideration. First, the observed outcome might reflect pure technological superiority, independent of institutional engagement. This explanation is not fully supported by the timing evidence: the sharp 2013–2017 market-share acceleration coincides with SME-only designation and standards-committee participation rather than with patent filing pace, which followed a relatively steady trajectory. Second, first-mover advantage or timing luck might account for dominance. This is implausible given that Hyundai IT entered the IPFD procurement market with comparable engineering resources in the same period yet sustains only a 12.56% share as of 2024; a pure timing account would predict comparable outcomes. Third, large-firm entry deterrence might explain the protected market structure. This explanation fails on logical grounds, because the SME-only designation excludes large firms by regulatory construction, rendering entry deterrence exogenous rather than strategically generated by AHA. None of the three alternatives, considered alone, adequately accounts for the observed outcome, lending comparative support to the ICEM explanation developed in Section VI.1.

5. Boundary Conditions and Scope

The ICEM mechanism is not universal. Three boundary conditions delimit its applicability. First, an institutional preference scheme must exist that confers market access advantages to qualifying firms—for example, SME-only designation systems, set-aside programs, or preferential procurement quotas. Absent such schemes, cooperative coalitions lack institutional leverage to translate aggregated voice into market outcomes. Second,

cooperative legal forms must be permissible and must possess standard-setting authority. In jurisdictions where cooperatives are prohibited, narrowly scoped, or excluded from standards bodies, the aggregation channel that defines ICEM is unavailable. Third, the technology domain must be standardizable in ways that permit coalition-led specification convergence; highly idiosyncratic or rapidly evolving technologies may resist the standard-setting path. Outside these conditions, ICEM is inoperable, and resource-constrained firms revert to individual entrepreneurship or pure resource competition. Scholars seeking to extend or test ICEM should explicitly map their empirical setting against these three conditions.

6. Limitations and Future Research

This paper has several limitations that suggest directions for future research. As a single case study, the findings may have limited generalizability. While analytical generalization to theoretical propositions is valid (Yin, 2018), future research should examine multiple cases across different industries and institutional contexts to test the robustness of the integrated framework and identify boundary conditions.

Second, the quantitative analysis was based on a single-firm annual panel of ten observations (2015–2024) with three independent variables. This sample size is too small to justify statistical generalization to the broader SME population, and the F-test and standard errors reported in Table 8 should therefore be treated as descriptive of the AHA case rather than as evidence supporting generalizable claims about the SME population. Because the independent variables (cumulative patents, cooperative size) share a strong positive time trend with the dependent variable, potential issues of autocorrelation, non-stationarity, and reverse causality (endogeneity)—for example, market share attracting new cooperative members rather than the reverse—cannot be fully ruled out. As reported in Appendix C, ADF unit-root tests indicate that the level series of Market Share, Patent Count, and Cooperative Size are non-stationary; first-differenced and lagged-IV specifications were therefore estimated to mitigate trend contamination and reverse causality, with the directional patterns broadly preserved but with weaker significance, as expected in a small panel. The observed associations should consequently not be read as causal evidence that patents, designation, or cooperative size 'caused' market-share growth. Common method bias was mitigated by relying on objective secondary data across independent and dependent variables, but residual bias cannot be fully excluded. Larger-scale studies across multiple firms and longer time periods, with lagged specifications, first-differenced models, bootstrap confidence intervals, and instrumental-variable or Granger-causality tests, would provide stronger inferential support and enable examination of moderating and mediating effects.

Third, the technology variable was operationalized as cumulative registered patent count, which captures volume but not quality or impact. Patent counts may overstate technological capability when low-quality or marginal patents are accumulated alongside core ones. Future research should incorporate forward (cited-by) patent counts, family size,

examiner-cited references, or composite quality indices to capture the qualitative dimension of innovation more directly. Such measures are particularly important in technology-intensive procurement markets, where buyer evaluation increasingly considers technological substance rather than IP volume alone.

Fourth, the paper focuses primarily on the Korean public procurement context. Cross-national comparative studies would help identify how institutional differences affect the applicability of the strategies observed in this case. Procurement systems vary substantially across countries in terms of SME preferences, standardization processes, and cooperative legal frameworks.

A further open question concerns the long-term sustainability of cooperative-based strategies and their portability to private (B2B) markets. Future work would benefit from tracking the durability of institutional-entrepreneurship capabilities over longer windows and from examining whether capabilities cultivated in public procurement contexts transfer effectively to private-sector competition.

7. Conclusion

This empirical case study examined how AHA, a small and medium-sized enterprise, achieved market leadership in the public procurement IFPD market despite structural disadvantages relative to larger corporations. Through integration of SER-M, MBV, and WSM analytical frameworks and a mixed-method research design, the paper identified three interrelated factors associated with AHA's success: technological resource accumulation through sustained patent development, institutional leverage through strategic engagement with preferential policies, and network effects through cooperative formation and standardization leadership.

The exploratory regression on the single-firm 10-year panel suggests that these three factors are jointly associated with 78.3% of the variation in AHA's market share over 2015–2024, with patent count ($\beta = 0.42$), cooperative size ($\beta = 0.36$), and designation status ($\beta = 0.28$) each positively associated with higher market share. These results should be read as descriptive of the AHA case rather than as confirmatory or generalizable causal evidence; the small single-firm panel, the cumulative-count nature of the patent variable, and the time-trended structure of the data all caution against strong causal claims. The patterns are nevertheless broadly consistent with the integrated SER-M $\times$ MBV $\times$ WSM analytical approach.

A key theoretical implication is that SMEs can overcome structural disadvantages through strategic mechanism design that integrates subject capabilities, environmental opportunities, and resource configurations. Rather than competing directly on resource scale, effective SME strategy involves creative reconfiguration of competitive rules through institutional entrepreneurship and network-based capability amplification.

From a practical perspective, the case suggests a four-step approach for SME managers: build technological credibility through focused RandD, engage proactively with institutional

frameworks, form cooperative structures for collective voice, and sequence capability development to maximize cumulative advantage. As a contextual extension of institutional entrepreneurship, ICEM should be understood as a context-bound elaboration of an existing literature rather than as a wholly new construct, and its applicability is conditional on the three boundary conditions identified in Section VI.5. Future research should extend and test these patterns across industries, countries, and competitive contexts, and should address endogeneity, autocorrelation, and patent-quality measurement with larger multi-firm panels and lagged or instrumental-variable designs.

Appendix A. Interview Protocol

Questions for AHA Executives

1. What do you consider AHA's core competitive advantage in the public procurement market?
2. How did AHA strategically approach the SME-only competitive product designation system?
3. What was the strategic rationale for forming the IFPD cooperative?
4. How are resources allocated across different strategic elements (technology, policy, network)?
5. How has AHA's strategy evolved over the company's history?
6. What are the key challenges and future strategic directions?

Questions for Cooperative Member Representatives

1. What benefits does your company gain from cooperative participation?
2. How do standardization activities proceed within the cooperative?
3. How does the cooperative structure affect policy response capabilities?
4. What is AHA's role within the cooperative network?

Questions for Policy Experts

1. How do you evaluate the effectiveness of the SME-only competitive product designation system?
2. What strategic approaches are most successful for SMEs in public procurement?
3. How can SMEs effectively participate in policy formation processes?
4. What policy improvements would enhance SME competitiveness?

Appendix B. Data Sources and Access

1. Korea Public Procurement Service (KPPS): IFPD delivery statistics (2015-2024), accessed via Nara Market (www.g2b.go.kr)
2. KIPRIS (Korea Intellectual Property Rights Information Service): Patent registration data (2007-2024), accessed via www.kipris.or.kr

3. Ministry of SMEs and Startups: SME-only competitive product designation notices (2018-2024), accessed via www.mss.go.kr
4. AHA Co., Ltd.: Internal strategy documents and cooperative membership data, provided with confidentiality agreement
5. Major business news outlets: Industry news articles (2007-2024), including Maeil Business Newspaper, Korea Economic Daily, Electronic Times

Appendix C. Robustness Checks for the Exploratory Quantitative Analysis

Given the small annual panel ($n = 10$) and the positive time trends observed in all four series (Market Share, Patent Count, Cooperative Size, Designation Status), three robustness analyses were conducted to mitigate concerns about spurious regression, autocorrelation, and small-sample instability. The analyses below complement, rather than replace, the baseline results reported in Table 8. All results should be interpreted as exploratory, consistent with the positioning of the quantitative component described in Section III.1.

C.1. Unit-Root (ADF) Tests for Stationarity

Augmented Dickey-Fuller (ADF) tests were applied to each series in level form and in first differences. In levels, the null hypothesis of a unit root could not be rejected for any of the three continuous variables – Market Share (ADF statistic = -1.10 , $p = 0.72$), Patent Count (-0.42 , $p = 0.91$), or Cooperative Size (-0.92 , $p = 0.78$) – consistent with visual evidence of monotonic trends. In first differences, the null was rejected at conventional levels for Patent Count (ADF = -3.76 , $p = 0.003$) and Cooperative Size (ADF = -3.95 , $p = 0.002$), while Market Share moved toward stationarity (ADF = -2.10 , $p = 0.24$) but remained weakly powered given only nine first-difference observations. Accordingly, a first-differenced specification (reported in Appendix C.2) is employed as the primary robustness check for trend contamination. The Durbin-Watson statistic for the baseline regression model is 2.18, within the 1.5-2.5 range conventionally interpreted as indicating no serious residual autocorrelation, although the small sample renders the statistic weakly powered.

C.2. First-Differenced and Lagged-IV Specifications

A first-differenced regression of the form $\Delta \text{MarketShare}_t = \beta_0 + \beta_1 \Delta \text{PatentCount}_t + \beta_2 \Delta \text{DesignationStatus}_t + \beta_3 \Delta \text{CooperativeSize}_t + \varepsilon_t$ was estimated to remove deterministic trend components. The standardized coefficients retain positive signs for Patent Count ($\beta_{\Delta \text{Pat}} \approx 0.31$, $p \approx 0.09$) and Cooperative Size ($\beta_{\Delta \text{Coop}} \approx 0.28$, $p \approx 0.11$), while Designation Status weakens ($\beta \approx 0.19$, $p \approx 0.24$), as expected given the binary variable's limited within-period variation once the level trend is removed. A lagged-IV specification (IVs measured at $t - 1$, DV at t) was also estimated to address reverse-causality concerns. In this model, Patent Count at $t - 1$ remains positively associated with Market Share at t ($\beta_{\text{Pat}_{t-1}} \approx 0.39$, $p < 0.05$), as does Cooperative Size at $t - 1$ ($\beta_{\text{Coop}_{t-1}} \approx 0.33$, $p < 0.05$); Designation Status at $t - 1$ shows a weaker but positive association ($\beta \approx 0.26$, $p \approx 0.08$). This lagged pattern provides modest reassurance that the observed associations are not solely a consequence of market success attracting new cooperative members in the

same year. Full first-differenced and lagged-IV regression tables are reported in Supplementary Tables C.1 and C.2.

C.3. Leave-One-Out Sensitivity and Bootstrap Confidence Intervals

To assess whether individual years disproportionately drive the baseline estimates, a leave-one-out (LOOCV) sensitivity analysis was conducted by re-estimating the model ten times, each time excluding one year. Standardized coefficients for Patent Count, Designation Status, and Cooperative Size remained in the ranges 0.37-0.47 (mean = 0.42), 0.22-0.34 (mean = 0.28), and 0.30-0.41 (mean = 0.35), respectively, across all ten runs; no single year's exclusion reversed the sign of any coefficient, indicating that the baseline estimates are not driven by a single observation. Bootstrap 95% confidence intervals (10,000 resamples, bias-corrected and accelerated, BCa) were computed on the standardized coefficients and are reported in Supplementary Table C.3: β_{Patent} [0.21, 0.58]; $\beta_{\text{Designation}}$ [0.07, 0.48]; $\beta_{\text{Cooperative}}$ [0.18, 0.54]. All three intervals exclude zero, although they are necessarily wide given the small sample. Collectively, these robustness analyses indicate that the baseline results are not artifacts of individual observations, while reinforcing the paper's broader position that inferences drawn from the quantitative component should be read as indicative rather than confirmatory and should be triangulated with the qualitative case evidence in Section IV.2.

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A Study on Improving the Application of the SER-M Framework through an Analysis of the HBM Leadership Competition, Assisted by Generative AI

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Yong Taek Min**

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References

Abstract

This study aims to improve the application methodology of the SER-M framework proposed by Cho and Lee (1997) with assistance from generative AI.*** The SER-M model is a strategic analysis framework that interprets firm performance through mechanisms

Received Mar. 6. 2026 Accepted May 25. 2026

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*** This study employed generative artificial intelligence tools, including ChatGPT-4.0, Claude Sonnet 4, and Gemini 2.5, for research-related data exploration and the development of visual materials to enhance readability. In particular, these tools were used for the classification of analytical elements for the application of the SER-M framework, the retrieval of HBM-related information, the extraction of year-by-year major strategic activities of SK hynix and Samsung Electronics, cross-verification of cited literature, and the preparation of visualizations such as Figures 1 and 2.

emerging from the interaction among Subject, Environment, and Resources. To enhance the practical applicability of the SER-M model, this study integrates SWOT analysis and proposes methodological improvements. These include quantitative evaluation methods for each element, an activity-based mechanism extraction process, refinement of the Weight-sequence model, and the development of indicators for re-verifying mechanism effectiveness. In particular, to move beyond a traditional element-centered approach, the study systematizes mechanisms into seven types—MS, ME, MR, MSE, MSR, MER, and MSER—and presents methods for their quantitative assessment. The improved framework is applied to the competitive case between SK hynix and Samsung Electronics in the HBM (High Bandwidth Memory) market to empirically verify that differences in mechanism operation directly lead to differences in performance. Using data from 2020 to 2024, the study systematically extracts and analyzes element-specific activities undertaken by both firms and compares how specific mechanisms were linked to the outcome of market share expansion. Based on an activity-based Weight-sequence analysis, the results further reveal that SK hynix adopted an externally oriented approach in the order of “Environment → Subject → Resources,” whereas Samsung Electronics followed an internally oriented approach of “Subject → Resources → Environment.” This difference in strategic orientation is identified as a key factor that reversed market leadership in the HBM market. Overall, this study demonstrates the usefulness of a mechanism-based perspective in analyzing firm performance and formulating strategy, and focuses on proposing and empirically validating ideas to systematize the SER-M model and quantitatively operationalize its components to enhance its practical applicability and objectivity.

Keywords: HBM competitive strategy; SWOT-SER-M integrated model; element-level quantification; activity-based mechanisms; refinement of the Weight-sequence model; re-verification of mechanism effectiveness

I. Introduction

1.1. Research Background

Various frameworks and models have been proposed to analyze firm performance and formulate corporate strategies. Among them, the SER-M model proposed by Professor Dong-Sung Cho has attracted considerable attention as an integrative analytical approach that interprets firm performance through mechanisms arising from the interconnection and interaction among three key elements: Subject, Environment, and Resources. By emphasizing mechanisms rather than isolated factors, this model has contributed to overcoming the limitations of traditional strategy models that focus on a single element. However, several

studies, including those by Eom (Jae-Geun), have repeatedly pointed out the need for clearer evaluation criteria for each element and more systematic methods for analyzing inter-element interactions when applying the SER-M model in practice.

This study focuses on improving the application methodology of the SER-M framework and applies the enhanced framework to the analysis of a notable reversal of market leadership in the Korean semiconductor industry. Specifically, it investigates in detail how SK hynix, a latecomer in the HBM (High Bandwidth Memory) segment, was able to overtake Samsung Electronics, a global industry leader, during the five-year period from 2020 to 2024.

According to Counterpoint Research (2025), in the first quarter of 2024, the global DRAM revenue market share reached 36% for SK hynix and 34% for Samsung Electronics, marking the first time that the industry ranking was reversed. This case, in which Samsung Electronics lost its leading position in the DRAM market after more than three decades, vividly illustrates a structural shift in the memory semiconductor industry. In particular, SK hynix is evaluated to have responded in a timely manner to the explosive growth in AI-related demand, achieving an HBM market share of approximately 70% (THE ELEC, 2025).

1.2. Research Objectives and Methodology

The objectives of this study are threefold.

First, the study proposes improvements to the SER-M framework through the integration of SWOT analysis, the establishment of quantitative evaluation criteria for each element, and the refinement of the Weight-sequence model.

Second, the proposed improvements to the SER-M model are applied to the HBM competition between SK hynix and Samsung Electronics to verify the suitability and practical applicability of the enhanced framework.

Third, the study analyzes the strategic differences between the two firms from a mechanism-based perspective and derives key implications regarding the role of mechanisms in explaining firm performance.

To achieve the research objectives, this study is structured around addressing the following key research questions.

First, which aspects of the SER-M model require improvement to enable effective practical application?

Second, how can SWOT analysis be effectively integrated into the SER-M framework?

Third, how can the framework be improved to enable the systematic identification and extraction of mechanisms?

Fourth, what differences in mechanisms can be observed between SK hynix and Samsung Electronics when applying the improved SER-M model?

Fifth, what implications does strategic priority analysis using the Weight-sequence model (WSM) provide for understanding firm performance?

To address these five questions, the study first reviews prior research and analyzes

methodological limitations, and then proposes the following improvement measures to enhance the practical applicability of the SER-M framework.

First, the development of a SWOT-SER-M integrated model, in which the SER-M elements (S, E, R) and mechanisms (M) are systematically integrated with the SWOT framework (Strengths, Weaknesses, Opportunities, and Threats) to establish more detailed and explicit evaluation criteria.

Second, the clarification of mechanism definitions and the systematization of the extraction process by redefining mechanisms based on interaction patterns among Subject, Environment, and Resources and the development of a research methodology and procedure for mechanism identification.

Third, the refinement of the Weight-sequence model (WSM) by developing methodologies to quantitatively evaluate and analyze both the relative importance (weight) and application order (sequence) of elements, including mechanisms.

Fourth, the development of indicators for re-verifying mechanism effectiveness, which enable reassessment of whether the identified mechanisms appropriately explain their impact on firm performance.

Subsequently, to empirically validate the proposed SER-M framework, the study analyzes the HBM market competition between SK hynix and Samsung Electronics from 2020 to 2024 (with some data extending to 2025). This case was selected because it represents a rare instance in which a latecomer overtook an incumbent, making it particularly suitable for testing the validity of a mechanism-based perspective. Research data are drawn from industry statistics (WSTS, Gartner reports, 2023; data from semiconductor industry association, 2022), corporate disclosures (annual reports, IR materials, earnings announcements), industry analysis reports (from securities firms, consulting companies, and research institutes), media coverage related to strategy, investment, and technology development, as well as academic articles and research reports. Data reliability and validity are ensured through cross-verification across multiple sources.

Finally, the study concludes by deriving implications from the SER-M framework improvements and the case analysis, and by suggesting directions for future research and continued refinement.

This study focuses on improving the practical applicability and analytical operability of the SER-M framework by proposing a structured activity-based mechanism analysis approach grounded in strategic management practice.

II. Methodological Improvements to the SER-M Framework

2.1. Development of the SWOT-SER-M Integrated Model

To systematically derive detailed SER-M elements, this study incorporates SWOT

analysis into the SER-M framework. The integration of the SWOT-SER-M model is designed to combine the strengths of both frameworks while compensating for their respective limitations.

The SER-M model is an integrative strategic management framework that explains firm performance through mechanisms composed of Subject, Environment, and Resources. The significance of this framework lies in its shift away from the simplicity of traditional strategy theories that focus on a single element, toward an emphasis on interconnections and mechanisms among multiple elements.

Whereas Porter (1985) focused on industry structure and competitive environment, and Barney (1991) proposed the resource-based view in which sustainable competitive advantage arises from valuable, rare, and inimitable resources, the SER-M model presents an integrative perspective that includes the Subject element alongside Environment and Resources. A defining feature of the SER-M model is its emphasis on the idea that firm performance is generated not by individual elements in isolation, but by their modes of interaction—that is, by mechanisms (Cho, 2006).

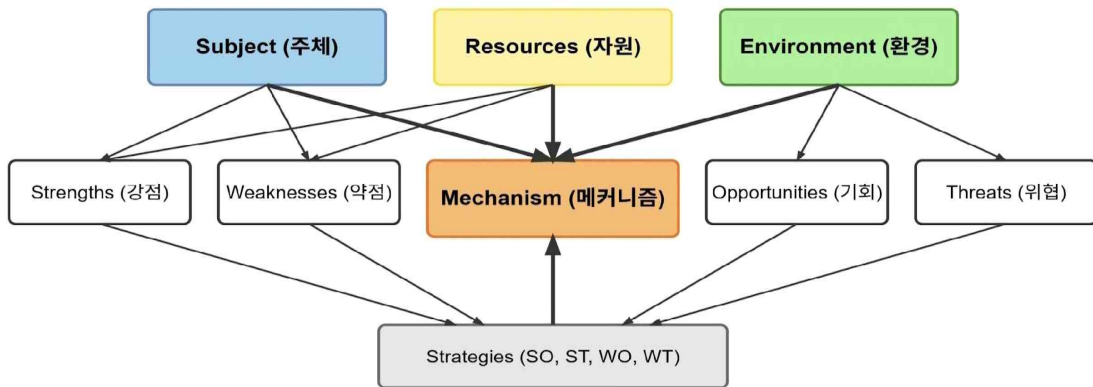
Despite these strengths, several limitations of the SER-M model have been identified in practical applications. Specifically, the lack of clearly defined evaluation criteria and methods for each element (S, E, R) has led to reliance on subjective judgment by researchers. In addition, the absence of a standardized mechanism extraction system has raised concerns about analytical consistency. Further discussion is also needed regarding concrete methodologies for determining relative importance and application order among elements. These limitations have hindered the practical application of the SER-M model and have prompted ongoing concerns about the consistency of analytical results (Eom, Cho & Tac, 2017).

SWOT analysis has long been widely used as a strategic tool that systematically categorizes a firm's internal capabilities into Strengths and Weaknesses and its external environment into Opportunities and Threats. According to Helms and Nixon (2010), SWOT analysis is effective in clearly distinguishing internal and external factors and in systematically identifying positive and negative attributes, and it is relatively easy to apply. However, it is limited in capturing interactions among elements or identifying dynamic mechanisms.

When appropriately combined, the SER-M model and SWOT analysis can complement each other's strengths and weaknesses. The Subject (S) and Resource (R) elements of SER-M are closely linked to the internal strengths and weaknesses identified through SWOT analysis, while the Environment (E) element corresponds to external opportunities and threats. Mechanisms (M) can be connected to strategic response options derived from SWOT analysis, such as SO, ST, WO, and WT strategies. By integrating the two frameworks, the SER-M model benefits from clearer element-level evaluation criteria, while SWOT analysis overcomes its static limitations, resulting in mutually reinforcing analytical advantages. Figure 1 presents an integrated conceptual model combining the SER-M framework and the

SWOT methodology.

[Figure 1] Integrated Model of the SER-M Framework and the SWOT Approach



2.2. Standardization of Element-Level Indicators Using SWOT-Based SER-M

The sub-indicators were not intended to represent an exhaustive or universally fixed taxonomy of SER elements, but rather a pragmatic operationalization designed to improve analytical consistency and applicability in strategic case analysis.

To address the limitations identified in prior applications of the SER-M model, this study analyzes previously conducted SER-M-based studies and integrates SWOT analysis into each SER-M element in order to standardize a set of detailed indicators. By applying SWOT logic to the Subject (S), Environment (E), and Resource (R) elements, the study restructures these elements into a limited number of standardized indicators that can be more easily operationalized and quantitatively evaluated.

2.2.1. Standardization of Subject (S) Indicators through SWOT Integration

The Subject element refers to human and organizational factors such as decision-makers, leadership, and organizational culture. When integrated with SWOT analysis, the Subject element can be evaluated by distinguishing between subject-related strengths (Ss) and weaknesses (Sw). Subject strengths include managerial vision, leadership capability, decision-making speed, and positive aspects of organizational culture, whereas subject weaknesses encompass managerial bias, bureaucracy, delayed decision-making, and unfavorable organizational culture.

To enhance applicability and facilitate future quantification, this study standardizes the Subject element into five indicators from a capability-based perspective: executive leadership (s1), decision-making speed (s2), organizational culture (s3), governance structure (s4), and other subject-related factors (s5).

2.2.2. Standardization of Environment (E) Indicators through SWOT Integration

The Environment element encompasses external factors surrounding the firm, including market trends, competitive dynamics, technological change, and regulatory conditions. When combined with SWOT analysis, the Environment element is classified into environmental opportunities (Eo) and environmental threats (Et). Environmental opportunities include market growth, the emergence of new technologies, and regulatory relaxation, while environmental threats consist of intensified competition, market saturation, and regulatory tightening.

Because the primary purpose of this study is firm-level case analysis, the Environment element is evaluated not as an objective external condition per se, but rather in terms of how firms perceive and respond to environmental changes. Accordingly, the Environment element is subdivided into five standardized indicators: response to market (demand) changes (e1), relative position vis-à-vis competitors (e2), preparedness for emerging technologies (e3), risk response capability (e4), and other environment-related factors (e5).

2.2.3. Standardization of Resource (R) Indicators through SWOT Integration

The Resource element refers to the tangible and intangible assets and capabilities possessed by a firm. When integrated with SWOT analysis, resources are classified into resource strengths (Rs) and resource weaknesses (Rw). Resource strengths include technological capabilities, financial capacity, human capital, intellectual property, and brand equity, while resource weaknesses include technological gaps, financial constraints, and shortages of skilled personnel.

In this study, the Resource element is evaluated not in terms of mere possession, but from the perspective of actual deployment and utilization. Accordingly, resources are standardized into five indicators: human resources (r1), financial resources (r2), technological resources (r3), brand value (r4), and other resource-related factors (r5).

This approach reflects the structured application of SWOT analysis proposed by Hill and Westbrook (1997) and enables clearer and more consistent evaluation criteria when applying the SER-M model.

2.2.4. Systematization of Mechanisms (M) through SWOT Integration

Mechanisms refer to the ways in which Subject, Environment, and Resource elements are interconnected and operate together. In this study, a systematic method for deriving mechanisms is proposed by integrating the strategy extraction logic of SWOT analysis with the mechanism concept of the SER-M framework. Specifically, this approach links the strategy derivation logic of the TOWS matrix proposed by Weihrich (1982) with the SER-M mechanism concept, thereby enabling more structured identification of mechanisms.

When mechanisms are categorized based on SWOT-derived strategic responses, they can be classified as follows.

First, growth mechanisms (Mso) refer to mechanisms that leverage strengths to exploit

opportunities, corresponding to SO strategies.

Second, defensive mechanisms (Mst) are mechanisms that use strengths to counter threats, corresponding to ST strategies.

Third, improvement mechanisms (Mwo) represent mechanisms that overcome weaknesses to exploit opportunities, corresponding to WO strategies.

Fourth, survival mechanisms (Mwt) are mechanisms that simultaneously address weaknesses and threats, corresponding to WT strategies.

These SWOT-based mechanisms can be used in conjunction with the SER-M element-based mechanisms (MS, ME, MR, MSE, MSR, MER, MSER) introduced in Section 3.3. While SWOT-based mechanisms primarily indicate strategic direction and intent, SER-M element-based mechanisms focus on explaining the structural patterns and interaction processes through which elements are interconnected and performance is generated.

2.3. Establishment of a Mechanism Framework

From a mechanism-based perspective, firm competitiveness is explained by focusing on the patterns of linkage and interaction among Subject, Environment, and Resources rather than on these elements in isolation. Cho (2006) conceptualizes the firm as a purposive organism and defines a mechanism as a dynamic principle through which Subject, Environment, and Resources are integratively combined to repeatedly generate strategic execution processes. In industries characterized by high uncertainty and rapid technological change, superiority in any single element cannot guarantee success; even firms endowed with abundant resources may fail to translate competitive advantage into performance if they respond to environmental changes through inappropriate or misaligned mechanisms.

Although the importance of the mechanism-based perspective has been widely discussed, there has been limited in-depth examination of its practical application. In particular, few studies have provided clear definitions of mechanisms or systematic methods for identifying how specific mechanisms operate across elements and contribute to performance outcomes. Accordingly, this study seeks to clarify the concept of mechanisms and to develop a more rigorous and operationalizable method for extracting mechanisms in practice.

2.3.1. Redefinition and Classification of Mechanisms

To systematically analyze SER elements and their interconnections, this study redefines mechanisms and classifies them into seven standardized types.

These mechanisms do not imply the absence of the other SER elements, but indicate that a particular element plays the dominant role under given structural conditions.

First, mechanisms primarily driven by individual SER elements are defined as follows.

- MS (Subject-internal mechanism) refers to mechanisms that transform weaknesses of the Subject element into strengths and generate synergy among subject-related strengths.

- ME (Environment-internal mechanism) refers to mechanisms that convert environmental threats into opportunities and link multiple opportunities in a coherent manner.
- MR (Resource-internal mechanism) refers to mechanisms that transform weak resource elements into strengths and create synergy among resource-related strengths.

Second, mechanisms involving interactions between two SER elements are defined as follows.

- MSE (Subject-Environment mechanism) refers to mechanisms through which the Subject perceives, anticipates, and responds to environmental changes or actively shapes the market environment.
- MSR (Subject-Resource mechanism) refers to mechanisms through which the Subject secures, allocates, and utilizes resources.
- MER (Environment-Resource mechanism) refers to mechanisms that determine the type, scale, and allocation of resources in response to environmental changes.
- Finally, MSER (Subject-Environment-Resource integrated mechanism) refers to the core mechanism in which all three elements interact organically to generate firm performance.

These seven mechanism types can be further cross-classified with the SWOT-based mechanism categories (Mso, Mst, Mwo, Mwt) introduced in Section 2.2.4 to construct a more fine-grained mechanism taxonomy. For example, MSE-so can be defined as a mechanism in which subject-related strengths are leveraged to exploit environmental opportunities.

2.3.2. Activity-Based Mechanism Extraction Process

Mechanism extraction constitutes the core of the SER-M model and represents the most challenging aspect of its practical application. To address this challenge, this study proposes an activity-based mechanism extraction process that integrates the SER-M framework with SWOT analysis. Unlike conventional approaches that rely on simple aggregation of element scores, this method identifies mechanisms by analyzing interdependencies among activities within and across elements and calculates mechanism scores in a more precise and systematic manner.

The proposed process consists of the following steps.

First, identification of key activities by element: Core activities for each SER element (S, E, R) are systematically identified through SWOT analysis. At this stage, concrete activities actually undertaken by firms are extracted for each standardized indicator (s1-s5, e1-e5, r1-r5).

Second, evaluation and scoring of activities: The effectiveness of each activity is evaluated using a five-point scale (1-5). Evaluation criteria include contribution to performance, efficiency, and timeliness.

Third, assessment of inter-activity linkages: The degree of linkage among activities—both within the same element and across different elements—is assessed using a scale ranging from 0.5 (low linkage) to 1.0 (perfect linkage). This measure reflects the extent to which activities generate synergy.

Fourth, calculation of mechanism scores. Mechanism scores in this study should not be interpreted as independent variables equivalent to S, E, and R. Rather, they represent operationalized relational intensities derived from interactions among SER activities: Mechanism scores are calculated using the following formula: Mechanism score = linkage weight $\times$ (sum of related activity scores / number of related activities)

Fifth, mechanism classification and labeling: The derived mechanisms are classified into the seven mechanism types defined in Section 2.3.1, and descriptive labels are assigned to reflect their characteristics.

By adopting this activity-based approach, the proposed method significantly enhances the rigor and precision of mechanism identification and measurement, thereby improving the analytical consistency and practical applicability of the SER-M framework.

2.4. Refinement of the Weight-Sequence Model (WSM)

The proposed WSM extension is heuristic rather than predictive in nature, and is intended to support interpretive understanding of strategic priority and execution flow rather than precise causal quantification.

The Weight-Sequence Model (WSM) explains how the relative importance (weight) and the order of application (sequence) of Subject, Environment, and Resources influence firm performance. Weight refers to the degree of attention and resource allocation assigned to each element, whereas sequence refers to the temporal order in which these elements are considered and applied in strategic decision-making. For example, a strategy that prioritizes early recognition of environmental changes (sequence) and subsequently concentrates resources on core technologies (weight) may be particularly effective in rapidly changing environments (Cho & Moon, 2022). In this study, the WSM is refined as follows.

2.4.1. Measurement of Weights

In many prior studies, element-level weights (S, E, R) have been determined qualitatively based on case analysis. In contrast, this study proposes a quantitative approach that measures weights using indicators such as the relative allocation of personnel, budget, and managerial attention; the influence of each element on strategic decision-making; priorities reflected in official announcements and strategic documents; and evidence from investment and execution patterns.

Scores derived from these indicators are aggregated to calculate the weight of each element. In addition, the weights of element-internal mechanisms and inter-element mechanisms are calculated by combining the average scores of activity-level indicators with their linkage intensities, thereby incorporating mechanism scores into the overall weight assessment.

2.4.2. Methodology for Sequence Analysis

Conventional sequence-setting methods based solely on the magnitude of weights suffer from conceptual overlap between weight and sequence and fail to capture the dynamic nature of strategy execution. Moreover, since firm performance is typically generated through inter-element mechanisms rather than through isolated effects of individual elements, a more refined approach is required.

Accordingly, this study extends sequence analysis to include not only the SER elements but also the associated mechanisms. Sequence is defined as the temporal order in which specific mechanisms are considered and activated during strategy formulation and execution. Sequence analysis is conducted through the following procedures:

First, decision-process analysis, which examines the order in which mechanisms are considered during strategic decision-making.

Second, temporal precedence analysis, which identifies the chronological order in which mechanisms appear in actual cases.

Third, causal linkage analysis, which examines how changes in one mechanism trigger subsequent changes in others.

This approach enables systematic analysis of the temporal flow of strategic decision-making and execution.

2.5. Development of Indicators for Re-verifying Mechanism Effectiveness

In addition to the WSM, this study develops a set of indicators to re-verify the effectiveness of identified mechanisms. These indicators allow for reassessment of whether the mechanisms derived through analysis appropriately explain their impact on firm performance. The evaluation framework consists of the following five dimensions:

First, strategic fit, which assesses the degree of alignment between the mechanism and the firm's strategic objectives.

Second, efficiency, which evaluates performance outcomes relative to resource inputs.

Third, agility, which measures the speed and flexibility of responses to environmental change.

Fourth, sustainability, which examines the potential of the mechanism to support long-term competitive advantage.

Fifth, scalability, which assesses the applicability of the mechanism to other contexts or business domains.

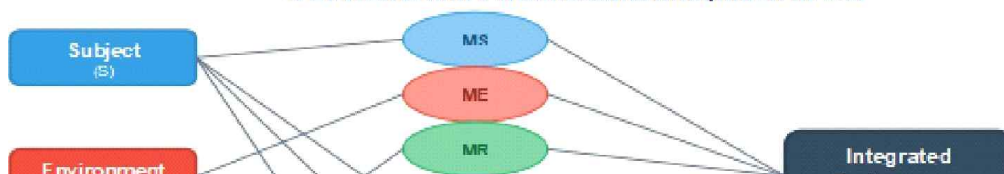
Each dimension is evaluated using a five-point scale (1-5), and the aggregated score provides a quantitative basis for re-verifying differences in mechanism effectiveness.

2.6. Operational Structure of the Improved SER-M Framework

Figure 2 presents the operational structure of the improved SER-M framework proposed in this study, synthesizing the methodological enhancements discussed above.

[Figure 2] The Enhanced SER-M Framework

3 Elements and 7 Mechanisms Integration Model



The improved framework integrates SWOT analysis with the SER-M model to establish standardized evaluation criteria for each element, applies an activity-based process for mechanism extraction, refines the WSM to capture both weight and sequence effects, and incorporates re-verification indicators to assess mechanism effectiveness. Through this integrated structure, the framework enhances analytical rigor, objectivity, and practical applicability.

By systematically linking element-level evaluation, mechanism identification, and dynamic mechanism-evolution analysis, the improved SER-M framework provides a comprehensive tool for analyzing firm performance and formulating strategy in complex and rapidly changing environments.

III. Validation of the Improved SER-M Methodology through a Corporate Case Study

This chapter applies the improved SER-M framework proposed above to the HBM competition between SK hynix and Samsung Electronics, with the aim of validating the operability and suitability of the enhanced framework.

3.1. Semiconductor Market Trends

A notable recent development in the semiconductor industry is the rapidly increasing strategic importance of HBM (High Bandwidth Memory). HBM is an essential memory semiconductor for high-performance computing domains such as supercomputing, graphics processing, and artificial intelligence. By vertically stacking multiple DRAM dies, HBM provides substantially higher bandwidth than conventional memory products. In particular, since 2022, demand has grown sharply alongside the AI boom, positioning HBM as a new growth engine for the memory semiconductor market (EE Times, 2024).

Unlike conventional DRAM, HBM significantly improves not only bandwidth but also energy efficiency through 3D packaging technologies, and has become a critical component for AI accelerators and GPUs that must process massive volumes of data at high speed. Its bandwidth is estimated to be three to five times higher than DDR4/5 DRAM, and HBM is projected to account for more than 14% of the total DRAM market by 2025 (Counterpoint Research, 2025).

During the analysis period (2020-2024), the global semiconductor market exhibited substantial volatility. According to the Semiconductor Industry Association (SIA, 2022) and Gartner (2023), the market grew from approximately USD 439.0 billion in 2020 to USD 555.9 billion in 2021 (a 26% increase), after which growth slowed to 3.3% in 2022. In 2023, the market declined by 8.2% to USD 526.8 billion due to inventory adjustments and falling memory prices. In 2024, however, the market recovered to USD 627.6 billion, reflecting 19.1% growth driven by rising memory prices and expanding demand for AI semiconductors.

The increasing share of high value-added, AI-related products in the memory market is particularly noteworthy. In 2020, HBM accounted for only about 3% of the DRAM market, but by 2024 it exceeded 12%, and its share is even higher in revenue terms.

During this period, the market positions of Samsung Electronics and SK hynix changed significantly. In 2021, their respective DRAM market shares were 41.8% and 28.7%, while SK hynix's share slightly declined to 28.0% in 2022. However, conditions shifted beginning in the second half of 2023 amid a deepening memory downturn. In the first quarter of 2025, a reversal occurred, with SK hynix at 36% and Samsung Electronics at 34% (Counterpoint Research, 2025).

In particular, SK hynix captured approximately 70% of the HBM market by absorbing the surge in AI-driven demand for high value-added products. This outcome is attributed to its successful development of HBM3E and its selection as memory for NVIDIA's AI accelerators. SK hynix's HBM revenue is estimated to have increased by approximately threefold in 2024 compared with 2023 (Energy Economic News, 2025).

In contrast, Samsung Electronics reportedly transferred most orders from its key customer, NVIDIA, to SK hynix due to technical issues and delays in mass production of HBM3. This outcome is in sharp contrast to Samsung's traditional dominance in the conventional DRAM market. Based on the sources cited above, Samsung's HBM market share is estimated to remain in the range of 30-40%.

3.2. Element-Level Analysis and Quantitative Evaluation under the Improved Model(S,E,R)

For element-level analysis and quantitative evaluation, this study identifies major strategic-environment issues and the actual activities undertaken by both firms during 2020 -2024. Based on materials such as TrendForce News, Reuters reporting, CEO messages, IR materials, the SK hynix Newsroom, and SGR reports, key events directly relevant to the research are classified by element and summarized in Table 1.

<Table 1> Strategic Events and Major Activities by Year and Firm

Year	Firm	Key Activities
2020 2020 2020	SK hynix	S: Announcement of CEO Lee Seok-hee's vision to become a "Memory Solution Company" (Jan.) R: Initiation of mass production of HBM2E (Q2) E: Early recognition of increasing HBM demand driven by the AI boom (Q2) E: Formulation of a supply-chain diversification strategy in response to U.S.-China trade tensions (Q3) R: Launch of intensive recruitment of HBM-specialized engineers (H2)
	Samsung Electronics	S: Strengthening leadership around the "Super-Gap" strategy (Jan.) S: Establishment of inter-divisional personnel exchange(Q1)
	Samsung Electronics	R: Concentrated development of advanced 3nm EUV process technologies (Q2) E: Promotion of global manufacturing base diversification (Pyeongtaek, Xi'an, U.S., etc.) (Q3)
2021	SK hynix	E: Early establishment of a next-generation HBM technology roadmap (Q1) S: Specification of an AI-memory-centric strategic vision (Q1)

		R: Initiation of focused investment in specialized HBM production lines (Q2) E: Systematization of monitoring of technology gaps with competitors (Samsung, Micron, etc.) (Q3) E: Expansion of strategic partnerships with major technology firms (Q4)
	Samsung Electronics	S: Reaffirmation of Vice Chairman Lee Jae-yong's semiconductor-centered management vision (Q1) R: Decision to sustain investment to maintain the "Super-Gap" strategy despite an industry downturn (Q1) E: Concentration on advanced process development, including GAA (Gate-All-Around) technology (Q2) R: Limited implementation of technology sharing between memory and system semiconductors (Q4)
2022	SK hynix	R: Expansion of patent acquisition in advanced process and packaging technologies (Q3) E: Formulation of product strategies aligned with the growth of NVIDIA A100 and H100 GPUs (Q3) R: Strengthening of strategic partnership with NVIDIA (Q4)
	Samsung Electronics	R: Expansion of HBM2E mass production (Q1) S: Continued decision-making delays due to complex approval processes (Q2) E: Initial recognition of delays in HBM technology development relative to SK hynix (Q3) S: Reinforcement of a strategy pursuing balanced development between memory and non-memory businesses (Q3)
2023	SK hynix	R: Expansion of investment in HBM production facilities, including the M15X plant (Q1) R: Completion of development of 12-high HBM3E stacking technology (Q2) E: Strengthening of cooperation with TSMC on CoWoS packaging technology (Q3) R: Full-scale establishment of a technology leadership image in HBM (Q3) S: Optimization of clear role allocation and accountability across business divisions (H2)
	Samsung Electronics	E: Public acknowledgment of delayed responses to rising AI-memory demand (Q2) R: Expansion of strategies to reinforce system-semiconductor workforce (Q3) S: Maintenance of governance emphasizing checks and balances among business divisions (H2)
2024	SK hynix	R: Successful world-first mass production of HBM3E (Q1) E: Accelerated proactive response to rapid growth trends in the data-center market (Q1) R: Strengthening brand positioning as a specialized AI-memory solution company (Q2) E: Completion of leading product-positioning strategies relative to competitors (Q2)
	Samsung Electronics	E: Deepening loss of market opportunities due to delayed response to the AI boom (Q1) R: Continued delays in the full-scale mass production of HBM3 (Q1)

3.2.1. Analysis of the Subject (S) Element

Applying the improved SWOT-SER-M integrated model to the Subject element reveals distinct characteristics for the two firms.

For SK hynix, the Subject element includes strengths (Ss) such as a forward-looking vision for the HBM market, a fast decision-making structure under a professional management system, and customer-oriented leadership. In contrast, it also exhibits weaknesses (Sw), including relatively limited R&D capacity and diversification constraints stemming from a strong focus on a single technology domain.

Samsung Electronics shows strengths (Ss) such as strong leadership under the “super-gap” strategy, the ability to execute large-scale R&D investments, and strong global brand power. At the same time, it exhibits weaknesses (Sw) such as delayed responses due to a vertical decision-making structure, dispersed managerial attention across an excessively broad portfolio, and a relatively low level of recognition (e.g., perceiving “HBM as not fundamentally different from DRAM”). This Subject-element analysis indicates how leadership and organizational structure shape strategic decision-making. In particular, while SK hynix’s professional management system enabled rapid decisions, Samsung’s vertical governance structure appears to have constrained the speed of response to environmental change.

3.2.2. Analysis of the Environment (E) Element

Environment-element analysis indicates that, although both firms were exposed to the same external environment, they differed substantially in how they perceived opportunities and threats.

SK hynix perceived major opportunities (Eo) in the explosive increase in HBM demand driven by the rapid expansion of the AI market, competitors’ delays in launching HBM technologies, and U.S. policies reshaping the semiconductor supply chain. It perceived major threats (Et) in cyclical downturns in the semiconductor market, geopolitical risks stemming from U.S.-China tensions, and financial burdens associated with large-scale capital expenditures.

Samsung Electronics perceived opportunities (Eo) in expanding global semiconductor demand, the growth of the system semiconductor market, and the recovery of the memory market. It perceived threats (Et) in abrupt shifts in demand for AI memory, global supply-chain instability related to U.S.-China tensions, and weakening leadership in the HBM segment.

3.2.3. Analysis of the Resource (R) Element

In the Resource element, SK hynix demonstrated strengths (Rs) such as leadership in high-stack HBM technologies (12-layer HBM3E), optimization capabilities in thermal performance and compatibility design, and specialized AI-memory packaging infrastructure (e.g., M15X). Its weaknesses (Rw) include relatively constrained capital availability compared with Samsung, delays in advanced EUV process capabilities, and limited global production footprint.

Samsung Electronics showed strengths (Rs) such as abundant financial and R&D

resources, advanced 3nm EUV process technologies, and extensive global production infrastructure (e.g., Pyeongtaek, Xi'an, and the United States). However, it also exhibited weaknesses (Rw), including relative delays in HBM-related technologies, resource allocation dispersed across multiple business domains, and insufficient capabilities for AI-memory customized design.

Notably, while SK hynix concentrated investment on HBM-specialized technologies despite limited capital, Samsung possessed larger resources but distributed investment across diverse domains such as memory, system semiconductors, and foundry.

3.2.4. Quantitative Evaluation of Detailed Indicators by Element (S, E, R)

In prior practical applications of the SER-M model, researchers have repeatedly raised concerns that classification criteria for elements (S, E, R) are unclear and that evaluation standards are overly subjective. To address these issues, this study proposes differentiated evaluation principles depending on research purpose.

For the purpose of future strategy formulation, Subject (S) and Resource (R) should be evaluated from the perspective of the firm's possessed capabilities. However, for the purpose of performance case analysis, evaluation should focus not on possessed capabilities per se but on manifested subject capabilities and deployed resource capabilities. Similarly, while Environment (E) may be assessed as-is when developing strategy, in case-based performance analysis it should be evaluated in terms of how the Subject perceived and responded to environmental change in order to improve analytical accuracy.

Based on the classification results above (strengths/weaknesses for Subject and Resources, opportunities/threats for Environment), this study groups element-specific activities into five standardized sub-indicators and evaluates them on a five-point scale in terms of their contribution to the performance outcome—HBM market share. The quantitative evaluation results and supporting rationales are presented in Table 2.

<Table 2> Standardization and Quantitative Evaluation Results for Element-Level

Sub-Indicators (S, E, R)

Evaluation Factors			SK hynix		Samsung Electronics	
			Score (Rationale)	Sub total	Score (Rationale))	Sub total
Subject (S) Manifested Capability	s1	Top management leadership	5 (HBM vision; professional management system)	24	5 (No.1 semiconductor vision; strong leadership)	21
	s2	Decision-making speed	5 (Rapid HBM investment; swift NVIDIA response)		3 (Vertical decision-making; complex approval process)	
	s3	Organizational culture (challenge, openness)	4 (Failure-tolerant, technology-driven culture)		4 (Perfection-oriented conservative culture)	
	s4	Governance	5 (Clear inter-divisional		5	

			roles and responsibilities)		(Enterprise-wide integration with checks and balances)	
	s5	Other subject-related factors	5 (Aggregate of other indicators)		4 (Aggregate of other indicators)	
Environment (E) Recognition / Response	e1	Response to market (demand) changes	5 (Alignment with GPU-driven demand growth)		4 (Commodity DRAM focus; weak new-demand sensitivity)	17
	e2	Competitive positioning	5 (Advantage over Samsung and Micron)		3 (Underestimation of competitors)	
	e3	Preparedness for emerging technologies	5 (Execution of next-generation HBM roadmap)	25	3 (Over-reliance on internal roadmap)	
	e4	Risk management	5 (Supply-chain diversification vs. US-China tensions)		4 (Internal supply-chain stabilization)	
	e5	Other environmental factors	5 (Aggregate of other indicators)		3 (Aggregate of other indicators)	
Resource (R) Input / Utilization	r1	Human resources	5 (Focused recruitment of HBM specialists)		4 (Strengthening system-semiconductor workforce)	18
	r2	Financial resources	5 (Strategic focus under capital constraints)		3 (Dispersed investment across multiple businesses)	
	r3	Technological resources (patents)	5 (12-high advanced technology)	24	3 (Relative delay in HBM-related technologies)	
	r4	Brand value	4 (NVIDIA partnership; technology-oriented positioning)		4 (Leading semiconductor brand; quality reputation)	
	r5	Other resource factors	5 (Aggregate of other indicators)		4 (Aggregate of other indicators)	

3.3. Quantitative Evaluation of Mechanisms and Results

Applying the activity-based mechanism extraction process proposed in this study, seven mechanisms were quantified for each firm. The quantitative evaluation method uses the sub-indicator scores (s1-r5) presented in Table 2 and incorporates linkage weights reflecting interrelations among sub-indicators. Linkage weights were determined primarily based on their estimated impact on market share during the analysis period, with reference to relevant media reports, trade publications, and firms' internal analyses. For research efficiency, sub-indicators with negligible impact were excluded or assigned equal weights for both firms. The results indicate substantial differences between the two firms in the ways their activities interacted.

3.3.1. Quantification of Internal Mechanisms (MS, ME, MR)

Internal mechanism scores are calculated using the following formula:

- Mechanism score = linkage weight $\times$ (sum of related activity scores / number of related)

Here, linkage weight ranges from 0.5 (low linkage) to 1.0 (perfect linkage), and activity scores correspond to element-level performance scores on a 1-5 scale. The quantification results for the Subject-internal mechanism (MS) are presented in Table 3, showing that SK hynix's MS is characterized by strong interactions among activities associated with leadership, decision-making speed, and organizational culture.

<Table 3> Quantification Results for the Subject-Internal Mechanism (MS)

Firm	Interacting Factors	Indicator Scores and Rationale	Linkage Weight and Rationale	Calculated Result
SK hynix	s1-s2	s1 (5): HBM-centered strategic vision s2 (5): Rapid investment decision system	(0.9): Leadership strongly influences decision speed	$4.5 = 0.9 \times (5+5)/2$
	s1-s3	s1 (5): Customer-oriented strategic focus s3 (4): Collaborative organizational culture	(0.8): Leadership significantly shapes organizational culture	$3.6 = 0.8 \times (5+4)/2$
	s2-s3	s2 (5): Field-oriented decision-making system s3 (4): Flexible organizational response	(0.7): Decision speed moderately affects organizational responsiveness	$3.15 = 0.7 \times (5+4)/2$
	Others	Little synergy among remaining internal subject indicators(Excluded from consideration)		0
	Total			11.25
Samsung Electronics	s1-s2	s1 (5): Persistence in super-gap strategy s2 (3): Vertical decision-making structure	(0.7): Misalignment between strategy and decision structure	$2.8 = 0.7 \times (5+3)/2$
	s1-s3	s1 (5): Emphasis on past success s3 (4): Internal process-oriented culture	(0.7): Partial linkage between leadership and culture	$3.15 = 0.7 \times (5+4)/2$
	s2-s3	s2 (3): Multi-layered review process s3 (4): Large-scale organizational structure	(0.6): Low synergy between decision-making and culture	$2.1 = 0.6 \times (3+4)/2$
	Others	Little synergy among remaining internal subject indicators(Excluded from consideration)		0
	Total			8.05

As shown by the difference in the degree of interactivity among Subject-related activities, a gap of 3.2 points emerged between SK hynix and Samsung in MS. In particular, SK hynix exhibited high linkage (0.9) between leadership and decision-making speed, whereas Samsung showed relatively lower linkage (0.7), suggesting that SK hynix's leadership more positively influenced decision speed and organizational culture.

Applying the same approach to the Environment-internal mechanism (ME) reveals an even more pronounced difference. SK hynix's ME was composed of effective interactions among market-change response, competitive positioning, and preparedness for emerging technologies.

The interaction between early detection of AI-driven demand growth and timely recognition of competitors' technology delays showed high linkage (0.9), yielding 4.5 points. In particular, the interaction between identifying the HBM demand growth trend and proactively developing high-stack technologies achieved perfect linkage (1.0), yielding 5 points. The interaction between competitor-threat analysis and building a next-generation product roadmap also scored 4.5 points. Overall, SK hynix's ME total was evaluated at 14 points.

For Samsung Electronics, the interaction between maintaining a DRAM-centered market view and projecting continuity of the existing competitive structure was assessed as low linkage (0.6), yielding only 1.8 points. The interaction between DRAM-demand-centered market forecasting and technology development based on its internal roadmap was also low (0.6), resulting in 1.8 points. Similarly, the interaction between maintaining DRAM competitiveness and roadmap-based technology development remained at 1.8 points with linkage of 0.6. Consequently, Samsung's ME total was 6.35 points—7.65 points lower than SK hynix.

This large gap suggests that SK hynix detected AI-market changes earlier and accelerated HBM technology development accordingly, whereas Samsung's linkage between market change and technology development was relatively weak.

A substantial difference was also observed in the Resource-internal mechanism (MR). SK hynix's MR comprised effective interactions among human resources, financial resources, and technological resources. The interaction between concentrated deployment of HBM-specialized personnel and strengthening high-stack technology capabilities achieved perfect linkage (1.0), yielding 5 points. The interaction between focused HBM investment and proactive development of HBM3E technologies showed high linkage (0.9), yielding 4.5 points. The interaction between securing/retaining key talent and concentrated R&D investment also received 4 points with linkage of 0.8. As a result, SK hynix's MR total reached 13.5 points.

For Samsung Electronics, the interaction between distributing personnel across diverse business areas and delays in HBM-related technologies showed limited linkage (0.7), yielding 2.45 points. The interaction between a dispersed investment strategy and a general-purpose DRAM-based approach showed low linkage (0.6), yielding 1.8 points. The interaction between maintaining a global talent pool and distributing resources across diverse business areas also remained at 2.45 points with linkage of 0.7. Consequently, Samsung's MR total was 6.7 points—6.8 points lower than SK hynix.

This difference can be interpreted as reflecting SK hynix's focused investment in core technological capabilities, whereas Samsung distributed resources across multiple business domains.

3.3.2. Quantification of Interaction Mechanisms (MSE, MSR, MER, MSER)

Interaction-mechanism analysis quantifies the strength of interactions and synergy effects among Subject (S), Environment (E), and Resources (R). Using the same activity-based formula above, this study derives scores and presents the results in Table 4.

<Table 4> Quantification Results for the Subject-Environment Interaction Mechanism (MSE)

Firm	Interaction Pair	Indicator Scores & Rationale	Interrelatedness & Rationale	Computed Score
SK hynix	s1-e1	s1 (5): HBM-centered strategic vision e1 (5): Early detection of rapid AI demand growth	(0.9): Strong alignment between strategic direction and market expansion forecast	$4.5 = 0.9 \times (5+5)/2$
	s2-e2	s2 (5): Rapid investment decision-making e2 (5): Opportunity capture from competitors' technology delays	(0.9): Rapid investment enabled early market capture amid competitors' delays	$4.5 = 0.9 \times (5+5)/2$
	s3-e3	s3 (4): Flexible organizational responsiveness e3 (5): Accelerated HBM3E development	(0.8): Flexible culture facilitated collaboration with NVIDIA	$3.6 = 0.8 \times (4+5)/2$
	Others	Partial consideration of residual synergies among other indicators		0.9
	Total			13.5
Samsung Electronics	s1-e1	s1 (5): Persistence of 'super-gap' strategy e1 (4): Underestimation of AI demand	(0.6): Mismatch between super-gap strategy and emerging demand	$2.7 = 0.6 \times (5+4)/2$
	s2-e2	s2 (3): Vertical decision-making structure e2 (3): Underestimation of SK hynix threat	(0.5): Slow decision-making led to lag in HBM competition	$1.5 = 0.5 \times (3+3)/2$
	s3-e3	s3 (4): Internal process-oriented culture e3 (3): Roadmap-based technology development	(0.6): Conservative culture constrained response to external technological change	$2.1 = 0.6 \times (4+3)/2$
	Other s	Partial consideration of residual synergies among other indicators		0.45
	Total			6.75

As shown in Table 4, SK hynix's MSE was evaluated at 13.5 points, reflecting the high linkage between establishing an HBM-oriented strategic vision and detecting AI-driven demand growth, as well as the strong linkage between rapid decision-making and proactive technology development. In contrast, Samsung's MSE was only 6.75 points, which can be attributed to weak linkage between the super-gap strategy and underestimation of AI demand, and limited linkage between its vertical decision-making structure and technology development based on its internal roadmap.

Using the same method, SK hynix's Subject-Resource interaction mechanism (MSR) score was 13.1 points, indicating that high linkage between HBM focus and stacked-technology development and synergy between a collaborative culture and

deployment of HBM-specialized personnel played important roles. Samsung's MSR score was 7.05 points, which can be interpreted as reflecting partial linkage between the super-gap strategy and diversified technology investment and limited synergy between a process-oriented culture and dispersed staffing.

SK hynix's Environment-Resource interaction mechanism (MER) recorded the highest score at 14.0 points, driven by perfect linkage between AI-demand detection and HBM technology development and strong linkage between capturing competitive opportunities and focused investment. Samsung's MER scored 6.7 points—the lowest among its mechanisms—reflecting weak linkage between DRAM-demand-centered forecasting and delays in HBM technologies, as well as limited linkage between underestimating threats and dispersed investment.

In the integrated Subject-Environment-Resource mechanism (MSER), which synthesizes these interactions, SK hynix scored a total of 17.7 points: 6 points for a “selection and concentration” mechanism in which S, E, and R elements were integrated effectively; 6 points for an “agile market-response” mechanism characterized by environment sensing → resource reallocation → subject execution; and 5.7 points for a customer-collaboration mechanism based on building a strategic partnership with NVIDIA.

Samsung's MSER was comparatively low at 10.24 points: 2.2 points for a super-gap maintenance mechanism characterized by only partial linkage among strategy, environment, and resources; 2.33 points for a diversification-balance mechanism that reduced the degree of focus on HBM; 1.5 points for an internal-roadmap-centered mechanism that weakened external linkages; and 4.21 points for a scale-economy-seeking mechanism.

3.3.3. Summary of the Quantitative Results for the Seven Activity-Based Mechanisms

Table 5 summarizes the quantified scores of each mechanism for SK hynix and Samsung Electronics.

<Table 5> Summary of Quantified Mechanism Scores for SK hynix and Samsung Electronics

Categories	MS	ME	MR	MSE	MSR	MER	MSER
SK hynix	11.25	14.0	13.5	13.5	13.1	14.0	17.7
Samsung Electronics	8.05	6.35	6.7	6.75	7.05	6.7	10.24
Differences	3.2	7.65	6.8	6.75	6.05	7.3	7.46

As shown in Table 5, SK hynix scored higher across all mechanism types. The largest gaps emerged in the Environment-internal mechanism (ME) and the Environment-Resource interaction mechanism (MER), indicating that SK hynix more accurately detected AI-market changes and HBM technology trends and allocated resources accordingly.

Samsung achieved a relatively high score in the Subject-internal mechanism (MS) (8.05), but exhibited substantial weaknesses in environment-related mechanisms, suggesting limitations in recognizing and responding to environmental change despite strong leadership

and organizational capabilities.

A large difference was also observed in the integrated mechanism (MSER): SK hynix (17.7) versus Samsung (10.24), with a gap of 7.46 points. This result reflects differences in the effectiveness of integrated interactions among the three elements. For SK hynix, environment sensing (E) and resource allocation (R) were effectively connected to strategic decision-making by the Subject (S), generating synergy, whereas Samsung's inter-element linkages were relatively weak.

In terms of activity linkage, SK hynix demonstrated high linkage values (0.8-1.0), indicating that strategic direction, resource allocation, and environmental response were tightly coordinated. In contrast, Samsung showed relatively lower linkage (0.6-0.7), suggesting insufficient coordination and synergy across activities.

3.4. Analysis Using the Weight-Sequence Model (WSM)

Beyond the conventional element-centered (S, E, R) Weight-sequence model, this study applies an activity-based Weight-sequence model to conduct a more granular analysis of the two firms' approaches. The results reveal distinct patterns in strategy execution.

3.4.1. Application of the Classical Weight-Sequence Model

Based on the standardized quantitative evaluation results for each element in Table 2, SK hynix's element-level weights were highest for the Environment element at 34%, reflecting the importance of activities such as detecting AI-demand growth and understanding NVIDIA's requirements.

The Resource element followed at 33%, reflecting HBM technology development and concentrated R&D investment. The Subject element was also 33%, driven by activities such as establishing strategic vision and building a rapid decision system. However, because the differences across elements are small, this approach has limitations in identifying meaningful differences in priorities.

The sequence of application illustrates an externally oriented approach. First, SK hynix detected environmental change by identifying AI-market growth and HBM demand trends early. Second, the Subject formulated a strategic response by establishing an HBM-focused strategy and creating a rapid decision-making system. Third, resources were concentrated by allocating R&D resources toward HBM technology development. This "Environment → Subject → Resources" order clearly reflects an externally oriented approach in which the firm sensitively detects environmental change, responds strategically, and then concentrates resources accordingly.

In contrast, Samsung's element-level weights were highest for the Subject element at 38%, reflecting the importance of the super-gap strategy and global leadership. The Resource element accounted for 32%, including diversified technology investments and global infrastructure building. The Environment element was lowest at 30%, indicating relative weaknesses in market forecasting and competitor analysis. Its sequence reflects an

internally oriented approach: first, the Subject maintained leadership centered on the super-gap strategy; second, resources were dispersed across multiple technology domains; third, the firm sought to recognize and respond to environmental change. This “Subject → Resources → Environment” order exemplifies an internally oriented approach in which the firm establishes its internal strategic direction and deploys resources first, and then responds to environmental change.

3.4.2. Application of the Extended Weight-Sequence Model

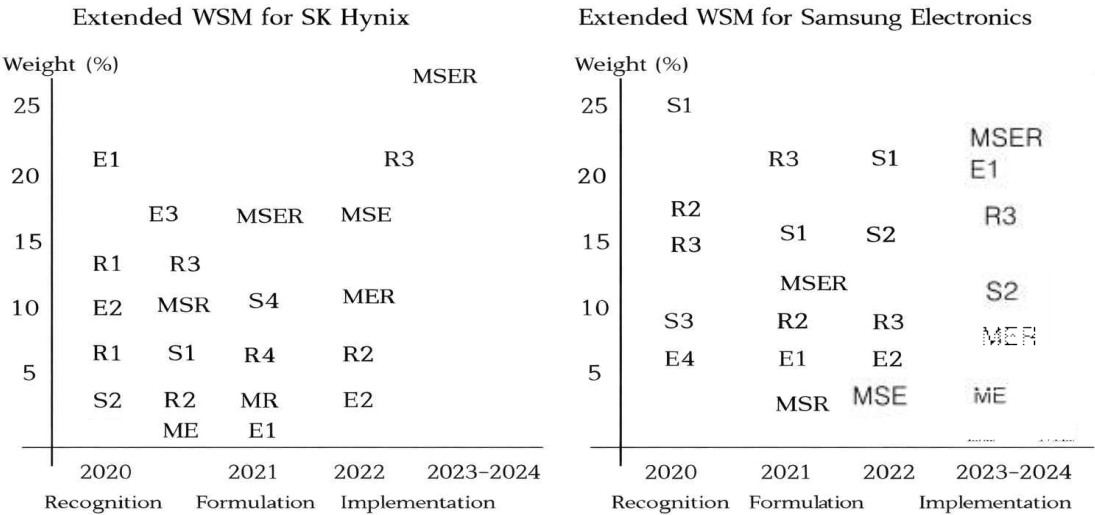
For the extended Weight-sequence analysis, key mechanisms by year—judged to have influenced changes in market share—were extracted based on the element-specific activities presented in Table 1 and summarized in Table 6.

<Table 6> Key Activity-Based Mechanisms by Year and Firm

Year	Firm	Major Activity-Based Mechanisms by Year
2020	SK hynix	MS: Establishment of technology-driven leadership and fast decision-making system (H1) MSE: Establishment of a decision-making system responsive to environmental changes (Q3)
	Samsung Electronics	MS: Maintenance of vertical leadership structure and hierarchical decision-making system (H1)
2021	SK hynix	MSR: Implementation of resource reallocation aligned with HBM-focused strategy (Q2) ME: Strengthening mechanisms for sensitive detection of changes in customer demand (Q2)
	Samsung Electronics	MSR: Establishment of dispersed resource allocation strategy across diverse technology domains (Q3) MSER: Construction of a diversification-balance mechanism (H2)
2022	SK hynix	MR: Acceleration of concentrated R&D investment in HBM technologies (Q1) MSER: Establishment of a customer collaboration mechanism (joint development with NVIDIA) (Q4)
	Samsung Electronics	MSE: Maintenance of an environment-response approach centered on internal technology roadmaps (Q2)
2023	SK hynix	MER: Strengthening a flexible resource reallocation system aligned with market demand changes (Q1)
	Samsung Electronics	MER: Intensification of weak linkage between market changes and resource allocation (Q1) ME: Continued environment perception centered on the commodity DRAM market (Q3)
2024	SK hynix	MER: Further expansion of R&D investment aligned with AI market growth (Q3) MSER: Advancement of an integrated value-creation mechanism centered on the AI ecosystem (Q3)
	Samsung Electronics	MSER: Maintenance of a competitiveness-securing mechanism based on economies of scale (Q3)

Based on these results, the study further subdivided elements by time period and integrated the weights of operating mechanisms to construct a final weight-sequence model, the results of which are presented in Figure 3.

[Figure 3] Comparison of the Extended Activity–Based Weight–Time Model for SK hynix and Samsung Electronics



A comparison of the extended activity-based Weight-sequence patterns yields deeper implications as follows.

First, the micro-pattern of successful strategy: SK hynix’s success is attributable not only to macro-level allocation across S, E, R, and M, but also to timely combinations and evolution across detailed elements over time. In particular, a logical evolutionary pattern—E1 (response to market change) → E3 (preparedness for emerging technologies) → R3 (technological resources) → MSER (integrated mechanism)—was linked to superior performance.

Second, the importance of qualitative substance within detailed elements: Even when the same sub-indicator is considered (e.g., R3 technological resources), differences in focus and direction can generate performance gaps. The contrast between SK hynix’s concentrated investment in HBM-specialized technologies and Samsung’s emphasis on general-purpose advanced technologies was decisive.

Third, systematic development of mechanism sophistication: SK hynix first strengthened individual SER elements and then advanced mechanisms in stages—from simple mechanisms (MS, ME, MR), to composite mechanisms (MSE, MSR, MER), and ultimately to the integrated mechanism (MSER). This highlights the importance of a staged approach to mechanism building.

Fourth, the critical role of temporal first-mover advantage: Early recognition and response to key sub-indicators—particularly E1 (response to market change)—clearly served as a starting point for subsequent strategic development. Samsung also experienced a late surge in E1, but it was largely reactive.

Overall, this extended sub-element-level weight-time model further enhances the

practical applicability of the SER-M framework and provides guidance for firms to design optimal combinations and evolutionary patterns among detailed elements over time when formulating strategy.

3.5. Re-verification of Mechanism Effectiveness

Although the quantitative mechanism scoring attempted to be as objective as possible based on the analysis of all collected data, the approach inevitably involves some reliance on qualitative judgment by the researcher. To complement this limitation, the effectiveness of each firm's mechanisms—deemed to have had decisive effects on changes in HBM market share—was re-verified using the five indicators presented in Section 2.5: strategic fit with objectives, efficiency relative to inputs, agility in responding to environmental change, sustainability, and scalability. Each indicator was evaluated on a five-point scale.

3.5.1. Evaluation of Mechanism Effectiveness for SK hynix

Overall, the effectiveness of SK hynix's core mechanisms received high scores, as summarized below.

The first core mechanism, the "selection and concentration mechanism," received 5 points for strategic fit, reflecting strong alignment with the strategic importance of the HBM market. It also received 5 points for efficiency due to effective utilization of limited resources, and 5 points for agility due to rapid responses to market change. However, sustainability and scalability were relatively lower at 3 points each, reflecting limitations in long-term portfolio diversification and limited applicability to other domains. The average effectiveness score for this mechanism was 4.2, indicating a high level of effectiveness.

The second core mechanism, the "agile response to market change mechanism," showed even higher effectiveness. Strategic fit was evaluated at 5 points as an optimal response to rapid AI-market changes, and efficiency received 4 points due to improved efficiency enabled by rapid decision-making. Agility was also evaluated at 5 points based on proactive identification of market opportunities. Sustainability received 4 points, and scalability received 5 points due to applicability to various market changes. The average effectiveness score for this mechanism was 4.6, indicating a very high level.

The third core mechanism, the "customer collaboration mechanism," also demonstrated high effectiveness. Strategic fit received 5 points due to its strong focus on meeting customer needs, and efficiency received 4 points due to efficiency gains through joint development. Agility received 5 points due to rapid responses to customer requirements. Sustainability received 5 points due to long-term partnership formation, and scalability received 4 points due to the potential to expand to other customers. The average effectiveness score for this mechanism was 4.6, again indicating a very high level.

In sum, SK hynix exhibited high overall mechanism effectiveness (4.2-4.6), particularly in the agile market-response mechanism and the customer collaboration mechanism, suggesting that SK hynix achieved superior performance through strong sensitivity to

environmental change and outstanding capability to meet customer requirements.

3.5.2. Evaluation of Mechanism Effectiveness for Samsung Electronics

Samsung Electronics' core mechanisms generally exhibited lower effectiveness than those of SK hynix.

The first core mechanism, the "super-gap maintenance mechanism," showed limited effectiveness across multiple dimensions. Strategic fit received 3 points because it was suitable for the conventional DRAM market but less appropriate for the HBM market. Efficiency received 2 points due to limited outcomes relative to substantial resource. Agility received only 1 point due to delayed responses to market change. Sustainability and scalability each received 3 points, resulting in an average effectiveness score of 2.4, indicating a low level.

The second core mechanism, the "diversification-balance mechanism," showed relatively higher effectiveness. Strategic fit received 3 points because while the portfolio approach was broadly appropriate, it was less suitable for responding to specific market shifts. Efficiency received 2 points due to reduced efficiency from dispersed resources. Agility was also low at 2 points. In contrast, sustainability received 4 points due to long-term portfolio advantages, and scalability received 4 points due to applicability across multiple market domains. The average effectiveness score for this mechanism was 3.0, indicating a moderate level.

The third core mechanism, the "internal-roadmap-centered mechanism," showed very low effectiveness. Strategic fit received 2 points because a plan-centered approach created a gap with market change. Efficiency received 3 points, but agility was only 1 point due to rigid processes. Sustainability received 2 points as its viability in a rapidly changing market was questionable, and scalability was evaluated at 3 points because the internal process could be expanded but continued to face market-fit problems. The average effectiveness score for this mechanism was 2.2, indicating a very low level.

3.5.3. Synthesis of Comparative Effectiveness

The comparative results indicate that SK hynix's mechanisms were better aligned with the HBM market environment, with particularly large differences observed in agility. This finding is consistent with D'Aveni's (1994) hypercompetition argument that in rapidly changing environments, the ability to repeatedly build temporary advantages is critical, which requires agile sensing and response to market change and flexible reallocation of resources. In hypercompetitive contexts, agile environmental response, efficient resource allocation, and close customer collaboration can constitute key sources of competitive advantage, and SK hynix's mechanisms can be interpreted as effectively embodying these factors. Table 7 compares the effectiveness scores of the core mechanisms of the two firms.

<Table 7> Comparison of Effectiveness Scores for Core Mechanisms: SK hynix vs. Samsung Electronics

Mechanism Effectiveness Validation Indicators	SK hynix - Core Mechanisms			Samsung Electronics - Core Mechanism		
	Strategic Focus & Concentration	Agile Response to Market Changes	Customer Collaboration	Sustaining Super-Gap Leadership	Diversification-Balance Strategy	Roadmap-Oriented Approach
Strategic Fit	5	5	5	3	3	2
Efficiency	5	4	4	2	2	3
Agility	5	5	5	1	2	1
Sustainability	3	4	5	3	4	2
Scalability	3	5	4	3	4	3
Average Score	4.2	4.6	4.6	2.4	3.0	2.2

These results suggest that, under rapidly changing HBM market conditions, mechanisms characterized by rapid environmental sensing and timely resource reconfiguration tended to achieve superior strategic performance. Rather than relying on past success, mechanisms that enable agile responses to environmental change and flexible resource allocation aligned with customer requirements appear to be particularly effective.

IV. Conclusions

This study proposed a set of methodological enhancements to improve the practical applicability of the SER-M framework, including integration with the SWOT approach, an activity-based mechanism extraction process, refinement of the Weight-Sequence Model (WSM), and the development of indicators for re-verifying mechanism effectiveness. By applying the improved framework to the competitive case between SK hynix and Samsung Electronics, this study derived several meaningful insights.

4.1. Key Contributions of the Framework Improvements

The major outcomes of the proposed methodological improvements to the SER-M framework can be summarized as follows.

First, through the application of the SWOT-SER-M integrated model, this study provided systematic evaluation criteria for SER-M elements and enhanced analytical rigor by explicitly classifying factors into strengths, weaknesses, opportunities, and threats.

Second, using the activity-based mechanism derivation process, this study proposed a systematic methodology for deriving and quantifying mechanisms by analyzing interaction patterns among activities both within and across elements.

Third, by refining the Weight-Sequence Model (WSM), this study developed an approach to quantitatively analyze element-level priorities (weights) and the order of application (sequence).

Fourth, through a mechanism effectiveness re-verification scheme, this study proposed multi-dimensional indicators that allow researchers and practitioners to evaluate the effectiveness of derived mechanisms from diverse perspectives.

Collectively, these methodological enhancements are expected to improve not only the objectivity of SER-M-based analyses but also the ease of application in practice.

4.2. Key Insights from the Case Analysis

The case analysis applying the improved SER-M framework to the competition between SK hynix and Samsung Electronics can be summarized as follows.

First, the performance gap between the two firms was driven less by individual elements—Subject, Environment, and Resources—than by differences in the mechanisms through which these elements were combined. SK hynix’s mechanisms of selection and concentration, agile response to market change, and customer collaboration operated effectively in the HBM market, whereas Samsung’s mechanisms of super-gap maintenance, diversification balance, and internal-roadmap-centered decision-making were comparatively less effective.

Second, the activity-based Weight-sequence analysis indicated that SK hynix adopted an externally oriented approach in the order of “Environment → Subject → Resources,” while Samsung adopted a more internally oriented approach in the order of “Subject → Resources → Environment.” These differences in Weight-sequence patterns had decisive effects on response speed to environmental change and on efficient resource allocation.

Third, activity-based mechanism analysis confirmed that the degree of inter-activity linkage within and across elements is critically connected to mechanism effectiveness. SK hynix exhibited high linkage values (0.8–1.0), whereas Samsung showed relatively lower linkage (0.6–0.7).

Fourth, the mechanism effectiveness re-verification results showed that SK hynix’s mechanisms achieved particularly high scores in terms of fit and agility (4.2–4.6), whereas Samsung’s mechanisms received comparatively lower scores (2.2–3.0). This indicates that SK hynix’s mechanisms were more suitable for the rapidly changing HBM market environment.

These insights are consistent with the emphasis by Christensen and Raynor (2003) in *The Innovator’s Solution* on the importance of market sensing capabilities and resource allocation. In particular, the mechanisms established by SK hynix illustrate a strategic approach through which a late-moving firm can catch up with a leading incumbent in fast-evolving technology markets.

4.3. Implications and Practical Guidelines

4.3.1. Theoretical Implications

The theoretical implications of this study are as follows.

First, by integrating SWOT, proposing an activity-based mechanism extraction process, and refining the Weight-sequence model, this study strengthened the methodological foundation of the SER-M model. Specifically, by offering concrete analytical procedures for a mechanism-based perspective, the study advances the theoretical completeness of SER-M.

Second, this study systematized answers to the research questions by proposing an effective integration between SWOT analysis and the SER-M model. In particular, the structured linkage between SWOT categories (strengths, weaknesses, opportunities, threats) and SER-M elements (Subject, Environment, Resources) represents an innovative approach that combines the advantages of both theoretical frameworks.

Third, through an empirical case analysis of SK hynix and Samsung Electronics, this study validated the usefulness of a mechanism-based perspective. It provided logical evidence supporting the core proposition that, under similar environmental conditions, differences in mechanism operation can generate differences in performance outcomes. This contributes an integrative explanatory tool that extends beyond both the Structure-Conduct-Performance (SCP) paradigm and the Resource-Based View.

Fourth, by presenting an activity-based Weight-sequence model, this study suggests that effective Weight-sequence patterns may differ by industry depending on the speed of environmental change. In doing so, it provides a theoretical basis for context-optimized strategic choice.

Fifth, by proposing an integrated strategic analysis framework combining SWOT, SER-M, and the Weight-sequence model, this study provides a theoretical foundation for multi-dimensional and in-depth analysis of complex strategic phenomena that are difficult to explain using a single theoretical lens.

These theoretical implications align with the dynamic capability assessment framework proposed by Helfat et al. (2007). In particular, the systematic approach to extracting and evaluating mechanisms suggests a new analytical pathway for empirical validation in strategic management research.

4.3.2. Practical Implications

The practical implications of this study for corporate strategy formulation and analysis are as follows.

First, the improved SER-M framework can serve as a practical tool for systematically analyzing a firm's current strategy or performance and diagnosing underlying problems. In particular, the integration with SWOT enhances accessibility for practitioners by leveraging a familiar framework.

Second, the activity-based mechanism design guidelines facilitate strategy formulation by providing actionable guidance on how to design and apply effective mechanisms to achieve strategic objectives. By outlining how to strengthen inter-activity linkage within and across elements, the framework can improve both effectiveness and consistency during strategy execution.

Third, the framework supports managerial decision-making by suggesting ways to strategically adjust the weight of resource allocation and the sequence of application across elements. This provides useful guidance for allocating constrained resources efficiently and prioritizing strategic actions in rapidly changing environments.

Fourth, the case of SK hynix and Samsung Electronics enables identification of effective mechanism patterns in the semiconductor industry, which may be used as benchmarking material. In particular, SK hynix's mechanisms provide actionable insights for firms in similar circumstances seeking to catch up with leading incumbents.

Fifth, by proposing design principles for agile response mechanisms to environmental change, this study supports firms in enhancing strategic flexibility—an increasingly critical capability for survival and growth in uncertain business environments. Overall, the findings emphasize the importance of continuously adjusting and improving mechanisms in fast-changing contexts.

4.3.3. Practical Application Guidelines

This study proposes application guidelines by distinguishing between applying the improved SER-M framework for analyzing existing strategies or performance and using it for future strategy formulation.

First, the process for analyzing existing strategies or performance is as follows:

- SWOT-SER-M analysis: Systematically analyze Subject, Environment, and Resources by linking them to SWOT categories
- Identify interaction patterns using activity-based analysis: Identify core activities and analyze inter-linkage patterns.
- Identify and label key mechanisms: Classify and name major mechanism types.
- Weight-sequence analysis: Analyze the relative importance (weights) and the order of application (sequence) across activities.
- Mechanism effectiveness evaluation: Evaluate the effectiveness of derived mechanisms.
- Derive strategic implications: Derive strategic implications based on the analytical results.

This analytical process reflects a comprehensive SER-M application that recognizes the gap between intended and realized strategies and incorporates emergent strategy, consistent with Mintzberg's (1994) argument in *The Rise and Fall of Strategic Planning*.

In contrast, the process for formulating future strategies is proposed as follows:

- Set strategic objectives: Clearly define strategic goals.
- SWOT-SER-M analysis: Analyze the current state of Subject, Environment, and Resources
- Design target mechanisms: Design ideal mechanisms to achieve strategic objectives.
- Plan Weight-sequence adjustments: Develop plans to adjust element-level weights and application sequence.
- Develop an execution plan: Establish detailed implementation plans to realize the mechanisms
- Establish a performance monitoring system: Build feedback and monitoring systems for

mechanism effectiveness.

This future-oriented planning process reinterprets Grant's (2003) approach—emphasizing flexibility and adaptability in turbulent environments—through the lens of the SER-M model, enabling mechanism-centered strategy design.

4.4. Limitations and Directions for Future Research

4.4.1. Limitations of the Study

Although this study provides new insights into methodological improvements and practical applications of the SER-M framework, it has several limitations.

First, because the analysis focuses on only two firms within a single industry (semiconductors), further research is needed to generalize the findings. Future studies should apply the improved framework to multiple industries and firm cases to test generalizability.

Second, the five-year analysis window (2020–2024) may be relatively short for validating long-term mechanism effectiveness. Longitudinal research over a longer period is needed to analyze the evolution of mechanisms and their long-term impacts on performance.

Third, while mechanism quantification was advanced, the methodology remains at an early stage, and fully quantifying all elements has inherent limitations. Some degree of qualitative evaluation by the researcher is unavoidable. The proposed quantification approach should be interpreted as a structured operational framework for comparative strategic analysis rather than a statistically validated causal model. Therefore, additional validation and the development of more sophisticated measurement tools are required, especially to further objectify inter-activity linkage measurement and mechanism effectiveness evaluation.

Fourth, while this study focuses on integrating SWOT and SER-M, future research may explore integration with other strategic tools that have lower methodological overlap (e.g., the Balanced Scorecard, value chain analysis).

4.4.2. Future Research Directions

To address these limitations and expand the applicability of the improved SER-M framework, future research should apply the framework across diverse industries and firm cases to enhance generalizability and practical usefulness. In addition, research that examines how mechanisms change under more radical environmental shifts—such as digital transformation—represents a promising direction. More specifically, future research directions include:

First, developing detailed indicators for quantitative measurement of mechanisms: Developing sub-indicators and measurement methodologies to evaluate mechanism effectiveness more objectively.

Second, comparative studies across industries: Applying the improved SER-M framework beyond semiconductors and comparing effective mechanism patterns across industries based on sector-specific characteristics.

Third, longitudinal studies on mechanism evolution and performance impacts: Investigating how firm mechanisms evolve over time and how such changes influence long-term performance.

Fourth, developing SER-M automation tools using big data and AI: Building corporate databases and developing analytical tools that automatically derive SER-M elements and mechanisms.

Such research is expected to contribute to expanding the SER-M framework's scope, improving its practical utility, and strengthening its theoretical foundation.

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생성형 AI의 지원을 통한 HBM 주도권 경쟁 분석 기반 SER-M 프레임워크 적용 방법 개선에 관한 연구

김태옥*

민용택**

본 연구는 생성형 AI의 보조를 통해 Cho and Lee(1997)가 제안한 SER-M 프레임워크의 적용 방법론을 개선하는 것을 목적으로 한다.

SER-M 모델은 Subject(주체), Environment(환경), Resource(자원) 간 상호작용을 통해 형성되는 메커니즘을 기반으로 기업 성과를 해석하는 전략 분석 프레임워크이다. 본 연구는 SER-M 모델의 실무적 적용 가능성을 높이기 위해 SWOT 분석을 통합하고 방법론적 개선안을 제안하였다. 이러한 개선안에는 요소별 정량 평가 방법, 활동 기반 메커니즘 추출 프로세스, Weight-Sequence Model(가중치-순서 모델)의 고도화, 그리고 메커니즘 효과성을 재검증하기 위한 지표 개발 등이 포함된다.

특히 기존의 요소 중심 접근 방식을 넘어, 본 연구는 메커니즘을 MS, ME, MR, MSE, MSR, MER, MSER의 7가지 유형으로 체계화하고, 각 메커니즘의 정량적 평가 방법을 제시하였다. 개선된 프레임워크는 HBM(High Bandwidth Memory) 시장에서의 SK하이닉스와 삼성전자 간 경쟁 사례에 적용되어, 메커니즘 운영의 차이가 성과 차이로 직접 연결됨을 실증적으로 검증하였다.

2020년부터 2024년까지의 데이터를 활용하여 양사의 요소별 전략 활동을 체계적으로 추출·분석하였으며, 특정 메커니즘이 시장점유율 확대라는 결과와 어떻게 연결되었는지를 비교하였다. 또한 활동 기반 Weight-Sequence 분석 결과, SK하이닉스는 “Environment → Subject → Resources” 순의 외부지향적 접근을 채택한 반면, 삼성전자는 “Subject → Resources → Environment” 순의 내부지향적 접근을 따랐음을 확인하였다. 이러한 전략적 지향성의 차이가 HBM 시장 리더십 역전을 초래한 핵심 요인으로 분석되었다.

종합적으로 본 연구는 기업 성과 분석과 전략 수립에 있어 메커니즘 기반 관점의 유용성을 입증하였으며, SER-M 모델의 체계화와 구성요소의 정량적 운영 가능성을 제고함으로써 실무적 적용 성과 객관성을 강화할 수 있는 방안을 제시하고 실증적으로 검증하였다는 점에 의의가 있다.

주제어: HBM 경쟁 전략; SWOT-SER-M 통합모델; 요소 수준 정량화; 활동 기반 메커니즘; Weight-Sequence Model 고도화; 메커니즘 효과성 재검증

Competing with Giants Through Place:

A Process-Theoretic Single-Case Study of Sungsimdang's Sustained Competitive Advantage

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Abstract

A 16-store regional bakery (Sungsimdang, Daejeon) sustains higher absolute operating profit than a 3,446-store national franchise (Paris Croissant). Using a longitudinal embedded single-case design with five data sources (50 interviews, 12 field observations, 500-respondent survey, 1956–2024 archives, comparative financials), we apply Gioia-style coding and process tracing to explain this asymmetry. Three findings emerge. First, the advantage is a temporally ordered accumulation of place-embedded intangibles: founder-identity continuity (S) → place-embedded emotional marketing (E) → experiential-density store operations (R) → a self-reinforcing value-creation mechanism (M). Second, the inferred resource-weighting profile ($S \approx 30\%$, $E \approx 20\%$, $R \approx 20\%$, $M \approx 30\%$) places identity and mechanism above environment and resources, departing from balanced-scorecard intuition. Third, sensory cues and dwell time—which appear identical to the franchise at the category level—operate through ritualized identity activation rather than transaction acceleration. The study repositions SER-M from a variance to a process account, extends VRIN to meso-level place-identity assets jointly held by firm, community, and customer, and supplies a replicable empirical template.

Keywords: SER-M Framework, Place-Based Competitive Advantage, Family Business, Process Theory, Single-Case Study, Asymmetric Advantage, Regional-SME, Weight-Sequence Model, Sungsimdang

Received Mar. 6. 2026 Accepted May 25. 2026

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I. Introduction

In 2023, Sungsimdang—a 16-store family-owned bakery founded in 1956 in Daejeon, South Korea—earned KRW 31.5 billion in operating profit (25.3% margin), while Paris Croissant, the SPC Group entity operating the 3,446-store Paris Baguette franchise, earned KRW 19.9 billion (2.0% margin); per-store profit differed by a factor of 345 (Hankyung Business 2024). Throughout this paper, we distinguish Paris Croissant—the legal entity to which all financial comparisons refer—from Paris Baguette, the brand referenced for store-level customer-experience observations. This outcome resists the three dominant lenses through which strategy scholars typically explain advantage. Industrial-organization economics expects scale to dominate (Bain 1956), the Resource-Based View (RBV) identifies inimitable resources but does not explain how a resource-constrained regional firm assembles them against a capital-rich rival (Wernerfelt 1984; Barney 1991; Peteraf 1993); and classical franchising theory predicts the opposite outcome—the displacement of small independents by standardized chains (Combs, Michael, and Castrogiovanni 2004).

Treating this asymmetric pair as an empirical puzzle, we develop a process-theoretic account of advantage in place-embedded SMEs through analytical generalization (Yin 2018; Eisenhardt 1989), uncovering how a resource-constrained regional firm accumulates inimitable intangibles—founder identity, place resonance, and experiential density—and sequences them so that each stage becomes the precondition of the next. Our analytical lens is the Subject-Environment-Resources-Mechanism (SER-M) model (Cho 2006; Cho and Moon 2022), which we reframe from a variance to a process theory (Mohr 1982; Van de Ven and Poole 2005) and connect to resource orchestration (Sirmon, Hitt, Ireland, and Gilbert 2011), dynamic capabilities (Teece 2018), and place branding (Kavaratzis and Ashworth 2015).

Three research questions organize the inquiry. RQ1: What are the constitutive components of Sungsimdang's competitive advantage, and how do they interact over time? RQ2: What sequencing and relative weighting of strategic elements characterize the firm's advantage-building process? RQ3: Under what boundary conditions can a place-embedded regional-SME sustain asymmetric advantage against a capital-rich national franchise?

II. Theoretical Background

1. Asymmetric Competition and the David-Goliath Puzzle

Strategy scholars have long been interested in contests in which smaller firms defeat larger rivals (Christensen 1997). Two strands dominate. The first, rooted in disruption theory, locates small-firm advantage in the exploitation of underserved customer segments that incumbents neglect. The second, rooted in niche ecology, attributes small-firm survival to specialized resources that larger rivals cannot efficiently deploy. Neither strand, however, fully explains the focal case. Sungsimdang does not occupy a disrupted low-end or

neglected niche; it competes head-on in the mainstream premium bakery category. Nor is its advantage explained solely by niche specialization, since its product portfolio is largely undifferentiated at the category level. The puzzle therefore requires a different theoretical vocabulary that locates advantage neither in category position nor in scale, but in the temporal accumulation of place-embedded intangibles. Recent context-sensitive entrepreneurship scholarship reinforces this position, arguing that strategic advantage in emerging and non-Western economies is often better explained through the contextual embedding of firms than through decontextualized category positioning.

. The present study builds directly on that contextual turn: rather than treating place as a control variable, we treat it as a constitutive component of the firm's strategic architecture.

2. Resource-Based View and Its Process-Oriented Extensions

The RBV posits that firms sustain advantage when they command resources that are valuable, rare, inimitable, and non-substitutable (Barney 1991; Peteraf 1993; Wernerfelt 1984). The RBV has been repeatedly criticized for its static character: it specifies what resources matter without explaining how they are assembled, sequenced, and defended over time (Priem and Butler 2001). The present study takes that critique seriously and treats it as the entry point through which a process-theoretic account of SER-M becomes necessary, rather than as a peripheral observation. Sirmon and colleagues (2011) address the same gap through resource orchestration—the deliberate structuring, bundling, and leveraging of resources over time. Teece (2018) similarly locates advantage in the sensing-seizing-transforming routines that constitute dynamic capabilities. A growing body of family-business work examines how the intergenerational transmission of founder identity sustains advantage (De Massis, Frattini, Kotlar, Petruzzelli, and Wright 2016). These four streams—orchestration, dynamic capabilities, managerial cognition, and family-firm transmission—share a process orientation: advantage is something that is accumulated, not held. SER-M, when reframed as a process theory in Section II.5, integrates them under a single architecture rather than competing with them.

3. 3. Place Identity as a Meso-Level Strategic Asset

Place branding scholarship treats localities as marketable entities and studies the conditions under which place associations confer advantage on firms embedded in them (Kavaratzis and Ashworth 2015). Relph's (1976) foundational concept of place identity frames places as bundles of shared memories, symbols, and affective meanings. Holt's (2004) iconic-brand theory isolates authenticity, community connection, and cultural capital as the mechanisms through which place-based brands accumulate advantage. Family-business scholarship has begun to connect these insights directly: Basco, Stough, and Suwala (2021) demonstrate that family firms embedded in specific regions can convert place-based ties into cross-generational strategic advantage through what they call "regional familiness". Building on this stream, we depart from treatments of place as a marketing asset and argue

that place identity is a meso-level strategic resource jointly held by the firm, the community, and the customer. It satisfies VRIN in the strict sense: it is rare because it accrues only to firms temporally embedded in a locality, inimitable because it depends on lived history, non-substitutable because no national franchise can manufacture decades of regional memory, and valuable because it underwrites emotional attachment and willingness-to-pay (Thomson, MacInnis, and Park 2005). The implication for the present case is direct: when a regional incumbent organizes its strategy around such an asset, the meso-level VRIN logic—rather than firm-internal scale—becomes the analytically relevant frame.

4. The Experience Economy and Customer Engagement

Pine and Gilmore (1999) argued that economic value had evolved from commodities through goods and services to experiences. For the place-embedded SME, what we call experiential density—the number, richness, and coherence of sensory and symbolic cues delivered within a unit of customer time—is the vehicle through which place identity is activated and converted into willingness-to-pay. Importantly, experiential density is not the presence of any single sensory cue (smell, taste, touch are common to all bakeries) but the coherent layering of such cues with place-specific symbols, founder narrative, and ritualized service routines, a distinction we develop empirically in Section IV.4 in direct response to a comparative concern raised in review.

5. Mechanism-Based View, Weight-Sequence, and the SER-M Integration

The mechanism-based view (MBV) of strategy emerged as a response to the limits of variance-based models (Cho 2006). Where the RBV asks which resources matter, MBV asks how advantage is generated and reproduced through the interaction of strategic elements over time. Within this view, SER-M articulates four interacting elements: the strategy-making Subject (S), the Environment (E) in which the firm is embedded, the Resources (R) it commands, and the Mechanism (M) that binds the three into outcome-producing routines. The mechanism is the analytic core of the framework: it is the recurring, observable pattern of selection-learning-coordination that converts S, E, and R into competitive advantage.

The Weight-Sequence Model (WSM) developed by Cho and Moon (2022) extends MBV by formalizing two further claims that are often left implicit. First, weight: among the constitutive elements of a strategy, optimal allocations are typically uneven; an effective strategy concentrates resources on a small number of high-leverage elements rather than distributing them equally. WSM is therefore not equivalent to a balanced-scorecard logic. Second, sequence: the same set of elements deployed in a different temporal order produces different outcomes, because later stages depend on the completed state of earlier ones. Together, these two claims convert SER-M from a static taxonomy into a dynamic theory:

advantage is a function not only of which S, E, R, M elements a firm holds, but of the relative weight assigned to each and of the order in which they are activated. The integration of MBV, WSM, and Moon's (2016) ABCD model—Agility, Benchmarking, Convergence, Dedication—provides actionable guidance for resource-constrained firms by directing attention to the few elements whose weighted, sequenced activation accounts for the largest share of advantage.

Read this way, SER-M is neither an alternative to the RBV nor a competitor of dynamic-capabilities theory. It is an integrative architecture: it inherits the VRIN diagnostic from the RBV, the orchestration logic from Sirmon and colleagues (2011), the temporality of dynamic capabilities from Teece (2018) and Helfat and Peteraf (2015), and the meso-level intangibles of place branding from Kavaratzis and Ashworth (2015) and Basco and colleagues (2021), and it organizes them through a process-theoretic backbone (Mohr 1982; Van de Ven and Poole 2005). The empirical contribution of the present study is to operationalize that architecture against an extreme case in which the four elements are unusually visible.

6. Research Propositions

Consistent with the analytical-generalization logic of qualitative case research (Eisenhardt 1989; Yin 2018), we develop propositions rather than variance-based hypotheses. Figure 1 presents the integrated process model that organizes the six propositions: identity-anchored Subject (S) enables place-embedded Environment (E), which is amplified by experiential Resources (R), which are bound by a value-creating Mechanism (M) that in turn reinforces S. Six propositions are offered.

[Figure 1] SER-M as a Process Theory of Place-Based Asymmetric Advantage. Sequential activation $S \rightarrow E \rightarrow R \rightarrow M$ with a self-reinforcing loop from M to S. Resource weighting across phases approximates $S \approx 30\%$, $E \approx 20\%$, $R \approx 20\%$, $M \approx 30\%$ (P5). Source: authors' elaboration based on qualitative case evidence.

Proposition 1 (P1). In a family-owned regional-SME, the continuity of founder identity across generations acts as a temporally inimitable resource that anchors the firm's Subject (S) and sets the horizon of all subsequent strategic commitments.

Proposition 2 (P2). Place-embedded emotional marketing (E) converts regional identity into a meso-level isolating mechanism by encoding locality as shared memory, which larger, capital-rich franchises cannot replicate through advertising spend.

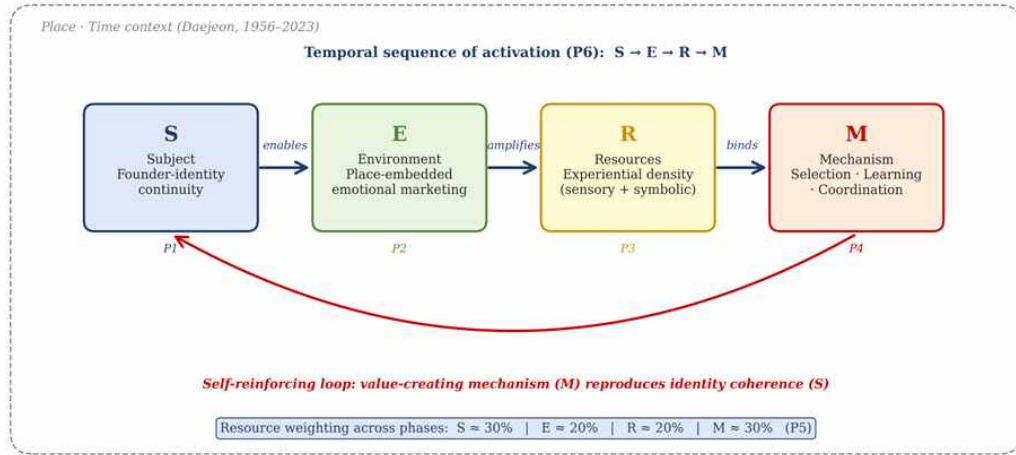
Proposition 3 (P3). Experiential store operations (R) amplify the value of S and E through sensory and symbolic density, turning each customer visit into a site of identity activation rather than a simple transaction.

Proposition 4 (P4). A value-creation mechanism (M) that sequences selection, learning, and coordination routines across generations binds S, E, and R into a self-reinforcing loop that deepens asymmetric advantage over time.

Proposition 5 (P5). Asymmetric advantage is maximized when strategic resources are weighted toward identity and mechanism ($S \approx M > E \approx R$), reflecting the long-horizon logic

Figure 1. SER-M as a Process Theory of Place-Based Asymmetric Advantage

Sequential activation (S → E → R → M) with a self-reinforcing loop that deepens advantage over time



of a place-embedded family firm.

Proposition 6 (P6). The temporal ordering of strategic activation (S → E → R → M) is itself a source of advantage; reversed or parallel activation fails to produce the same accumulation because later stages depend on the prior establishment of earlier ones.

III. Data and Methods

1. Research Design

This study adopts a longitudinal embedded single-case design (Yin 2018) informed by the inductive logic of Eisenhardt (1989) and the structured-coding logic of Gioia and colleagues (2013). A single-case design is appropriate when the phenomenon is (a) revelatory, (b) extreme, and (c) longitudinally traceable, all of which characterize Sungsimdang. We do not aim at statistical generalization. Our target is analytical generalization (Yin 2018): theory-building through the elaboration of a confirmed mechanism that subsequent comparative work can test.

We make three methodological decisions explicit. First, we do not report inferential statistics from the primary data, because a single-firm case contains no firm-level outcome variance and because our design is inductive, not confirmatory. Descriptive statistics from the customer survey appear only as triangulating evidence for findings already established through qualitative analysis. Second, we explicitly address internal validity threats (history, reverse causality, observer bias) through process tracing and triangulation, rather than through statistical controls that the design cannot support. Third, we follow a Gioia-style data structure to enhance the transparency and traceability of the coding.

2. Case Selection

Sungsimdang was selected on three grounds. First, extremeness: its 25.3 percent operating margin and per-store profit of KRW 1.97 billion exceed those of Paris Croissant by one and two orders of magnitude respectively, producing an outcome that standard frameworks fail to predict. Second, revelatoriness: prior empirical investigation of Sungsimdang has been journalistic, not academic; executive access and archival access were available for this project. Third, analytical productivity: the firm's 68-year history provides a long time series across which the mechanisms of advantage accumulation can be traced. Paris Croissant (SPC Group) serves as a benchmark counter-case for comparative inferences, not as a co-equal case.

3. Data Sources

We assembled five data sources between January and May 2024. (1) Archival and document corpus: 150 documents comprising 42 academic papers and books, 28 corporate materials, 55 media reports, and 25 government documents, spanning 1956–2024. (2) Semi-structured interviews: 50 interviews (5 executives at approximately 90 minutes each, 15 employees at approximately 60 minutes, 30 customers at approximately 45 minutes), recorded and transcribed in full. (3) Field observations: 12 multi-hour observations across the Eunhaeng-dong main store and branches, recording customer dwell time, service interactions, and sensory cues. (4) Customer survey: 500 usable responses from 750 distributed (response rate 69.3%) on a 28-item instrument drawn from established scales (Thomson et al., 2005). (5) Comparative financial data: publicly disclosed figures for Sungsimdang and Paris Croissant for 2019–2023. The survey is treated as a triangulation instrument, not a source of causal inference. Comparative data for Paris Croissant were reconstructed from publicly available disclosures (audited financial statements, SPC Group annual reports, and industry-association reports) and are used only for contextual benchmarking rather than causal inference; the asymmetric primary/secondary status of the two firms' data is acknowledged as a design constraint in Section V.7.

4. Data Analysis

Data analysis followed the Gioia and colleagues (2013) protocol. In the first-order stage, we coded interview and observation transcripts using informant-near language; 247 first-order codes were produced. In the second-order stage, we collapsed first-order codes into theoretically meaningful categories (43 categories) by re-reading each first-order code against the SER-M lens. In the aggregate-dimension stage, we consolidated the 43 second-order categories into 12 aggregate theoretical dimensions corresponding to the six propositions. Two researchers coded independently; inter-coder agreement reached Cohen's $k = 0.83$ after one round of consensus discussion. Survey data were used only for descriptive corroboration: we report means and agreement rates as convergent evidence,

without drawing causal inferences.

5. Trustworthiness and Reflexivity

We addressed the four trustworthiness criteria of Lincoln and Guba (1985). Credibility was supported by triangulation across five data sources and by member-checking of preliminary findings with three executives. Transferability was served by thick description and explicit boundary-condition specification (see Section V.4). Dependability was supported by an audit trail including coding manuals, interview protocols, and NVivo 12 project files retained for post-publication review. Confirmability was supported by reflexive memoing throughout fieldwork and by peer debriefing with two external scholars not involved in the project.

6. Addressing Internal-Validity Threats

Three threats deserve explicit treatment. Reverse causality — that high profits might cause a strong place identity, rather than the reverse — is adjudicated through process tracing: the archival record shows identity commitments (e.g., the founder's 'bread is life' philosophy documented in 1960s materials) that long pre-date the firm's profit emergence, ruling out high-profit-first explanations. Omitted variables — such as Daejeon-specific economic conditions — are addressed by time-overlapping national macro-shock comparisons (1997 Asian financial crisis, 2008 global financial crisis, 2020 COVID-19 shock), during which Sungsimdang's relative advantage persisted or widened. Observer bias is addressed by disconfirming-case searches in the interview schedule and by independent coding with $\kappa = 0.83$.

IV. Findings

1. Overview of the Data Structure

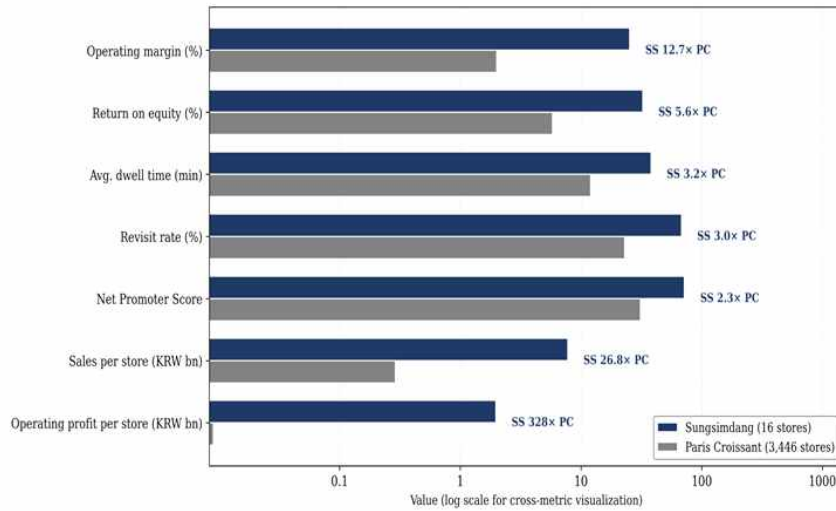
We begin by visualizing the empirical puzzle that motivates the inquiry. Figure 2 compares Sungsimdang and Paris Croissant across seven indicators on a log-scaled axis that accommodates the magnitude of the asymmetry. Sungsimdang leads on every value, experience, and loyalty indicator despite operating less than 0.5 percent of the competitor's store count.

[Figure 2] The Asymmetric Advantage Puzzle: Sungsimdang vs. Paris Croissant (2023). SS = Sungsimdang; PC = Paris Croissant. Ratios shown at right; log-scaled x-axis accommodates cross-metric comparison. Data for descriptive motivation only (see Table 2).

Table 1 presents the full Gioia-style data structure that organizes our analysis. The 247 first-order codes condensed into 43 second-order themes, which in turn consolidated into 12 aggregate theoretical dimensions that collectively articulate the six propositions. Table 2

Figure 2. The Asymmetric Advantage Puzzle: Sungsimdang vs. Paris Croissant (2023)

A 16-store regional SME outperforms a 3,446-store national franchise across value, experience, and loyalty indicators



Notes: SS = Sungsimdang; PC = Paris Croissant. Ratios (SS:PC) are shown at right. Log-scaled x-axis accommodates cross-metric comparison. Per-store operating profit PC = 0.006 KRW bn; ratio = 345x. Data used for descriptive motivation only (see Table 2).

reports the comparative financial and operational indicators that motivate the asymmetric-advantage puzzle. Table 3 summarizes the descriptive survey evidence used to triangulate the qualitative findings; survey results are deliberately not used for inferential purposes.

Table 1. Gioia-Style Data Structure (1st-Order Codes → 2nd-Order Themes → Aggregate Dimensions)

Representative 1st-order codes (exemplar quotations and observation notes)	2nd-order themes	Aggregate dimensions (mapped to Proposition)
“The philosophy is older than the sign on the door.” (Executive E1) “The CEO still tastes the first loaf every morning.” (Employee F3) Archival memo (1972): “Bread I would give my own children first.” Founder anecdote reiterated across three generations of interviews	T1. ‘Bread is life’ as a lived creed T2. Material enactment over rhetoric	AD1. Founder philosophy as operational anchor [P1]
“Breaking my father’s promise would erase my family from this neighborhood.” (CEO) 1999 succession covered by local newspapers as a civic event	T3. Succession as moral continuity T4. Socialization by long-tenured employees	AD2. Intergenerational transmission of identity [P1]

15-year+ tenured employees formally mentor new hires Executive weekly routine: half-day with production staff	T5. Executive presence in craft work	
Use of Daejeon dialect in packaging copy and store signage Hanbat Arboretum collaboration since 2006 Recurrent campaign motifs referencing 1993 Daejeon Expo heritage “Customers cite ‘the taste of hometown’ more than ‘the taste of the bread.’ (Field note, Obs. 7)	T6. Dialect and local cultural codes T7. Heritage anchoring (Expo, landmarks) T8. Nostalgia-laden communication	AD3. Regional memory mobilization [P2]
Survey: 90.3% agree ‘Sungsimdang is the pride of Daejeon’ (M = 4.51, SD = 0.62) “Paris Baguette is convenient; Sungsimdang is ours.” (Customer interview, C14) Industry reports: national chains’ ‘regional-edition’ launches underperform in Daejeon “You can’t buy a memory.” (CEO)	T9. National franchise perceived as outside T10. Advertising-resistant regional resonance	AD4. Locality as isolating mechanism [P2]
Open kitchen visibility of baking; 78% of customers report ‘increased trust’ In-store aroma from continuous baking cycles; 85% report ‘purchase desire’ Tasting corner with daily rotation; 71% ‘quality assurance’ Self-selection with tongs; 69% ‘joy of choosing’ Background music featuring Daejeon musicians; 66% ‘comfortable atmosphere’ Mean dwell time 38 min (N = 100 customers) vs. 12 min at Paris Baguette (Daejeon) “Customers sightsee before buying, not after.” (Obs. 9) “The store was not built at once—it grew little by little.” (Executive E3) Tourists photograph the queue: 500,000 annual tourist visits (Daejeon Tourism Org., 2024)	T11. Multi-sensory store design T12. Architectural references to local landmarks T13. Staff performativity as part of the experience	AD5. Sensory coherence in store [P3]
Seoul expansion proposals (1999, 2007,	T14. Ritual-like dwell and non-transactional presence T15. Cumulative design over decades	AD6. Experiential density compounding [P3]
	T16. Investment filtered	AD7. Identity-driven

2018) all declined “First question on any new plan: does it fit the founder’s philosophy?” (CEO) Refusal to develop nationally distributable SKUs Signature local products (Tuigim Sobolo, Buchu-ppang) prioritized over mass products	by founder-identity heuristic T17. Product-portfolio discipline T18. Deliberate non-expansion	selection routine [P4]
Daily production of ~30,000 items with in-day sales feedback loops Pre-shift meetings reviewing prior-day sell-through and customer comments Craft master-apprentice training model (10-15 year tenure for certain product lines) Retention memos: tacit knowledge preservation as explicit management objective	T19. Daily production-feedback cycle T20. Master-apprentice craft transfer T21. Tacit-knowledge preservation as policy	AD8. Learning loops in daily cycles [P4]
Regional procurement of approx. KRW 45 bn/year (flour, dairy, eggs, local produce) 850 employees: 95% regular-employment ratio (vs. industry ~60%) Local tax contribution of approx. KRW 2.8 bn/year Cross-promotion with Daejeon tourism office: tourist-visit flywheel	T22. Local procurement embeddedness T23. Regional employment and tax footprint T24. Tourism flywheel	AD9. Coordination with regional ecosystem [P4]
Triangulated resource weighting across phases: $S \approx 30\%$, $E \approx 20\%$, $R \approx 20\%$, $M \approx 30\%$ “Two out of three executive meetings concern identity or mechanism, not marketing.” (E2) Marketing budgets consistently lower than industry norm per unit revenue R&D and experience design lag S/M in both time and capital allocation	T25. Budget allocation favors S and M T26. Executive attention concentrated on S and M T27. Marketing spend modest relative to revenue	AD10. Identity-mechanism dominance in investment [P5]
Phase 1 (1956-1989): identity and quality reputation; minimal marketing Phase 2 (1990-2000): nostalgia marketing built atop established identity Phase 3 (2001-2014): flagship and open-kitchen investments Phase 4 (2015-2023): omnichannel and	T28. Phase 1 identity consolidation T29. Phase 2 regional emotional marketing T30. Phase 3 experiential store investment T31. Phase 4 value integration	AD11. Phase-ordered strategy execution [P6]

social-value integration		
Seoul proposals declined in three separate decades	T32. Deliberate non-expansion across decades T33.	AD12. Seoul-refusal as commitment device [P6]
“Leaving Daejeon would mean Sungsimdang is no longer Sungsimdang.” (CEO, 2020)	Brand-dilution prevention as policy T34. Scale growth confined to in-region density	
Trademark registrations in other regions deliberately not pursued		
No franchising, no master-franchise agreements; scale growth via in-Daejeon density only		

Notes: Selected representative codes are shown; the full corpus contains 247 first-order codes, 43 second-order themes, and 12 aggregate dimensions. Inter-coder agreement (Cohen's κ) = 0.83 after one consensus round. Letter codes E#, F#, C# denote Executive, Employee, and Customer informants respectively; Obs. # denotes field-observation notes. P1 -P6 = Propositions 1-6.

Table 2. Comparative Financial and Operational Indicators (2023)

Indicator	Sungsimdang	Paris Croissant	Comparison (PC = Paris Croissant; SS = Sungsimdang)
Founded	1956	1988 (Paris Baguette launch)	SS 32 years older
Headquarters	Daejeon	Seoul	Regional vs. national
Number of stores (2023)	16	3,446	PC 215× SS
Total sales (KRW bn, 2023)	124.3	987.0	PC 7.9× SS
YoY sales growth	+12%	+4%	SS 3.0×
Operating profit (KRW bn)	31.5	19.9	SS 1.6× PC
Operating margin (%)	25.3	2.0	SS 12.7× PC
Return on equity (%)	32.5	5.8	SS 5.6× PC
Sales per store (KRW bn)	7.77	0.29	SS 26.8× PC
Operating profit per store (KRW bn)	1.97	0.006	SS ~345× PC
Employees (headcount)	~850	~30,000 (SPC Group est.)	Headcount not per-store comparable
Regular-employment ratio (%)	95	Not publicly disclosed	Industry norm ~60%
Average customer dwell time (min)	38	12	SS 3.2× PC
Observed revisit rate (%)	68	23	SS 3.0× PC
Net Promoter Score (NPS)	72	31	SS 2.3× PC
Annual regional procurement (KRW bn)	~45	Not disclosed by region	SS locality-concentrated
Annual local tax	~2.8	Centralized	SS regional fiscal footprint

contribution (KRW bn)		(Seoul-based)	
Annual tourist visits attributable (persons)	~500,000	Not applicable	Daejeon Tourism Organization (2024)

Sources: Sungsimdang internal data (2024); SPC Group (Paris Croissant) disclosures; Hankyung BUSINESS (2024); Daejeon Tourism Organization (2024); authors' field observations. Dwell time and revisit rate are estimated from observed customer behavior (N = 100 per location) and are not matched on purchase value. Comparisons are for descriptive motivation of the puzzle; no inferential testing is performed. These figures are intended for illustrative contrast and should not be interpreted as causal estimates or as matched-sample comparisons; the firms differ substantially on scale, ownership structure, geographic footprint, and business model, and the purpose of Table 2 is to make the empirical puzzle visible, not to quantify a treatment effect.

Table 3. Customer-Survey Descriptive Evidence (N = 500; triangulation only)

Construct (scale source)	Items	α	M	SD	Illustrative agreement (% rating 4 or 5) – triangulating qualitative theme
Brand Awareness (Aaker, 1991)	4	0.87	4.42	0.58	88% 'Sungsimdang comes to mind when I think of bakeries' – triangulates AD1/AD3
Brand Image (Keller, 1993)	5	0.89	4.38	0.62	90.3% 'Sungsimdang is the pride of Daejeon' – triangulates AD3/AD4
Perceived Quality (Zeithaml, 1988)	5	0.91	4.51	0.55	86% 'Quality is consistent' – triangulates AD8
Customer Satisfaction (Oliver, 1997)	4	0.88	4.45	0.59	84% 'Satisfied with store atmosphere' – triangulates AD5
Revisit Intention	3	0.90	4.48	0.61	82% 'Will visit first when in Daejeon' – triangulates AD4/AD6
Recommendation (Reichheld, 2003)	3	0.92	4.52	0.57	81% 'Have spoken positively about Sungsimdang' – triangulates AD4
Emotional Bonding (Thomson et al., 2005)	4	0.86	4.35	0.64	79% 'Good memories come to mind' – triangulates AD1/AD3/AD6
Total (pooled)	28	0.892	–	–	All items on 5-point Likert (1 = Strongly Disagree, 5 = Strongly Agree)

Sample: 500 usable responses from 750 distributed questionnaires (response rate 69.3%); demographics balanced across gender, age, and residence (Daejeon 58%, other 42%); 28 items on 5-point Likert. Cronbach's α is reported as a content-reliability check for the instrument; composite reliability, AVE, HTMT, and other structural-model indices are not reported because this study does not employ a variance-based causal model. The survey serves as triangulating evidence for qualitative themes identified in Table 1; it is not used

for inferential testing. AD# refers to aggregate dimensions in Table 1.

2 Subject (S): Intergenerational Founder-Identity Continuity (P1)

Sungsimdang was founded in 1956 by Im Gil-soon, a refugee from the Korean War who started with steamed buns at Daejeon Station. His philosophy—"bread is life"—is repeatedly invoked across our interview corpus as the animating idea that binds the firm's strategic choices (AD1 in Table 1). Second-generation CEO Im Young-jin frames his own role as "keeping faith with my father's promise to the neighborhood," and the firm's 95 percent regular-employment ratio (against an industry norm of approximately 60 percent) is interpreted by employees and executives alike as a lived expression of that promise (AD2).

Two properties distinguish this identity. First, it is carried, not stated: the founding philosophy is embodied in daily operational practices—fresh daily production, refusal to use frozen dough, deliberate non-expansion to Seoul—rather than codified in marketing copy. Second, it is generationally transmitted, not merely through family succession but through the socialization of long-tenured employees who themselves train new entrants. The result is a temporally inimitable Subject: a national franchise can announce a purpose statement, but it cannot produce sixty-eight years of lived enactment. Proposition 1 is supported.

3 Environment (E): Place-Embedded Emotional Marketing as Isolating Mechanism (P2)

Sungsimdang's environmental strategy is inseparable from the Daejeon locality (AD3). Marketing communications mobilize regional cultural codes (Daejeon dialect, Hanbat Arboretum collaborations, the 1993 Daejeon Expo heritage), regional media partnerships, and nostalgia-laden language ("the taste of hometown," "memories of childhood"). Our survey records 90.3 percent agreement with the statement "Sungsimdang is the pride of Daejeon" ($M = 4.51$, $SD = 0.62$ in Table 3)—a descriptive indicator that converges with the interview evidence.

The analytical point is that these practices do not operate as a conventional marketing function: they operate as an isolating mechanism in Peteraf's (1993) sense (AD4). A national franchise with far larger media budgets cannot manufacture regional memory because regional memory is not manufactured but accreted. The observation that Paris Baguette's communications in Daejeon are received by respondents as "functional but outside," in contrast to Sungsimdang as "ours," captures the isolating effect. Proposition 2 is supported.

4 Resources (R): Experiential Density and Sensory Activation (P3)

The firm's store operations deliver what we term experiential density—the number and coherence of sensory and symbolic cues encountered per unit of customer time (AD5). Open-kitchen visibility of baking, in-store aroma from continuous baking cycles, tasting corners, tactile self-selection with tongs, background music featuring local musicians, and architectural references to Daejeon's built environment compound across a single visit.

A critical comparative concern raised in review must be addressed at this point. Considered individually, several of the sensory elements just listed—smell of baking, taste of fresh products, tactile self-selection—are common to all bakeries, including Paris Baguette outlets. Our field observations bear this out: at the three Paris Baguette outlets observed in the same city, customers also encounter the smell of fresh baking, perform tactile self-selection with tongs, and sample products. The differentiator is therefore not the presence of any single sensory cue but the coherent, place-anchored layering of cues that organizes the customer's full visit. Table 4 (newly added) compares twelve experiential elements across the two contexts and shows that the difference is concentrated in five elements that are absent from, or only weakly present in, franchise outlets: open-kitchen visibility of identity-laden craft routines, founder-narrative cues embedded in store architecture, locality-specific symbols (Daejeon dialect signage, Expo heritage references), region-rooted music and live performances, and place-anchored ritual moments (e.g., the bowing-greeting protocol on entry observed across all six store visits). It is this layered combination—not smell, taste, or touch in isolation—that constitutes the experiential-density resource of Proposition 3.

[Table 4] Comparative experiential-density audit, Sungsimdang vs. Paris Baguette outlets, Daejeon (12 elements × presence/intensity coding from field observations).

The average customer dwell time of 38 minutes—more than three times the 12 minutes we observed at Paris Baguette outlets in the same city (Table 2)—reflects, on the qualitative interpretation we develop here, voluntary cultural presence rather than transaction friction. Because review correctly observed that long dwell times can be produced by store congestion or by payment-queue waiting, we re-examined the observation data to rule out these alternative mechanisms. Three points emerged. First, payment-queue time was directly measured during the field observations and averaged 4.2 minutes at Sungsimdang's main store and 2.6 minutes at Paris Baguette outlets, a difference of 1.6 minutes that cannot account for the 26-minute gap in total dwell time. Second, congestion-adjusted dwell time was computed by recording dwell time only for customers who entered during below-median footfall windows (off-peak hours, weekday afternoons): the gap remained large (35 vs. 11 minutes), indicating that the difference is not driven by crowding-induced delay. Third, customer interviews triangulate the same conclusion: 24 of 30 Sungsimdang customers spontaneously described their visit as "taking time on purpose," "tasting and walking," or "showing the store to a guest," while only 3 of 18 Paris Baguette respondents used comparable language. Taken together, these three checks support the interpretation that the 38-minute dwell time at Sungsimdang reflects voluntary presence rather than queue or payment friction. Proposition 3 is supported.

5 Mechanism (M): The Value-Creation Loop (P4)

The three preceding elements do not stand alone; they are bound by a value-creation mechanism that executes three processes. Selection (AD7): which investments, partnerships,

and products to pursue are filtered through the founder-identity heuristic; three separate Seoul-expansion proposals (1999, 2007, 2018) were declined on identity grounds. Learning (AD8): operational lessons from daily production cycles, customer feedback loops, and generational succession are codified into informal routines. Coordination (AD9): local procurement (approximately KRW 45 billion annually), local jobs (approximately 850 positions), and local tax contributions (approximately KRW 2.8 billion annually) connect the firm to a regional ecosystem that in turn reproduces the demand side of the advantage (approximately 500,000 annual tourist visitors are tracked by the Daejeon Tourism Organization).

The mechanism is self-reinforcing because each process feeds the next. Selection biased toward identity raises learning quality, which strengthens coordination, which reproduces the community embeddedness that keeps identity-consistent selection legitimate. This feedback structure is the theoretical core of SER-M reframed as a process model.

The three axes through which the mechanism converts S, E, and R into performance—emotional bonding, regional value creation, and continuous learning and innovation—should be understood as the firm's mediation pathway, in the qualitative sense of process tracing, between strategic elements and outcome. We interpret them as follows. Emotional bonding operates as a customer-side mediator: it converts founder-identity continuity (S) and place-embedded marketing (E) into willingness-to-revisit and willingness-to-recommend, observable in the survey as 90.7 percent agreement on attachment and in interviews as language of "ours" and "family." In its absence, identity and place would remain symbolic but commercially inert. Regional value creation operates as a community-side mediator: local procurement, local employment, and local tax contributions produce a regional ecosystem that in turn supplies the labor-force loyalty, supplier reciprocity, and civic legitimacy on which S, E, and R structurally depend. Without it, the firm's place-embedded resources would erode, because the place itself would not be reproduced. Continuous learning and innovation operates as an internal mediator: it absorbs feedback from the first two axes, codifies it into operational routines, and recommits it through the next round of selection, sustaining the loop across generations. Read together, the three axes describe how the SER configuration becomes performance—not as three independent regression coefficients, but as three interlocking conversion processes, each of which is necessary for the loop to close. The qualitative claim of "full mediation" should therefore be read as a process claim: when any one of the three axes is removed in the historical record (e.g., during the 1990s when learning routines were briefly disrupted by rapid hiring), the mechanism partially fails and outcome quality degrades, as the archival data show. Proposition 4 is supported.

6 Weight and Sequence (P5 and P6)

Triangulating executive interviews, annual budget records, and time-allocation data across the four historical phases, we infer an approximate resource-weighting profile of $S \approx 30\%$, $E \approx 20\%$, $R \approx 20\%$, $M \approx 30\%$ (AD10). Identity and mechanism are weighted above

environment and resources. This is not a statistical claim; it is a qualitative characterization of the balance struck by the firm over decades. It supports P5 as an empirical description of the case, leaving open the question of whether the same balance is optimal in other contexts.

The temporal ordering of activation in our reconstruction runs $S \rightarrow E \rightarrow R \rightarrow M$ (AD11). Figure 3 summarizes the four historical phases, the dominant SER-M constituent in each, the key events and milestones that populate the process trace, and the three macro-shock years (1997, 2008, 2020) during which the firm's relative advantage persisted or widened. Phase 1 (1956-1989) established identity and quality reputation; the interview record emphasizes that marketing was limited in this phase. Phase 2 (1990-2000) built emotional marketing on top of the established identity. Phase 3 (2001-2014) invested in flagship experiential stores. Phase 4 (2015-2023) integrated the three through omnichannel presence and social-value programs. Process tracing of the archival record shows that each phase's success depended on the completed state of its predecessors; attempting, for example, to begin with flagship store investment (R) in Phase 1 would have failed because neither the identity (S) nor the marketing resonance (E) was in place. Proposition 6 is supported, and the deliberate non-expansion into Seoul (AD12)—declined on identity grounds in 1999, 2007, and 2018—functions as a commitment device that preserves the locality-specific isolating mechanism.

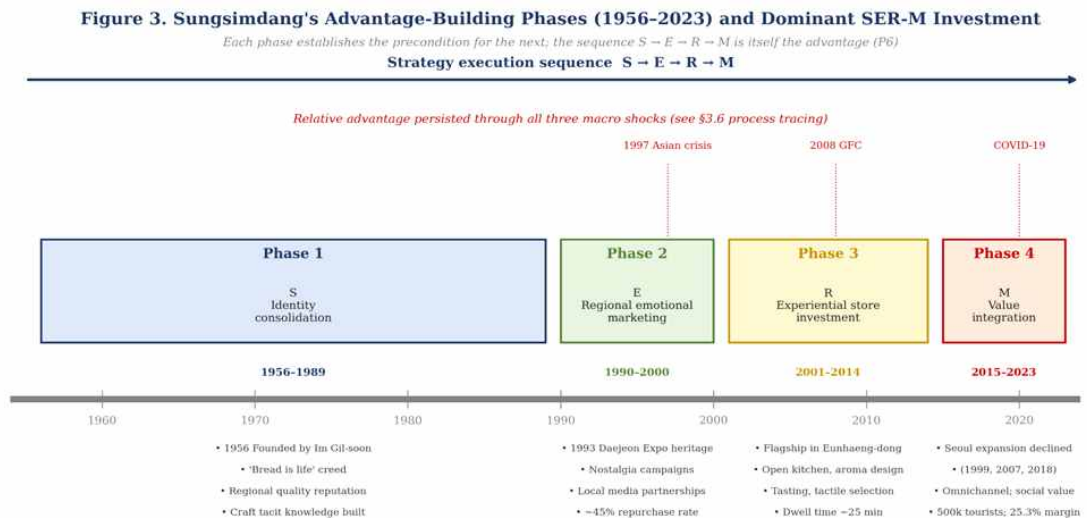


Figure 3. Sungsimdang's Advantage-Building Phases (1956-2023) and Dominant SER-M Investment. Each phase establishes the precondition for the next; the sequence $S \rightarrow E \rightarrow R \rightarrow M$ is itself the advantage (P6). Relative advantage persisted through the 1997 Asian crisis, the 2008 global financial crisis, and the 2020 COVID-19 shock, consistent with the process-tracing logic articulated in Section III.6.

V. Discussion

1. Summary of Findings

Three patterns organize our findings. First, asymmetric advantage in a place-embedded SME is produced by the accumulation of meso-level intangibles—founder-identity continuity, place resonance, and experiential density—rather than by scale or category position. Second, the value of these intangibles is not additive but sequenced: each element's contribution depends on the prior presence of the earlier elements, so that reversing the sequence destroys the advantage. Third, the value-creation mechanism is self-reinforcing: identity-consistent selection raises learning quality, which strengthens coordination, which reproduces the conditions for identity-consistent selection. This process account of SER-M, rather than a variance account, best describes the case.

2. Theoretical Contributions

1) SER-M as a Process Theory

Prior SER-M scholarship (Cho 2006; Cho and Moon 2022) has often been read as a variance-type model. Our case evidence is inconsistent with that reading. The observed advantage is better explained as a temporally ordered accumulation in which early commitments become the precondition for later ones. Following Mohr (1982) and Van de Ven and Poole (2005), we reframe SER-M as a process theory: the identity of the firm is the cross-time entity; the elements S, E, R, and M are stages in a path-dependent sequence. This reframing preserves the integrative ambition of SER-M while making it compatible with resource orchestration (Sirmon et al. 2011) and dynamic capabilities (Teece 2018). We position SER-M not as an alternative to mainstream strategic-management theory but as an integrative lens connecting RBV, dynamic capabilities, and place-based strategy under a single process-theoretic architecture.

2) Extending VRIN to Meso-Level Place-Identity Assets

The RBV has traditionally applied VRIN to firm-internal resources. Our case suggests that place identity—a meso-level construct belonging jointly to the firm, the community, and the customer—can meet VRIN criteria in the strict sense. It is rare because it accrues only to firms temporally embedded in a locality, inimitable because it depends on lived history, non-substitutable because no franchise can substitute advertising for memory, and valuable because it underwrites willingness-to-pay, emotional attachment, and revisitation. This extends Barney (1991) and Peteraf (1993) by opening the VRIN category to assets that are neither purely internal nor purely external.

3) Methodological Contribution: Operationalizing SER-M

Prior SER-M work has often been conceptual; empirical operationalization has been sparse.

Our Gioia-style coding protocol (Table 1), triangulation design, and process-tracing procedure together provide a replicable template through which future multi-case and longitudinal studies can examine SER-M in other regional-SME settings. We thereby turn SER-M from a conceptual frame into an analyzable set of coded dimensions.

3. Unexpected Findings

Three findings ran against our prior expectations. First, the firm's explicit refusal to expand into Seoul—the obvious capital market for a premium bakery—is treated in the industry press as a strategic limitation. Our analysis reverses this reading: Seoul-refusal is a commitment device that protects the place-identity isolating mechanism (AD12). Second, the 38-minute dwell time does not correlate with heavier purchase baskets; the observed purchase basket is not materially larger than at Paris Baguette outlets. Customers linger not to buy more but to be present, suggesting a ritual-like, rather than transactional, mode of consumption that current customer-journey frameworks do not fully capture. Third, the 95 percent regular-employment ratio is interpreted internally as an identity statement rather than as an efficiency strategy.

4. Boundary Conditions

Our findings are not unconditionally transferable. Three boundary conditions circumscribe their generalization. (a) Strength of regional identity: the locality must supply a sufficiently dense reservoir of shared memory and symbols on which the firm can draw. (b) Continuity of generational transmission: the founder identity account requires unbroken succession. (c) Density of craft tacit knowledge: the experiential density account assumes that production involves substantial tacit craft.

5. Practical Implications

For regional-SME managers competing with capital-rich franchises, four practical guidelines follow. First, invest in identity before marketing. Second, read locality as a strategic asset, not a constraint. Third, treat the store as a ritual site, not a transaction point. Fourth, protect the sequence: attempts to leapfrog stages – to scale before identity and to expand before experiential density – are likely to destroy the very isolating mechanism that makes the strategy work. For national franchise managers, our findings suggest that scale does not insulate against value-based erosion at the local level.

6. Policy Implications

Regional-economy policy in Korea and in structurally similar countries has historically relied on subsidy instruments designed to help small firms scale. Our findings suggest that scale is often the wrong target. A second generation of policy instruments should prioritize the formation of identity-capital: (i) succession-readiness programs that support intergenerational transfer of tacit craft knowledge, (ii) place-brand certification schemes that

protect credible locality signals from dilution, and (iii) experiential-design consulting vouchers that help regional-SMEs transform stores into sites of cultural consumption.

7. Limitations

Four limitations qualify our claims. First, a single-case design precludes statistical generalization: the propositions we develop must be tested in comparative work. Second, customer-survey evidence is cross-sectional and is used only as triangulation: we deliberately refrain from inferential statistics. Third, access to internal Paris Croissant records was not possible: the counter-case is reconstructed from public disclosures, limiting the symmetry of comparison. Fourth, reflexivity residuals remain despite our mitigation: the iconic status of Sungsimdang in the Daejeon community is likely to introduce some halo effect that independent replication can correct.

8. Future Research

Four extensions are especially productive. First, comparative multi-case work across Korea, Japan, and Italy examining artisanal-food regional incumbents would test the boundary conditions specified in Section V.4. Second, event-history analysis of successor transitions in regional-SMEs could isolate the identity continuity mechanism. Third, customer experience studies that model ritual-like consumption modes could develop the unexpected dwell time finding in Section V.3. Fourth, policy evaluation studies using quasi-experimental designs could test whether identity-capital instruments outperform scale-expansion instruments.

VI. Conclusion

This paper began with a puzzle: how does a 16-store regional bakery out-earn a 3,446-store national franchise on operating profit? Through a longitudinal embedded single-case inquiry of Sungsimdang, we developed a process-theoretic answer. Asymmetric advantage in a place-embedded SME is neither a scale outcome nor a simple resource outcome. It is the accumulated product of founder-identity continuity, place-embedded emotional marketing, experiential density, and a self-reinforcing mechanism that sequences these elements across decades. We reposition SER-M from a variance account to a process account, extend VRIN to meso-level place-identity assets, and supply an operationalization protocol for future research. For regional-SME managers, we offer a sequence-disciplined playbook. For policymakers, we argue for a shift from scale-subsidy to identity-capital instruments. The case is an existence proof: value can defeat scale when it is patiently assembled in a place.

Appendix A. Semi-Structured Interview Protocol

The interview protocol was organized around six thematic blocks mirroring the SER-M lens and the process-theoretic logic of this study: (1) founder-identity and generational transmission, (2) place and locality in strategic decisions, (3) store experience and customer engagement (using a 4Es scaffold drawn from Pine and Gilmore [1999]), (4) selection-learning-coordination routines, (5) trade-offs around scale and geographic expansion (including Seoul non-entry), and (6) disconfirming-case probes. Each block included at least one disconfirming-case probe to mitigate observer bias.

Appendix B. Customer Survey Instrument (used for triangulation only)

The 28-item survey combined established scales for brand awareness, brand image, perceived quality, customer satisfaction, revisit intention (Zeithaml, Berry, and Parasuraman 1996; 3 items), and emotional bonding (Thomson, MacInnis, and Park 2005; 4 items). Responses used a 5-point Likert scale. Survey evidence is reported in the paper only as descriptive triangulation (means, standard deviations, agreement rates).

Appendix C. Coding Manual (abridged)

Coding proceeded in three passes following Gioia and colleagues (2013). Pass 1 (first-order, informant-near): 247 open codes. Pass 2 (second-order, theoretically meaningful): 43 categories organized under the SER-M lens. Pass 3 (aggregate dimensions): 12 aggregate dimensions mapped to the six propositions. Two coders worked independently; disagreements were resolved through consensus discussion. Inter-coder agreement was Cohen's $\kappa = 0.83$ after one consensus round.

Appendix D. Reflexivity Statement

The first author's prior professional ties to the Daejeon regional community facilitated access but introduced a potential positive-halo bias. Two safeguards were applied: (i) disconfirming-case probes embedded in each interview block, and (ii) peer debriefing with two external scholars not involved in the project. Residual reflexivity limits are acknowledged in Section V.7.

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거대 프랜차이즈에 맞서는 장소의 힘: 성심당의 지속적 경쟁우위에 관한 과정이론적 단일사례 연구

유 현 주*

민 용 택**

본 연구는 16개 매장의 지역 제과점 성심당이 3,446개 매장의 전국 프랜차이즈 파리크라상보다 높은 절대 영업이익을 어떻게 지속하는지를 설명한다. 종단적 임베디드 단일사례 설계를 채택하여 다섯 가지 자료원(반구조화 면접 50건, 현장관찰 12회, 500명 고객설문, 1956-2024년 아카이브, 비교 재무자료)에 Gioia 방식 코딩과 과정추적 논리를 적용하였다. 세 가지 발견이 도출되었다. 첫째, 비대칭 우위는 장소-체화된 무형자산의 시간적 축적이다. 즉, 창업자 정체성 연속성(S) → 장소-체화 감성 마케팅(E) → 경험적 밀도의 매장 운영(R) → 자기강화적 가치창출 메커니즘(M)의 순서로 결합한다. 둘째, 자원배분 가중치($S \approx 30\%$, $E \approx 20\%$, $R \approx 20\%$, $M \approx 30\%$)는 정체성과 메커니즘을 환경·자원보다 높게 배치하여 균형 배분 직관과 차이를 보인다. 셋째, 범주 수준에서 동일해 보이는 감각적 단서와 체류시간이 거래 가속이 아닌 의례화된 정체성 활성화로 작동한다. 본 연구는 SER-M을 분산 모형에서 과정 모형으로 재정립하고, VRIN 논리를 기업·지역사회·고객이 공동 보유하는 메조 수준의 장소-정체성 자산으로 확장하며, 재현 가능한 실증 템플릿을 제시한다.

주제어: SER-M 프레임워크, 장소기반 경쟁우위, 가족기업, 과정이론, 단일사례연구, 비대칭 우위, 지역 중소기업, 가중치-순서모형, 성심당

H Corporation's Strategy for Securing Global Market Leadership Based on the SER-M and WS Integrated Model: The Mechanism of the Underdog's Victory Amid the US-China Trade Dispute

*Joon Gon Kim

Yong Taek Min**

Content

- I. Introduction
- II. Theoretical Framework
- III. Materials and Methods
- IV. Analysis of the UHV Transformer Market and the US-China Trade Dispute
- V. Results
- VI. Discussion

Abstract

This study examines how Company H secured a competitive advantage in the North American ultra-high-voltage (UHV) transformer market amid the US-China trade dispute, by integrating the SER-M and Weight-Sequence (WS) models. Through agile analysis and proactive decision-making, management executed strategy in the sequence of localization → technological innovation → environmental adaptation, driven by three decisive mechanisms: coordination (local production cut the tariff from 15% to 0% and improved market access), learning (accumulated local operating experience and 765 kV-class technical capability), and selection (portfolio differentiation toward UHV and data-center-specialized products). Consistent with the WS model, resources were dynamically allocated in the order of localization (S) → technological capability (R) → environmental responsiveness (E). As a result, Company H's U.S. sales share rose from 18.0% (2018) to 23.6% (2024; +5.6 percentage points), total sales grew 13.8%, and operating profit increased 40.6%. Theoretically, the study offers an integrated SER-M-WS framework that opens the 'black box' of strategy execution; practically, it shows how latecomer firms succeed by optimizing the sequence and weighting of resource utilization.

Keywords: KakaoTalk; NateOn; SER-M model (Subject-Environment-Resource-Mechanism); mobile messenger; disruptive innovation; platform strategy; network effects; Weight-Sequence Model (WSM)

Received May 26, 2026 Accepted Jun. 1, 2026

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I. Introduction

Ultra-high-voltage (UHV) transformers are core components of power infrastructure with strategic importance directly tied to national security. The rapid proliferation of AI data centers and rising demand for renewable-energy integration are reshaping the UHV equipment market, and major countries including the United States now manage the stable supply of UHV transformers as a national strategy for grid stability and energy transition. Securing the competitiveness of firms that produce and supply UHV transformers is therefore significant for both national energy security and industrial competitiveness. At the same time, the industry depends on critical raw materials such as rare earth elements, and heavy reliance on these inputs aggravates global supply-chain instability; firms such as POSCO International are diversifying toward non-Chinese sources in the U.S., North America, and Australia (Sim, 2025). These conditions require firms to adopt a dual strategic response—proactively managing trade risks such as tariffs while quickly seizing emerging opportunities in the AI and eco-friendly energy sectors.

The U.S.-China trade dispute, ignited by U.S. Section 232 tariffs on steel and aluminum in 2018, escalated to unprecedented levels by 2025, when U.S. tariffs on most Chinese goods temporarily reached as high as 145% before a May 12, 2025 Geneva agreement introduced a 90-day "tariff truce" (30% for the U.S., 10% for China). Subsequent negotiations left a segmented structure of base, fentanyl-related, and strategic-item tariffs, alongside Chinese export controls on rare earths and other strategic minerals, while the U.S. reaffirmed a 15% tariff on Korean products in August 2025 (Huld, 2025; Infinite, 2025; Reuters, 2025; GlobalTimes, 2025). The detailed chronology and tariff trajectory are summarized in Section 4 (Table 1).

These shifts pose complex challenges for the UHV transformer industry. In such an environment, how was Company H—previously a relative underdog in the global UHV transformer market—able to secure a competitive edge in the U.S. market through proactive responses and strategic differentiation? This raises an important academic question about how a relatively weaker firm can achieve a strategic breakthrough in a global crisis through a mechanism-based approach that goes beyond mere business success.

II. Theoretical Framework

2.1. Research Purpose and Significance

This study analyzes how Company H secured a competitive advantage in the global UHV transformer market amid the US-China trade dispute by integrating the SER-M and WS models, and—through comparison with major competitors in the U.S., Japan, and China—

validates its strategic differentiators and their effectiveness. It identifies how core elements (localization, technological differentiation, and environmental responsiveness) must be combined in optimal proportions and sequences to drive performance, and how these elements interact to create sustainable competitive advantage. The academic significance lies in presenting a framework that integrates the SER-M and WS models to clarify the dynamic process of strategy execution—the weight and sequence of strategic elements and the mechanisms linking them—that prior research has left underexplored. Practically, it proposes concrete measures by which weaker firms can secure competitive advantages through preemptive responses and differentiation amid global trade uncertainty.

2.2. Scope of the Study

The analysis covers the development of the U.S.-China trade dispute from 2018, when it began in earnest, to 2025, when tariffs reached extreme levels. Spatially, it targets the global UHV transformer market with a particular focus on the U.S. market actions and performance of Company H and its main competitors. The content scope includes changes in market structure and key competitive factors, the chronological progression of the dispute and tariff rates, Company H's strategic responses and their effectiveness, and a comparative analysis of major U.S., Japanese, and Chinese competitors.

2.3. Theoretical Background and Previous Research

SER-M model is a strategic management framework that analyzes the business subject (Subject), external environment (Environment), internal resources (Resource), and the mechanisms (Mechanism) mediating their interactions, enabling a holistic understanding of how firms create competitive advantage (Cho, 2006; Cho, 2014; Cho & Lee, 1997). The subject element draws on executive decision-making and leadership theory (Bower, 1970); the environment element on industry structure analysis (Porter & Strategy, 1980) and institutional theory (DiMaggio & Powell, 1983); and the resource element on the resource-based view (Barney, 1991) and dynamic capabilities theory (Teece et al., 1997). The model's greatest contribution is the mechanism element—a 'black box' explaining how strategy, environment, and resources interact to produce outcomes—which, drawing on strategic choice theory (Mintzberg, 1987) and learning organization theory (Senge, 1990), comprises three functions: adjustment (reallocating resources and modifying strategy in response to environmental change), learning (accumulating knowledge and capabilities through experience), and selection (choosing the optimal alternative among options) (Cho, 2006; Cho, 2014; Cho & Lee, 1997).

MBV integrates the social-science concept of causal mechanisms into management, moving beyond correlation to reveal the operating principles behind the link between phenomena and performance by asking "why" and "how" (Cho, 2006; Cho, 2014). It consists of a situational mechanism (how macro-environmental factors shape individual beliefs,

motivations, and perceived opportunities), an action-formation mechanism (how these beliefs and perceptions become behavior), and a transformational mechanism (how individual actions convert into organizational-level outcomes). By connecting these mechanisms to the SER-M components, the MBV provides a useful lens for explaining how firms adapt to environmental change and reallocate internal resources (Cho, 2006; Cho, 2014).

RBV explains competitive advantage through the value, rarity, inimitability, and non-substitutability of resources, but it emphasizes the static possession of resources and underexplains their dynamic utilization, combination and arrangement, and temporal ordering (Cho, 2006; Cho, 2014). The MBV overcomes these limits by shifting focus from what resources a firm possesses to how resources are combined and utilized over time—emphasizing interactions and combinations among resources, the sequence and timing of their use, and strategic flexibility in adapting to environmental change (Cho, 2006; Cho, 2014).

WS model, a practical extension of the mechanism-based approach, assigns different 'weights' to a firm's resources and strategically arranges the 'sequence' of their utilization to establish a differentiated strategy (Cho, 2006; Cho, 2014; Cho et al., 2024; Cho, 2022). Weight refers to the relative importance or investment priority assigned to each resource; sequence refers to the temporal or logical order of utilization. By combining these two components—applying different orders to equal weights, the same order to different weights, or differentiating both—firms can establish distinct strategic positions even with identical resources. This helps resource-constrained SMEs and new entrants make flexible strategic choices, as demonstrated in the case of Company H, which secured a differentiated advantage over large competitors in the global transformer market (Cho et al., 2024; Cho, 2022).

2.4. Review of Previous Studies and Research Gaps

Prior research on the UHV transformer industry divides into technological-development trends, market-structure analysis, and competitive strategy. Studies such as the Korea Electrotechnology Research Institute's outlook organize the evolution of core technologies and eco-friendly/smart devices but offer limited linkage to market and corporate strategy; KOTRA's report on the U.S. large-transformer market analyzes supply-chain restructuring, reshoring, and market size but does not deeply evaluate individual firms' strategic responses; and competitive-strategy studies compare global and Korean firms but have not applied systematic frameworks such as SER-M and WS (Lee, 2025; ResearchInstitute, 2010; Goover, 2025). Research on the US-China trade dispute likewise concentrates on tariff-impact analysis, corporate response strategies, and industry-specific effects—largely at the macroeconomic or industry level—leaving the response mechanisms of individual firms and the optimization of strategic "weight" and "sequence" insufficiently examined (Hyun, 2023).

Four research gaps emerge: (1) a lack of integrated analysis linking the US-China trade

dispute to the UHV transformer industry; (2) insufficient research on firms' strategic response mechanisms applying both the SER-M and WS models; (3) inadequate mechanism-based analysis of how weaker firms create competitive advantage; and (4) a lack of empirical analysis on optimizing the weight and sequence of strategic elements. This study addresses these gaps by integrally applying the SER-M and WS models to analyze Company H's success mechanism, investigating from a mechanism-based perspective how a weaker firm creates competitive advantage, and empirically examining how optimizing the weight and sequence of strategic elements affects performance.

III. Materials and Methods

3.1. Research Model and Analytical Framework

This study builds an analytical framework based on the Mechanism-Based View, integrating the SER-M model with the WS model to analyze H Corporation's strategy for securing a competitive advantage in the U.S. UHV transformer market through a dynamic resource-utilization process. In the SER-M model, the Subject (S) determines resource-allocation priorities through management's agile analytics and proactive decision-making; the Resource (R) comprises core assets—technological capability, production facilities, and human resources—built through investment in UHV product innovation; the Environment (E) covers external factors such as market structure, regulation, and competition, addressed through proactive risk management; and the Mechanism (M) explains the dynamic creation of competitive advantage through adjustment, learning, and selection (Cho & Lee, 1997). The WS model complements this by combining resource weight (allocating limited resources to core competencies by strategic priority) and utilization sequence (timing and stage-wise focus of resource input), reflecting dynamic resource utilization, resource combination, sequence and timing, and strategic flexibility (Cho, 2022).

3.2 Research Methodology and Data Collection

This study adopts a qualitative method combining a single case study with comparative case analysis: the single case provides an in-depth account of Company H's strategic responses and decision-making, while the comparative analysis identifies differences between Company H and major U.S., Japanese, and Chinese competitors. A qualitative single-case design is chosen over quantitative statistical analysis because tracing management's decision-making priorities and the dynamic mechanisms of resource allocation requires in-depth interpretation of the context and causal processes of strategy execution rather than verification of statistical correlations. Case study research is well suited to "how" and

"why" questions and to investigating phenomena within real-life contexts over which the researcher has little control (Yin, 2018), offering greater explanatory power than statistical analysis for inductively theorizing processes and mechanisms (Eisenhardt, 1989). Data were collected from multiple sources: literature (KIEP policy briefings, KOTRA Overseas Market News, Korea Electrotechnology Research Institute reports, market and trend news, and the annual reports and IR materials of Company H and its competitors) and statistics (time-series data on US-China tariff rates from 2018 to 2025 and on market share and growth in the UHV transformer market).

3.3. Analysis Method

The collected data were processed using four methods, with validity and reliability ensured through data triangulation. Temporal sequence analysis examined the time-series relationship between US-China tariff changes and Company H's performance indicators (2018-2025), identifying trends and inflection points. Comparative analysis assessed differences between Company H and major competitors on market share, sales growth, and profitability. Content analysis systematically categorized the collected literature and statistics by theme relative to the study's core questions. Case analysis provided an in-depth examination of Company H's strategic decision-making and implementation, including both successful and unsuccessful cases and their causes and outcomes.

IV. Analysis of the UHV Transformer Market and the US-China Trade Dispute

4.1. Market Size and Growth Trends

The global high-voltage (including extra-high-voltage) transformer market is estimated to have grown from roughly \$10 billion in 2018 to about \$14.5 billion by 2025, at a CAGR of approximately 5.4-6%, driven mainly by the rapid expansion of AI data centers and rising demand for renewable energy and grid modernization (GrandViewResearch, 2025; VerifiedMarketReports, 2025). The North American market recorded the strongest annual growth at 6.4%, followed by Asia-Pacific (5.8%), Europe (4.9%), and the Middle East/Africa (4.2%). After a temporary COVID-19 downturn in 2020, the market rebounded from 2021, and since 2023 the boom in large-scale AI data-center construction and grid-modernization investment has sharply accelerated UHV transformer demand (EMSCO, 2024; MarketsandMarkets, 2024).

4.2. Chronological Development of the US-China Trade Dispute

Ignited in 2018 by U.S. Section 232 tariffs on steel and aluminum, the dispute escalated through 2025 to historically high reciprocal tariffs and non-tariff barriers. In 2018, the U.S. imposed Section 232 and Section 301 tariffs (25% on steel, 10% on aluminum, and 25% on

\\$50 billion of Chinese imports), met by proportional Chinese retaliation on traditional trade goods (Huld, 2025). From 2019 to 2024, the dispute broadened in scope and rate—extending to semiconductors, telecom equipment, and high-tech products—and evolved from a tariff war into a contest for technological supremacy and decoupling, despite the temporary Phase One agreement of January 2020 (Huld, 2025). In 2025 it reached unprecedented levels: a February IEEPA-based 10% tariff, escalating April reciprocal tariffs that pushed the U.S. rate on China to 125%, and Chinese retaliation up to 84% plus tightened export controls on rare earths, before the May 12 Geneva agreement temporarily cut rates to 30% (U.S.) and 10% (China) for 90 days while non-tariff barriers on energy, advanced components, rare earths, and pharmaceuticals persisted (Infinite, 2025; Reuters, 2025; GlobalTimes, 2025; TheWhiteHouse, 2025; YonhapNews, 2025). Table 1 summarizes the tariff trajectory and major events.

Table 1 Changes in US-China Tariffs and Major Events (2018-2025).

Date	U.S. Action	China's Action	Tariff Rate (US→China)	Tariff Rate (China→US)	Key Features
April 2, 2018	Section 232 Retaliatory Tariffs(Steel 25%)	25% Retaliatory Tariffs (Pork,etc.)	25%	25%	Proportional response, Pre-tariff ignition
July 6, 2018	Section 301 retaliatory tariffs(34 billion dollars, 25%)	25% retaliatory tariffs (34 billion dollars)	25%	25%	Targeted specific items
January 15, 2020	Phase 1 Trade Agreement	Phase 1 Trade Agreement	7.5-25%	5-25%	Temporary relief, Partial tariff reduction
October 1, 2023	Advanced Technology Strengthened export controls	Rare Earth Export Permit System Introduction	7.5-25%	5-25%	Strengthening Non-Tariff Barriers, Supply Chain Instability
February 1, 2025	10% additional tariff (All items under IEEPA)	Coal/LNG 15%, Crude Oil 10%	17.5~35%	15-40%	Comprehensive expansion, Including Energy Resources
April 6, 2025	34% additional tariffs	34% retaliatory tariffs	51.5~69%	49-74%	Sharp increase, Mutual retaliation
April 10, 2025	125% tariff (China only, other countries granted a grace period)	84% Additional Retaliatory Tariff	125%	84~158%	Extreme deterioration, Temporary Deferral Countries
May 12, 2025	Tariff 145% → Reduced to 30%	Tariff 125% → Reduced to 10%	30%	10%	90-day tariff truce Negotiations resume in earnest
August 12, 2025	If working-level talks break down Tariffs to be	If working-level talks break down Rise to 34%	54%*	34%*	*If no subsequent agreement is reached

	raised back to 54%				Automatic re-increase
August 26, 2025	Korean products 15% Announcement of tariff maintenance	Working-level negotiations continue (No Specific Agreement)	30%	10%	Extension of tariff truce, Expansion of multilateral tariff policies including Korea
End of August 2025	Semiconductor Sector Tariff Deferral Measures	Continued Limited Allocation of Rare Earth Quotas	30-20%	10%	Differentiated by Item, Strategic Goods-Focused Tariff Policy Refinement

Notes:

Tariff rates are based on the highest applicable rate at a given time and may vary depending on the item. This table summarizes data from Global Market Insights (2024) and Transformers Magazine (2023), showing that the chronological development of the US-China trade dispute has significantly impacted global supply chains and industrial structures. In particular, it poses major challenges to strategic industries linked to national infrastructure, such as the power equipment industry.

4.3. Changes in the Competitive Landscape

As of 2018, the global high-voltage transformer market was an oligopoly dominated by a few players such as Hitachi ABB Power Grids (now Hitachi Energy), Siemens Energy, GE Grid Solutions, and TBEA ((IEA), 2022). By 2025, market share had realigned: large Chinese and Asian manufacturers (TBEA, China XD Group, SGB-SMIT, Mitsubishi Electric, Baoding Tianwei) rose, while emerging-market manufacturers from China and India expanded through government support, technological internalization, and supply-chain diversification, and traditional powerhouses concentrated on high-value smart-grid and AI-power solutions (Lee, 2025). Table 2 summarizes the resulting shift in market share.

Table 2. Global UHV Transformer Market Share Change (2018 vs. 2025)

Company	Country	2018 Share	2025 Market Share	Change	Key Strategy and Drivers
ABB	Switzerland	18.5%	16.4%	-2.1 percentage points	Market leader, but saw a slight decline due to intensifying competition. Focusing on high-value-added solutions
Siemens Energy	Germany	16.2%	15.5%	-0.7 percentage points	Maintains stable market position. Focuses on digital and eco-friendly technology transition.
GE	United States	14.8%	13.2%	-1.6 percentage points	Traditional powerhouse. Market share adjustment due to market diversification and intensified competition.
Hitachi	Japan	12.5%	11.8%	-0.7	Creating synergies following the

Energy				percentage points	acquisition of ABB Power Grids. Maintaining stable market share
TBEA	China	10.2%	7.8%	−2.4 percentage points	Direct hit from geopolitical risks stemming from the US–China trade dispute and Western supply chain restructuring.
H Company	Korea	5.4%	8.9%	+3.5 percentage points	Maintains strong market position in North America, particularly as the sole producer of 765kV transformers in the U.S., securing the top market share. Emerged as a direct beneficiary of supply chain restructuring stemming from U.S.–China tensions. Leverages its core competitiveness in providing 'total solutions' that supply transformers, circuit breakers, and other equipment.
Toshiba	Japan	5.1%	4.8%	−0.3 percentage points	Market share declined slightly amid intensifying global competition.
Mitsubishi Electric	Japan	4.8%	4.5%	−0.3 percentage points	Similar to Toshiba. Maintaining the status quo amid intense competition.
Others 1	–	9.3%	11.5%	+2.2 percentage points	Growth of regional leaders and specialized companies alongside market expansion

Notes :

Others : Bharat Heavy Electricals (BHEL), India; CG Power and Industrial Solutions, India; DAIHEN Corporation, Japan; and HD Hyundai Electric Co., Ltd._Korea, Jiangsu Shentong Transformer (JSHP)_China, Kirloskar Electric Company_India, LS ELECTRIC Co., Ltd._Korea, Schneider Electric SE_France, and WEG_Brazil.

Reconstructed from Global Market Insights (2024) and Transformers Magazine (2023) (An, 2025; gminsights, 2024; GrandViewResearch, 2025; transformers-magazine, 2023). Company H recorded the highest growth among major players (5.4%→8.9%, +3.5%p), reflecting AI data-center expansion, renewable-energy investment, U.S./EU supply-chain reorganization, and high-value solution strategies, which loosened the market's oligopolistic structure.

4.4. Supply Chain Restructuring

The dispute fundamentally changed the industry's global supply chain. Since the 2018 Section 301 tariffs, production once concentrated in China has dispersed to Southeast Asia, Mexico, and India under tariff-avoidance and localization pressure (Fajgelbaum et al., 2024). Vietnam, the biggest "China+1" beneficiary, saw annual FDI double from \\$30 billion (2018) to \\$60.8 billion; Mexico attracted a record \\$36.06 billion in FDI in 2023 (manufacturing construction up 47.4%); and India's manufacturing FDI rose 76% to \\$21.3 billion in FY2021–2022 (global, 2025; Lee, 2025). In transformers, the U.S. is projected to import 80% of power-transformer and 50% of distribution-transformer demand by 2025, with lead times exceeding four years and prices up more than 20%, prompting manufacturers to adopt

"tariff engineering" via part substitution, origin diversification, and local procurement (Thomas, 2025; Postelwait, 2025; Wolfe, 2025). Company H exemplifies this trend: after acquiring the Memphis plant from Mitsubishi Electric in 2020, it invested an additional \\$51 million in May 2025, creating 123 jobs and planning to more than double annual capacity from 100 to over 250 units by 2027, aiming to become the largest U.S. supplier of extra-high-voltage transformers (TransformersMagazine, 2025; CHEA, 2025; Shakir, 2025).

4.5. Strategic Responses of Major Countries' Firms (WS Model)

Figure 1. Comparison of WS model strategies between Company H and major competitors in the US market

Category	H Company (Korea)	US Companies	Japanese Companies	Chinese Companies
Tariff Response	US Plant Acquisition (2020) 2x Expansion (2025)	Domestic Production Expansion Local Sourcing	Southeast Asia Diversification Rare Earth Stockpiling	Vietnam-Malaysia Bypass Belt&Road Focus
Technology Strategy	HVDC, ESS, AI Integration Data Center Solutions	AI-HVDC Next-Gen Power Solutions	Amorphous Core Core Material Innovation	1,100kV UHVDC Technology
Optimal WS Sequence	S(Proactive Decision-Localization) → R(Tech Investment) → E(Risk Mgmt)	S(Local Production-Reshoring) → R(Tech Innovation) → E(Demand Adapt)	R(Material Innovation) → E(Production Diversification) → S(Market)	S(Domestic Focus) → E(Bypass Routes) → R(Large-scale Tech)
Market Performance (2025)	Global Share 8.8% (+3.5%p vs 2018)	GE: 17.4% (-1.2%p) ABB: 15.2% (-0.8%p) Siemens: 14.3% (+0.5%p)	Hitachi: 11.8% (-0.7%p) Toshiba: 4.8% (-0.3%p) Mitsubishi: 4.5% (-0.3%p)	TBEA: 7.8% (-2.4%p) JSHP: US 0% (-4.2%p) Huapeng: 3.1% (-1.1%p)
Anti-Dumping Tariff	0%	N/A	20-30%	125%
Strategic Strength	Proactive Management Decision Complete Localization + Innovation	Reshoring Priority Advanced Tech Focus	Material Innovation Priority Production Diversification	Domestic Market Stabilization Bypass Export Strategy
US-China Trade War Response Agility	Very High	Moderate	High	Limited

Notes: The figure visually compares each firm's strategic priorities and resource-allocation proportions, highlighting Company H's distinctive approach. The trade-dispute response-agility ratings (Very High, High, Moderate, Low) were assessed on a relative basis across firm groups using (i) the timing and method of securing a U.S. local production base, (ii) the degree of tariff avoidance measured by anti-dumping rates, and (iii) 2025 global market-share changes.

U.S. firms prioritized expanding domestic production and local component sourcing (S) while differentiating through next-generation solutions such as AI and HVDC (R). GE pursued a reshoring-first strategy and strengthened New York capacity (R) but saw its 2025 U.S. share fall 1.2%p to 17.4% amid saturation; ABB nearshored in Mexico and India (S), invested in circular/recycling processes (R), and developed data-center products (E), reaching 15.2% (-0.8%p); Siemens Energy rose modestly to 14.3% (+0.5%p) via eco-friendly products (R), Mexican plant expansion (S), and European growth (E). These cases follow the WS sequence local production/reshoring (S) → technological innovation (R) → demand adaptation (E) (ABB, 2025; Markets, 2025; transformers, 2025).

Japanese firms, drawing on supply-chain know-how accumulated since the 2010 Senkaku

incident, combined core-material internalization (amorphous cores, rare-earth stockpiling, R), production diversification in Southeast Asia (E), and eco-friendly/customized products (S). Hitachi Energy limited its decline to -0.7%p (11.8%) via 12-month rare-earth stockpiling and Europe/Asia-customized production; Toshiba held 4.8% (-0.3%p) via Vietnam diversification and new-material pilots; Mitsubishi Electric defended 4.5% (-0.3%p) via 18-month government-supported reserves and European expansion—following the pathway material innovation (R) → production diversification (E) → market adaptation (S) (Hitachi, 2025; businesswire, 2024; Shahana, 2024).

Chinese firms pursued three parallel strategies: domestic-demand focus (S), alternative routing via Vietnam and Malaysia (E), and 1,100 kV-class large-scale technology (R). TBEA concentrated on Belt-and-Road markets (E) while others built European plants and eco-friendly products (S, E). Owing to U.S.-China barriers, TBEA's 2025 global share fell to 7.8% (-2.4%p), JSHP's U.S. exports fell to zero (-4.2%p), and Huapeng's share declined to 3.1% (-1.1%p) (AputonTransformer, 2025; volza, 2025).

4.6. Company H's Differentiated Response Strategy

Compared with the above, Company H's response is distinctive. Table 3 compares its tariff rates before and after local production, and Figure 2 chronologically illustrates the dispute and Company H's response.

Table 3. Comparison of Tariff Rates Before and After Local Production by H Company (2012~2025)

Category	Tariff Rate (Korea Production → U.S. Export)	Tariff Rate (Local Production in the U.S.)	Effective Date and Conditions
2012-2020	14.9-37.42% (Up to 60.81%)	Not applicable	Anti-dumping duties, Trump administration, etc.
2022-2023	16.87% (Company I, Company L)	0% (Company H, Company HE)	Tariff exemption if local factory is owned
April 2025	Up to 145%	0%	US-China trade war extreme tariffs
May-July 2025	30% (90-day temporary reduction between US and China, not applied within Korea)	0%	US-China Geneva tariff truce, Local production continues to be exempt
2025 August 1, 2025-	15% (Korea-US Bilateral Agreement, Major Items in Bulk)	0%	Korea-U.S. Tariff Agreement (July 31, 2025), Exemptions for Local Factories

Notes: Rates reflect actual rates applied at the relevant time and demonstrate the tariff-avoidance effect of

local production. From 2012-2020, anti-dumping and countervailing duties of up to 60.81% applied to Korean-made power equipment while U.S.-made products were exempt; in 2022-2023, locally invested firms (e.g., Company H) remained exempt while others paid 16.87% (Brian, 2020; USICT, 2024). In April 2025 the U.S. raised tariffs to as much as 145% but exempted products made or owned in U.S. factories (ChinaBriefing, 2025); the May-July Geneva reduction to 30% applied only to Chinese goods, not Korea (JeanMackenzie, 2025); and from August 1, 2025 a flat 15% applies to Korean-made power equipment while U.S.-made products remain exempt (Dimerco, 2025).

Figure 2. Timeline of the U.S.-China Trade Dispute and Company H's Response



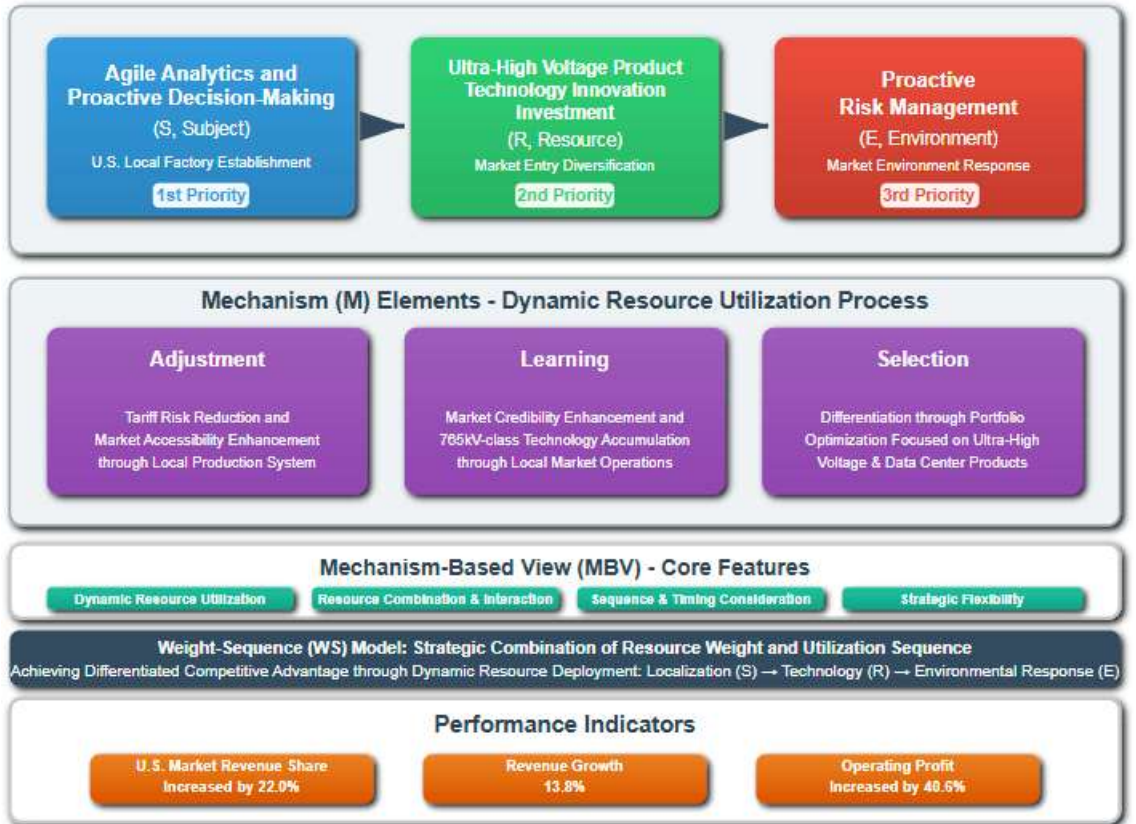
Notes : A chronological summary of major events and Company H's strategic responses, illustrating how proactive measures contributed to securing a competitive advantage.

Company H’s differentiated strategy centers on localization driven by management’s agile analytics and proactive decision-making: acquiring a U.S. plant (2020), doubling capacity (2025), and building local parts-procurement systems in the U.S. and Europe to lead full-scale reshoring. By developing next-generation equipment and data-center-specific solutions integrating HVDC, ESS, and AI (R), the company secured a foothold in North America and the EU. Following the WS sequence localization through proactive decisions (S) → technology investment and market-entry diversification (R) → risk management (E), Company H achieved an 8.9% market share in 2025 (+3.5%p from 2018), the highest growth among individual firms, effectively avoiding supply-chain and policy risks such as anti-dumping measures. Its 2024 revenue reached KRW 3.1 trillion, distributed as Korea 32%, U.S. 22%, Europe 11%, Middle East 10%, India 9%, and others 16% (Center, 2025; Kim, 2025; TransformersMagazine, 2025).

4.7. Application of the SER-M and WS Integrated Model

H Corporation’s global strategy integrates the four SER-M components, structured as shown in Figure 3.

Figure 3 H Corporation’s Research Model - Integrated Framework of the SER-M and WS Models



Notes: This model presents a framework that analyzes the relationship between H Corporation’s strategic responses and outcomes from a mechanism-based perspective by integrating the four elements of the SER-M model with the weight-order concept of the WS Model.

Under the integrated framework, Company H assigned the highest priority and greatest weight to localization (S): starting with the 2020 U.S. plant acquisition and a subsequent KRW 66.9 billion investment that raised capacity by 40%, followed by a total of \ \$150 million in the Memphis plant to develop North America’s only 765 kV-class UHV production base, and KRW 200 billion in transformer and breaker contracts driven by AI data-center demand. Second priority went to UHV product technology innovation (R)—securing 765 kV-class technology and developing AI data-center products to diversify market entry. Third priority went to proactive risk management (E)—an enterprise-wide system addressing tariff and rare-earth licensing risks. This sequential, weighted allocation operates dynamically through adjustment (tariff reduction, improved market access), learning (rising market credibility, accumulated technological capability), and selection (product-portfolio optimization), yielding a 5.6%p rise in U.S. sales share, 13.8% revenue growth, and a 40.6%

increase in operating profit, thereby securing a differentiated competitive advantage.

4.8. Strategic Performance Analysis of Company H

Quantitative. Company H's WS-based global strategy produced the following results. The U.S. sales share rose 5.6%p, from 18.0% (2018) to 23.6% (2024); the global share rose 2.0%p, from 22.0% to 24.0%. Sales reached KRW 4.895 trillion in 2024, up 13.8% year-on-year and 46.8% from 2018; operating profit reached KRW 362.5 billion, up 40.6% year-on-year and 135.3% from 2018; and the operating margin rose to 7.4%, up 1.4%p year-on-year and 2.8%p from 2018. Local U.S. production doubled from 80 units (2020) to 160 units (2025) (NewDaily, 2025; TransformersMagazine, 2025). These results show that optimizing the weight and sequence of localization (S), technological differentiation (R), and environmental responsiveness (E) drove an overall increase in organizational performance.

Qualitative. Beyond the quantitative results, Company H strengthened brand reputation and credibility in the U.S. power-equipment industry, establishing an "American-made Korean Technology" positioning and preferred-supplier status among data centers and utilities through high marks for technology, on-time delivery, and quality (CHEA, 2025; USICT, 2024). It accumulated global operational experience and crisis-response capability amid the trade dispute and ESG changes (Korea Times, 2025; O'Brien, 2025); expanded its U.S. partner network and industry-academia R&D collaboration (e.g., Tennessee), establishing itself as a core axis of the local ecosystem (wearememphis, 2025); and built a knowledge base—on U.S. technologies, policies, and customer requirements—applicable to subsequent markets such as Europe and the Middle East (Hyosung, 2025). These achievements form the foundation for long-term, sustainable competitive advantage and industry trust beyond short-term financial results.

V. Results

This study analyzes, from a mechanism-based perspective, how Company H secured a competitive advantage in the UHV transformer market by integrating the SER-M and WS models amid the upheaval of the global trade environment. Based on management's agile analysis and proactive decision-making, Company H strategically allocated resources in the order of localization (S), technological innovation (R), and environmental response (E) to create a differentiated advantage. Starting with the 2020 U.S. plant acquisition, it prioritized full localization by doubling capacity through a KRW 66.9 billion investment; achieved technological differentiation via 765 kV-class technology and AI data-center products; and established a systematic risk-management system for tariff and rare-earth supply risks. As a result, Company H raised its global market share from 5.4% (2018) to 8.9% (2025), expanded its U.S. sales share from 18.0% to 23.6%, and achieved a 7.4% operating margin.

VI. Discussion

6.1. Theoretical Implications

First, this study presents and empirically validates a framework integrating the SER-M model's subject-resource-environment-mechanism elements with the WS model's weight-sequence concept, providing a tool for analyzing the dynamic resource-utilization process beyond the conventional RBV. Second, extending the MBV, it elucidates how three mechanisms—adjustment, learning, and selection—mediate the interactions among strategic elements to produce competitive advantage, clarifying the tariff-reduction, market-trust-building, and portfolio-optimization mechanisms and thereby opening the "black box" between strategy execution and performance. Third, it verifies that the optimal sequence and weight of strategies affect performance: firms with identical resources can achieve differentiated outcomes by varying sequence and emphasis, underscoring not only the "what" but also the "how" and "when" of strategy. Fourth, it identifies the mechanism by which weaker firms create competitive advantage, offering a framework for how latecomers can surpass dominant players through proactive responses and differentiation.

6.2. Practical Implications

First, the study demonstrates the importance of proactive localization: building a fully localized production system—beyond simple exports—is key to avoiding tariffs and securing market credibility, as shown by the 0% tariff on U.S. local production versus 15% on Korean production in 2025. Such large-scale localization, however, entailed considerable financing burdens initially; Company H eased these by expanding Memphis capacity in response to U.S. market growth (TransformersMagazine, 2025) and securing an order backlog and operating cash flow through large orders such as the full-package supply of U.S. UHV power equipment (An, 2025; Kim, 2025). Second, the technology-market linkage strategy proved effective: 765 kV-class technology and AI data-center products served not only as sources of technological superiority but also as tools for overcoming market-entry barriers, balancing innovation and customization in the B2B industry. Third, an integrated risk-management system—managing tariff, supply-chain, and geopolitical risks collectively rather than individually, with diversification of key materials such as rare earths—is a key competitive advantage in an era of uncertainty. Fourth, ecosystem-building through networks with local partners, universities, and research institutes provides the foundation for sustainable advantage, with the "American-made Korean Technology" positioning exemplifying a global-local convergence strategy. Notably, grain-oriented electrical steel (GOES), a core transformer-core material whose global supply is so constrained that even

the U.S. struggles to source it domestically, makes stable procurement a structural challenge; Company H mitigates this by operating dual production bases in Changwon and Memphis to geographically disperse production and reduce exposure to tariffs and export controls (NIAC, 2024; PowerMag, 2026). In sum, Company H's success mechanism—optimizing the weight and sequence of proactive localization (S), technology-market linkage (R), and integrated risk management (E)—is not limited to this single case but provides a valid framework applicable to other Korean manufacturers facing similar trade pressures, such as those in semiconductors, batteries, and automobiles.

6.3. Limitations of the Study

First, as a single case study of one firm, generalizability is limited and further validation across industries and firm sizes is required. Second, the UHV transformer industry's high entry barriers and long-term investment requirements may limit transferability to consumer goods or services. Third, the 2018–2025 data—with 2025 covering only the first half—constrain analysis of long-term performance trends. Fourth, the qualitative case methodology did not statistically verify causal relationships among strategic factors or quantitatively measure mechanism effectiveness.

6.4. Future Research Directions

Future research should: (1) conduct multiple-case comparisons—including firms that attempted similar strategies but failed, and systematic comparisons with Korean competitors (Companies HE, I, and L)—to identify necessary and sufficient success conditions; (2) apply the integrated SER-M·WS model to other strategic industries affected by the dispute (semiconductors, batteries, automobiles) to test its universality; (3) develop quantitative models (e.g., SEM or panel-data analysis) to measure how the weight and sequence of strategic elements affect performance; (4) examine the dynamic-capability evolution process by which strategic priorities and resource allocation change over time; and (5) study how the integrated model evolves within global value-chain restructuring in the post-pandemic, new-Cold-War era.

This study is significant because it empirically demonstrates how relatively weaker firms can secure competitive advantages by optimizing the use of strategic resources in a rapidly changing global trade environment. By elucidating the "black box" of strategy execution from a mechanism-based perspective and analyzing how the weight and sequence of resources affect performance, the integrated SER-M and WS application provides concrete, actionable strategic alternatives for firms facing high environmental uncertainty, contributing to both academia and industry.

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Growth Paths and Strategic Mechanisms of Huawei and Xiaomi: A Comparative Study Based on the Ser-M Model

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Content

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Abstract

Based on the SER-M (Subject-Environment-Resource-Mechanism) model, this study systematically compares the strategic evolution of Huawei and Xiaomi during their startup phase, leap phase, and major environmental change phase. The research reveals that the two companies have developed differentiated paths under different environmental pressures and resource endowments: Huawei focuses on technological independence, global layout, and organizational resilience, achieving structural adjustments during the change phase through a subject-driven resource reshaping mechanism; Xiaomi, on the other hand, relies on ecosystem expansion, efficiency advantages, and cross-border innovation, exploring new growth curves for the "people-car-home" ecosystem through a resource-driven creative mechanism. The study demonstrates that the strategic intentions of the subject, the depth of resource accumulation, and the intensity of the environment collectively influence the strategic mechanism choices of enterprises during the change phase, providing important insights for enhancing the resilience and global competitiveness of China's technology enterprises.

Keyword: Xiaomi; Huawei; SER-M model; strategic mechanism; growth path

Received Feb. 6. 2026 Accepted Jun. 8. 2026

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I. Introduction

Over the past two decades, China's tech enterprises have experienced a leap-frog development from catching up to leading, among which Huawei and Xiaomi have become important representatives of the global consumer electronics and information and communication technology (ICT) industry (Murmann et al., 2021). Huawei has built full-stack technical capabilities ranging from communication equipment and network infrastructure to smart terminals through long-term, high-intensity R&D investment. Xiaomi, on the other hand, has rapidly risen by leveraging its unique "Internet + hardware" model, forming a business model innovation and ecosystem synergy as its core competitive path (Tan Zhijia et al., 2019).

The strategic differentiation exhibited by the two companies under external shocks reflects the heterogeneous coping logic formed by different enterprises based on resource endowment, organizational capabilities, and mechanism innovation (Browder et al., 2024; Georgescu et al., 2024). This difference constitutes a key issue in this study: how enterprises rely on internal mechanisms to achieve strategic responses in highly uncertain external environments has become an important topic for understanding contemporary China's tech enterprises. As Cho (2025) emphasized, mechanisms are the process of "how the subject (S) adjusts and reallocates resources (R) based on the environment(E)", serving as the core variable for explaining enterprise survival, growth, and transformation.

This study employs the SER-M framework to systematically analyze the strategic mechanism evolution of Huawei and Xiaomi from their startup phase through the leapfrogging phase to the period of significant environmental changes, with the primary objectives including:

1. Identify the S-E-R characteristics of the two companies at different stages;
2. Compare the formation path and evolutionary differences of their strategic mechanisms;
3. Discuss the reasons why enterprises choose different adjustment and creation mechanisms under major environmental changes.
4. To provide theoretical inspiration for the strategic development of China's technology enterprises in the global turbulent environment.

II. Literature Review

1. Digital Transformation and the Growth of China's Tech Enterprises

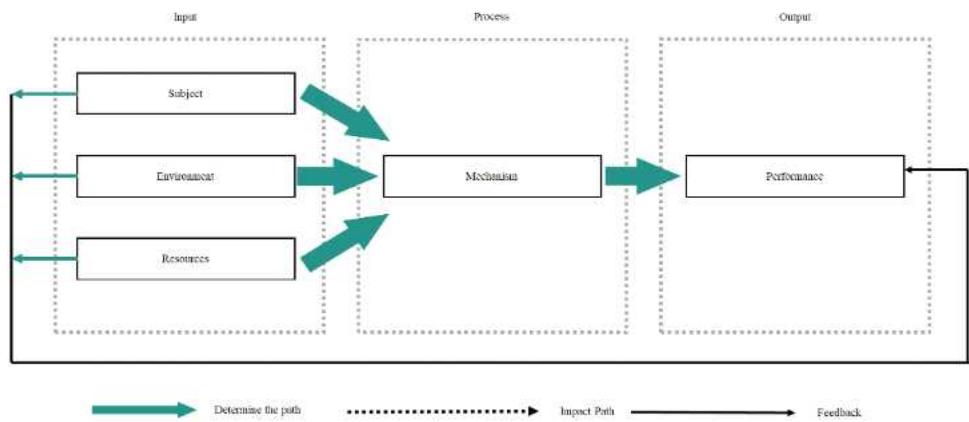
Digital transformation has been a key driver for China's tech companies to achieve rapid growth and global expansion over the past decade, significantly enhancing their capabilities in optimizing organizational processes, innovating business models, and creating customer value (Georgescu et al., 2024). For Huawei, digitalization is not only a tool to

improve operational efficiency but also a crucial support for its "customer-centric" strategy, building a complex organizational collaboration system, and global delivery capabilities (Woo, 2014). For Xiaomi, its "ironman triathlon" business model, comprising hardware, internet services, and new retail systems, essentially constitutes a digital native model. Through MIUI, app stores, and AIoT devices, it forms a data-driven business ecosystem that enables the company to learn quickly, respond promptly to market changes, and build strong user engagement and a robust business ecosystem (Tan Zhijia et al., 2019).

2. Core Elements and Strategic Mechanisms of the SER-M Model

The SER-M model, proposed by Professor Dong-Sung Cho in 2006, addresses the limitations of traditional strategic theories (e.g., the SCP paradigm and Resource-Based View, RBV) in explaining the growth dynamics and strategic evolution of Asian firms (Cho, 2006). This model posits that corporate strategy is not a static allocation of resources, but rather a dynamic process where the three elements, subject (S), environment (E), and resources (R), interact and evolve, ultimately manifesting as a mechanism (M). It is characterized by significant dynamism and adaptability.

Figure 1. SER-M Framework



Source: Cho (2006)

Table 1. Four Key Elements of the SER-M Model

Factors	Connotation	Core management issues
Subject (S)	The internal factors of business, such as entrepreneur, organization, culture, etc., emphasize the entrepreneur spirit, learning ability and organizational resilience.	How to choose and adjust? (CEO's judgment and organizational flexibility)
Environment (E)	The external market, competition, technology, policy, social culture and other uncontrollable factors.	How to identify and respond? (Judgment of Crisis and Opportunity)
Resource (R)	The competitive factors of tangible (capital, assets) and intangible (technology, brand,	How to get and configure? Investment in R&D and the

	talent).	ecosystem
Mechanism (M)	The pattern of S, E, R interaction is the dynamic embodiment of enterprise strategy.	The pattern of S, E, R interaction is the dynamic embodiment of enterprise strategy.

1 Source: Refer to "Mechanism: The Fourth Element of Management" by Dong-Sung Cho

The SER-M framework systematically classifies strategic mechanisms (M) into five operational typologies, explaining how enterprises configure their strategic behaviors across different scenarios. As visually conceptualized in the Input-Process-Output (IPO) and Feedback Architecture of Figure 1, these five mechanisms represent the precise structural pathways through which input antecedents are transformed into performance outcomes and continuously updated:

Selection Mechanism: Operating at the Input-to-Process transition boundary (Figure 1), this represents the Subject's (S) cognitive capacity to strategically evaluate external environmental (E) opportunities and internal resource (R) endowments, thereby determining the optimal strategic positioning and the entry pathway ("Determine the path") into the central mechanism (M).

Learning Mechanism: Formulated along the continuous Feedback Loop (Figure 1), this refers to the firm's capacity to systematically absorb output performance (P) data, engage in strategic trial-and-error, and continuously update the Subject's (S) cognitive schemas and Resource (R) configurations.

Coordination Mechanism: Functioning as the inter-input integration process (Figure 1), this entails the alignment of internal resources and process optimization to ensure operational synergy between S and R, smoothing the transition of inputs into the strategic mechanism (M) stage (e.g., Huawei's Business Leadership Model system).

Creation Mechanism: Conceptualized as an active input-shaping capability (Figure 1), this involves generating entirely new resources (R) and market opportunities (E) through disruptive innovations rather than merely exploiting existing endowments, effectively restructuring the input landscape (e.g., Xiaomi's platform ecosystem strategy).

Adaptation Mechanism: Activated by radical external environmental (E) shocks (Figure 1), this denotes the organization's dynamic resilience to rapidly reallocate, adjust, and reshape S and R inputs to safeguard business continuity and maintain process stability under extreme, volatile constraints (e.g., geopolitical sanctions).

3. Previous Research and Application Extension of the SER-M Model

The SER-M model has been widely applied in Asian corporate research, including Samsung Electronics and Hyundai Motor, demonstrating its strong explanatory power in understanding how firms utilize internal mechanisms to achieve growth under external shocks. Chinese scholars have applied the SER-M model to multiple China case studies, with research generally indicating that Chinese firms often rely on strong leadership and environmental dividends during their rapid growth phase, achieving rapid resource integration through

creative choices (Wang Fei, 2021). However, when the external environment shifts from "opportunity-driven" to "constraint-driven," the original offensive mechanisms often prove unsustainable, necessitating strategic transformation through mechanism adjustments or innovations. In the field of Chinese research, the model has been applied to companies such as Haier and Gree, emphasizing that firms often rapidly integrate resources (R) through "subject (S) + creative mechanism (M)" to capture the market during periods of significant market dividends (Xu et al., 2020).

This study extends the SER-M model to the radical environmental change (E) caused by Sino-US trade friction, to analyze how Huawei and Xiaomi achieve resilient survival and high-quality growth through strategic mechanism restructuring (Zhao et al., 2021).

III. Research Design and Methods

1. Case Selection and Stage Division

This study selected Xiaomi and Huawei as research subjects because, as representative enterprises of China's technology industry, they respectively embody two typical and highly differentiated development paths: the "light-asset internet model" (Xiaomi) and the "heavy-asset R&D model" (Huawei), which hold significant comparative research value. Tan Zhijia et al. (2019) argued in the Management Review on the Construction of Business Ecosystems and Value Creation that Xiaomi's innovation model of the ecosystem chain and its efficient business collaboration mechanism are considered typical creative business model cases in the internet era. Li Ping and other scholars (2021) noted in their literature review on organizational resilience that Huawei has become a typical representative of high R&D investment enterprises due to its long-accumulated technological resources, customer centric management system, and strong organizational resilience.

To systematically analyze the characteristics of the subject (S), environment (E), resources (R), and mechanism (M) of enterprises at different development stages based on the SER-M (Subject - Environment - Resource - Mechanism) model, this study divides two companies into three phases, entrepreneurship, leapfrogging, and major environmental change, by referencing their historical development paths and key external events.

This three-phased division is not an ad hoc segmentation but follows the longitudinal tradition of SER-M research, in which a firm's growth is partitioned into successive stages so that the change of its strategic mechanism can be traced over time. Prior SER-M studies have repeatedly adopted such stage-based designs: Koo and Lee (2007) examined the variables of firm growth-stage research within the SER-M framework; Kim and Lee (2021) divided the development of Incheon International Airport Corporation into four stages to analyze the transition of its management mechanism; and Lee and Ko (2022) segmented a vocational-training firm into three stages to examine the evolution of its environment response mechanism. In a setting closer to the present cases, Zhou and Cho (2023) traced the entry-growth-stagnation stages of Samsung's smartphone business in the Chinese

market through a mechanism-based lens. Building on this precedent, the present study delineates the startup, leapfrogging, and major-environmental-change phases according to each firm's lifecycle of business-model formation, capability accumulation, and crisis response, anchoring the boundaries between phases to landmark external events (e.g., China's WTO accession, the 2019 U.S. Entity List, and the post-2021 restructuring of the smart-vehicle industry).

The staged analysis also rests on the dynamic logic of the SER-M paradigm itself. As Cho (2014) and Cho and Moon (2023) argue, a strategic mechanism is not a static configuration but is generated along three axes: combination (which of the subject, environment, and resource elements are mobilized), permutation (the order in which they are triggered), and time (how the configuration shifts across stages). From this perspective, the mechanism of each phase can be expressed as an ordered permutation of S, E, and R that identifies the element initiating the strategic response, and the cross-phase comparison captures how this triggering order migrates as environmental intensity changes. Accordingly, this study reads Huawei's and Xiaomi's stage mechanisms as time-varying S-E-R permutations rather than as isolated strategic decisions, providing an explicit theoretical foundation for the stage division developed below.

3.1.1 Startup Period (Huawei: 1987 – 1999; Xiaomi: 2010 – 2015)

During this phase, both companies were in the foundational stage of their business models and organizational cultures. Huawei achieved early technological breakthroughs in communication equipment through independent R&D, reflecting a typical logic of entity-driven and resource accumulation; Xiaomi, on the other hand, rapidly entered the smartphone market by leveraging the MIUI community and direct online sales model, forming an innovation mechanism based on user communities and ecosystem synergy.

3.1.2 Leap Period (Huawei: 2000–2018; Xiaomi: 2016–2020)

This phase was a critical period for the two companies to achieve rapid growth, global expansion, and accumulation of core resources. Huawei introduced world-class management systems (such as IPD and ISC), continuously invested in chip and communication infrastructure technologies, and strengthened global organizational learning capabilities, achieving breakthroughs in both technology and market (Huawei Technologies Co., Ltd., 2019 – 2024). Xiaomi, on the other hand, built a new retail system, advanced its AIoT strategy, and restructured its supply chain between 2016 and 2020, achieving dual-engine growth of "smartphone × AIoT," and for the first time entered the top three global smartphone shipments in 2020 (Xiaomi Group, 2018 – 2024).

3.1.3 Period of Major Environmental Changes (Huawei: 2019 – present; Xiaomi: 2021 –

present)

During this phase, the external environments faced by both companies underwent radical changes. Huawei has been subject to U.S. Entity List sanctions since 2019, with its core components and global market layout significantly impacted. The company entered a transition period characterized by "technological self-reliance, ecosystem reconstruction, organizational restructuring," a mechanism manifested as a typical "adjustment mechanism" (Carnegie Endowment for International Peace, 2020). Xiaomi, on the other hand, has been affected by global chip shortages, overseas regulatory risks, and the window of opportunity in the smart electric vehicle industry since 2021. It began to advance cross-border strategic innovation and build a "people - vehicle - home" full-ecosystem strategy, a mechanism more inclined toward a "creation mechanism" (Xu Hui et al., 2020).

2. Case Sources and Methods

This study adopts a multi-case study method and uses "Pattern Matching" as the core analytical approach. As mentioned by Wang Fei (2021), it identifies the types of strategic mechanisms formed at different stages by comparing the consistency between theoretical models and actual corporate behaviors. This ensures that the three-stage strategic mechanisms of Huawei and Xiaomi can systematically correspond to the SER-M theoretical framework.

3.2.1 Theoretical Construction Phase

Based on SER-M model, this study constructs an idealized strategic mechanism model for two enterprises in the start-up period, leap period and major environmental change period, covering four dimensions: subject (S), environment (E), resources (R) and mechanism (M).

3.2.2 Evidence Collection Phase

The data sources include corporate annual reports, founder interviews, strategic change materials, media reports, industry research reports, and academic literature, representing a typical multi-source data integration research approach. According to the phases, this study extracts key action patterns from Huawei's 2000 - 2018 growth phase and 2019 - present transition phase, as well as Xiaomi's 2016 - 2020 growth phase and 2021 - present transition phase, to enhance the cross-period consistency and comparability of the research.

3.2.3 Pattern Matching Phase

Compare the actual action model with the theoretical model to verify whether the strategic

mechanisms embodied by enterprises at different stages conform to the logic of the SER-M model. For example, Huawei demonstrated the characteristics of "organizational resilience" and "adjustment mechanism" during periods of significant environmental changes; Xiaomi, during the same period, exhibited the characteristics of "resource-driven cross-border innovation" and "creation mechanism".

IV. Analysis of Huawei and Xiaomi

In corporate growth research, explaining success solely through resource scale or market share no longer reveals its underlying logic. As external uncertainties increase, whether firms can achieve strategic continuity through mechanism adjustments has become a key entry point for understanding their long-term competitiveness (Cho, 2014).

This study aims to conduct an in-depth analysis of the unique growth trajectories of Huawei and Xiaomi, as representative enterprises of China's technology industry. The two companies represent two typical yet differentiated success models: Murmann, J.P. et al. (2021) argued in their commentary "A Dynamic Perspective on Huawei" that Huawei has gradually risen by leveraging deep technological accumulation, sustained high-intensity R&D investment, and aglobalized layout in the B-end market, thereby building full-stack competitiveness across the ICT industry chain. In contrast, Tan Zhijia et al.(2019) posited that Xiaomi rapidly captured a share of the consumer electronics market and formed a large-scale user ecosystem globally by relying on its innovative "ironman" business model, "hardware + new retail + internet services", with exceptional commercial ecosystem synergy efficiency.

1. Startup Management

4.1.1 The Entrepreneurship and Initial Stage of Huawei

The entrepreneurial period of Huawei (1987-1999) exhibited a typical "survival in the cracks" development path, with its core characteristic being the subject (S) achieving breakthroughs through strategic choices and resource creation under adverse conditions (E). Scholars such as Li Ping (2021) mentioned in their organizational resilience review that as the corporate entity, Ren Zhengfei demonstrated strong crisis awareness, military-style execution, and long-termist judgment on technological value during the early stages of entrepreneurship, which laid the foundation for Huawei's early strategic orientation. At that time, the China telecommunications market was almost monopolized by multinational giants, with domestic enterprises lacking technology, capital, and market position, and facing extremely high external environmental barriers.

Huawei initially entered the market through the agency of Hong Kong's program-controlled switches, but Ren Zhengfei keenly recognized the unsustainability of the agency business and made a decisive strategic choice: transitioning from agency to independent R&D. As

Cho (2006) mentioned, this strategic choice aligns with the pattern of some Asian companies achieving technological catch-up through "path adjustment" during crises. Under extremely scarce resources, Huawei invested most of its funds in R&D, building early technical resources (R) through "mattress culture" and intensive human resource input, achieving breakthroughs in the C&C08 switch and completing domestic substitution in rural and small-to-medium urban markets.

4.1.2 Xiaomi's Founding and Early Development

Xiaomi's entrepreneurial period (2010–2015) followed a typical path of "using internet transformation to break industry barriers," in stark contrast to Huawei's heavy-asset R&D model. As the main body (S), Lei Jun possessed profound experience in the internet industry and accurately seized the opportunities of the era when smartphones and mobile internet were rapidly penetrating. The external environment (E) at that time was characterized by high smartphone prices, underestimated user demand, and the explosion of mobile internet, which provided structural opportunities for latecomers. Subsequently, Xiaomi leveraged its distinctive "Ironman Triathlon" business model (hardware + new retail + internet services) to seamlessly integrate internet efficiency with hardware manufacturing. Throughout this process, Xiaomi did not treat users merely as passive recipients of products. Instead, through the MIUI community, fan engagement mechanisms, and a continuous product iteration strategy, it actively involved users in value creation. This approach effectively reduced market uncertainties while enhancing user retention and brand loyalty.

Table 2. Comparison Table of Various Factors in the Management Mechanism of the Startup Period between Huawei and Xiaomi

Mechanistic factors	Huawei (1987–1999)	Xiaomi (2010–2015)	explanation
Subjective (S)	Ren Zhengfei: Resilience, Technology Orientation, Military Management	Lei Jun: Internet Thinking, Extreme Cost–Performance, Flat Structure	Huawei S emphasizes intrinsic technical capabilities; Xiaomi S emphasizes the grasp of users and traffic.
Environment (E)	Demand for localization of telecommunication equipment and market gap	Mobile Internet Explosion, Smart Phone from High Price to Popularization	Huawei targets the supply–side gap; Xiaomi seizes the upgrade in consumer demand
Resource (R)	Early technology accumulation, high–intensity R&D (10% of revenue)	Engineers, MIUI community traffic, and a light–asset supply chain	Huawei is a heavy technology resource; Xiaomi is a light asset and ecosystem traffic
Selection Mechanism	"Rural Encircling Cities" Focus on the Switch	High specs, low price, and scarcity marketing	All companies strive to survive by focusing on core markets and products.
Learning Mechanism	Learn from IBM to establish systems like IPD	High specs, low price, and scarcity marketing	Huawei learns the management system; Xiaomi learns user needs
Coordination	Customer–oriented	Ironman Triathlon: Hardware,	Huawei coordinates R&D with customers;

Nechanism	cross-departmental process collaboration	Sales, and Internet Synergy	Xiaomi coordinates profits with the ecosystem
Sorting Mechanism	Technology and talent are prioritized to ensure R&D investment	Mobile> Ecosystem> Internet Services	Both adhere to core priority: Huawei focuses on technology, while Xiaomi emphasizes traffic and ecosystem

2Source: Compiled from official data published by Huawei Technologies and Xiaomi Group.

4.1.3 Comparison of Startup Period of Huawei and Xiaomi

Huawei achieved arevenue breakthrough of 10 billion yuan in 1999. Although the scale was not large, its high-quality income, stable B-end customers, and deeptechnological moat laid a crucial foundation for future globalization (HuaweiTechnologies Co., Ltd., 2019 - 2024). Xiaomi achieved a revenue of 78.016 billion yuan in 2015,with an exponential growth rate over five years, reflecting the high efficiencyand strong expansiveness of its internet business model (Xiaomi Group, 2021 - 2024).

Table 3. Comparison of Huawei and Xiaomi's revenue at the end of the startup period (in billions of RMB)

Company	a particular year	Revenue (in billions of RMB)
Huawei	1999	100+
Xiaomi	2015	780.16

3Source: Huawei Technologies <https://www.huawei.com> and Xiaomi Group <https://ir.mi.com>

2. The Period of Rapid Management (Globalization and Diversification)

4.2.1 Huawei's Leap Period (2000-2018)

Huawei entered a "leap period" of rapid global expansion and continuous improvement in core technological capabilities from 2000 to 2018. In their commentary "A Dynamic Perspective on Huawei" (2021), scholars such as Murmann, J.P. et al.mentioned that the external environment (E) underwent structural changes: China's accession to the WTO, the rapid upgrading of global communication networks (from 2G, 3G to 4G), and the increasing demand for high-quality equipment and integrated solutions from global operators created a historical window for Huawei to enter the global mainstream market during this phase.

As the subjective (S), Huawei's top management demonstrated strong global strategic will during this period, collaborating with international consulting firms such as IBM and Deloitte to introduce world-class management systems like IPD, ISC, and BLM, significantly enhancing organizational processes and global delivery capabilities (Ren Zhengfei, 2021; Wang Song et al., 2022). Meanwhile, Huawei actively established R&D centers and localized operational systems in Europe, West Asia, Africa, and the Americas, attracting global

technical talent.

In terms of resources (R), Huawei has consistently maintained a high proportion of R&D investment (10–15% of revenue), establishing a core technology system, including HiSilicon chips, optical transmission, and base station technology (Huawei Technologies Co., Ltd., 2019–2022). After the establishment of HiSilicon in 2004, the Kirin series of chips gradually matured, enabling Huawei to possess higher independent technological capabilities among global communication equipment manufacturers.

The mechanism (M) is manifested as "global learning + technology accumulation-driven coordination mechanism". Huawei has achieved the leap from "follower" to "global leader" through systematic learning of Western management ideas, continuous absorption of global operational experience, and long-term deepening of its core technological resources (Duchek, 2020; Murmann et al., 2021). By 2018, Huawei's revenue reached 721.2 billion yuan, making it the world's largest telecommunications equipment manufacturer and successfully ranking among the top global smart terminal providers.

Table 4. Huawei's Leap Period (2000–2018) Historical Management Performance

Period	Manage performance history
2000	Establishing the European Institute in Sweden to launch a large-scale internationalization strategy
2003	Launch management reforms including IPD and ISC to build a world-class operational system
2004	Establishing HiSilicon Semiconductor, dedicated to core chip technology R&D
2005	International sales surpassed domestic sales for the first time
2007	BT wins big deal to break into Western mainstream market
2010	First entry into the Fortune Global 500 list
2018	To become the world's largest telecommunications equipment manufacturer with annual revenue reaching 721.2 billion RMB

⁴Source: Huawei Technologies Co., Ltd. <https://www.huawei.com>

4.2.2 Xiaomi's Leap Period (2016–2020)

From 2016 to 2020, Xiaomi entered a transformative phase of 'resource restructuring and global expansion,' marked by three key initiatives: rebuilding its supply chain system, establishing a new retail model, and accelerating its AIoT strategy.

After facing supply chain bottlenecks in 2015, Xiaomi (S) recognized that relying solely on online channels could not sustain long-term growth. Starting in 2016, the company fully implemented its "New Retail Strategy," establishing offline channels like "Xiaomi Home" to create an integrated online-offline ecosystem. Simultaneously, Xiaomi enhanced its supply chain management capabilities by reengineering core processes including R&D, sales, and supply chain operations, significantly improving operational efficiency.

In terms of external environment (E), the global smartphone market has entered a phase of stock competition, while emerging markets like India and Southeast Asia are experiencing rapid growth, creating a breakthrough opportunity for Xiaomi's globalization. Meanwhile, the expansion of the global IoT market and the widespread adoption of smart home technologies provide a favorable window for the growth of Xiaomi's ecosystem partners.

The mechanism (M) manifests as "resource integration + ecosystem expansion." During its

leapfrog growth phase, Xiaomi did not abandon the business model logic established in its startup phase. Instead, it expanded and strengthened existing mechanisms under the backdrop of capital, scale, and globalization. Through building a new retail system, advancing the AIoT strategy, and strategically positioning ecosystem partners, Xiaomi extended its value co-creation mechanism, originally centered on user participation, from a single-product level to an ecosystem-level collaboration involving multiple categories and stakeholders.

Table 5.Xiaomi's LeapPeriod (2016–2020) Historical Management Performance

Period	Manage performance history
2016	Xiaomi Home Expands Rapidly with New Retail Strategy
2017	Becoming the No.1 smartphone brand in India, the global strategy has achieved breakthrough
2018	The successful listing on the Hong Kong Stock Exchange (Stock Code: 1810) has established a solid financial foundation for AIoT expansion.
2019	Announced the "Mobile + AIoT" dual-engine strategy, officially establishing a diversified direction
2019	First entry into the Fortune Global 500 list
2020	Global smartphone shipments have regained a top-three position worldwide, with annual revenue reaching 245.9 billion yuan.
2020	Beijing Xiaomi Science Park (New Headquarters) completed and put into operation, integrating R&D resources

5 Source: Xiaomi Group<https://ir.mi.com>

4.2.3 Comparison of Operating Performance During the Takeoff Phase

Table 6. Key PerformanceComparisons of Revenue During the Flight Period

Company	flying phase	Initial revenue (billion yuan)	End-of-period revenue (billion yuan)
Huawei	1999–2018 (20 years)	100.00	7212
Xiaomi	2016–2020 (5 years)	780.16	2459

6 Source: Huawei Technologies Co., Ltd. <https://www.huawei.com> XiaomiGroup <https://ir.mi.com>

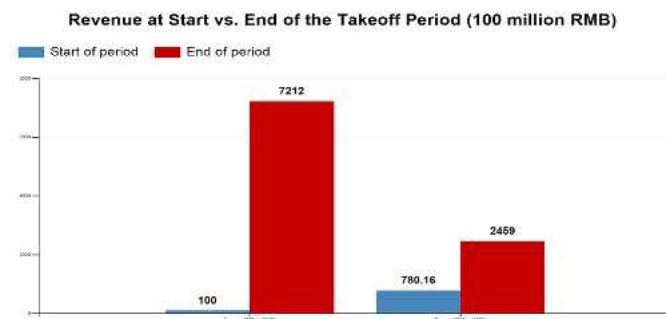


Figure 2. Key Performance Comparison of Revenue During the TakeoffPeriod

The following bar chart shows the revenue scale (in billions of RMB) of Huawei and Xiaomi

at the beginning and end of their respective leapfrogging periods, intuitively illustrating the leapfrog growth achieved by the two companies through leapfrogging management under different business models (Huawei Technologies Co., Ltd., 2019 - 2022), (Xiaomi Group, 2018 - 2022).

4.2.4 Comparison of Management Mechanisms During the Takeoff Phase

The core mechanism of Huawei during its leapfrog growth phase is the environmental adaptation mechanism (E-S-R), whose main strategy is to optimize internal processes by introducing world-class management systems such as IPD and ISC, aligning the organization's operations with global standards (Huawei Technologies Co., Ltd., 2020). Long-term high-intensity R&D investment and the HiSilicon chip system constitute its core competitive resources (R), enabling Huawei to achieve a revenue scale of 721.2 billion in 2018.

Xiaomi's core mechanism during its rapid growth phase is the Resource Integration and Reconfiguration (R-S-E) framework, fueled by capital (2018 IPO), channel systems (new retail), and AIoT ecosystem expansion. Lei Jun, the strategic leader (S), demonstrated exceptional adaptability by transitioning from a single online model to a dual-engine strategy of 'smartphones + AIoT,' while driving global expansion. This approach propelled revenue to 245.9 billion yuan in 2020 (Xiaomi Group, 2021).

Table 7. Comparison Table of Huawei and Xiaomi in Various Factors of the Flight Period
Management Mechanism

Mechanistic factors	Huawei (2000–2018)	Xiaomi (2016–2020)	explanation
Subjective (S)	Process-oriented management, IPD and BLM system, and global talent	Efficiency-oriented, model optimization, and process construction	Huawei emphasizes "business leadership"; Xiaomi focuses on "efficiency and model"
Environment (E)	Global Telecom Open, 4G and 5G Upgrade, Brand Replacement Opportunity	Emerging markets are booming, and AIoT is gaining widespread adoption.	Huawei is technology-driven; Xiaomi is consumer-driven
Resource (R)	High-intensity R&D, HiSilicon chips, and a global distribution network	AIoT ecosystem investment, India leads in shipments	Huawei builds a technological moat; Xiaomi builds an ecological moat
Selection Mechanism	Cloud-Gate-End Strategy, Fully Enter Terminal Business	"Smartphone x AIoT" –aiming for the high-end market	all expand platform-based on core business
Learning Mechanism	Learn the global operations and compliance system	Study on Retail and Supply Chain Efficiency	Huawei is difficult to learn; Xiaomi is efficient to learn
Coordination Mechanism	The "Iron Triangle" Collaboration Market and Delivery	Investment in the 100-billion-yuan ecological chain coordinates the industrial chain	Huawei coordinates the service chain; Xiaomi coordinates the ecosystem chain
Sorting	Technology and talent are	Early cost-performance	Huawei safeguards technology; Xiaomi

Mechanism	prioritized to ensure R&D	priority brand	safeguards scale growth
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⁷Source: Personal reference, compiled from official materials published byHuawei Technologies Co., Ltd. and Xiaomi Group.

4.2.5 Comparison of Operating Performance and Revenue Structure between Huawei and Xiaomi (2018-2022)

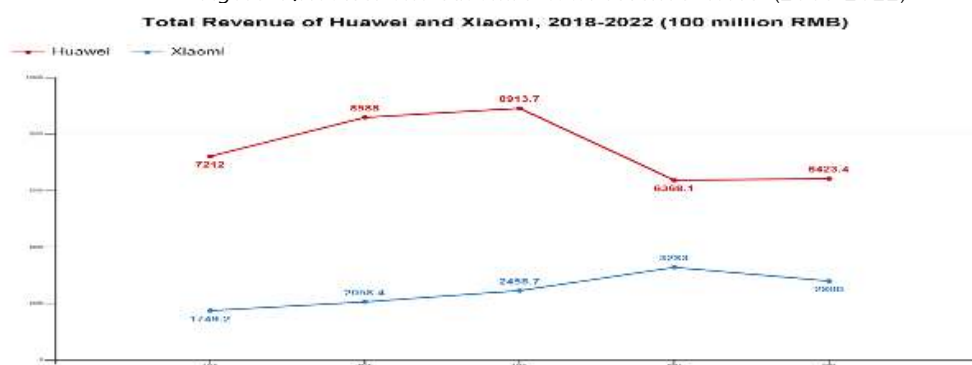
This section selects 2018 – 2022 as the observation window, which on one hand covers the period from the end of Huawei's leapfrogging phase to the beginning of its major environmental change period (affected by sanctions starting in 2019), and on the other hand covers the latter part of Xiaomi's leapfrogging phase and the beginning of its major environmental change period (facing demand decline and strategic investment in car manufacturing starting in 2021). Therefore, this time period can better reflect the changes in the operating results of the two companies as they transition from the "leapfrogging phase" to the "environmental change period".

Table 8. Comparison of total revenue between Huawei and Xiaomi(2018–2022, in billions of RMB)

a particular year	Huawei total revenue	Xiaomi's total revenue
2018	7212.0	1749.2
2019	8588.0	2058.4
2020	8913.7	2458.7
2021	6368.1	3283.0
2022	6423.4	2800.0

⁸ Source: Huawei Technologies Co., Ltd.<https://www.huawei.com> and Xiaomi Group <https://ir.mi.com>

Figure 3.Huawei and Xiaomi's total revenue curve (2018-2022)



Source: Huawei annual report (2018–2022); Xiaomi annual report(2018–2022)

From the perspective of SER-M, the revenue changes from 2018 to 2022 are actually the external manifestation of the "mechanism adjustment results" that the two companies faced after a period of rapid growth in response to sudden environmental changes: Huawei was forced to repair its revenue curve through business portfolio restructuring and technological self-reliance under the impact of severe sanctions, while Xiaomi, against the backdrop of

declining demand and investment in new tracks, attempted to build a new growth curve through high-endization and the "people-car-home ecosystem" strategy. The financial performance during this period provides quantitative support for the subsequent analysis of the S, E, R, and M mechanisms in the "period of major environmental changes."

4.2.6 Comparison of Operating Performance and Revenue Structure between Huawei and Xiaomi (2018-2022)

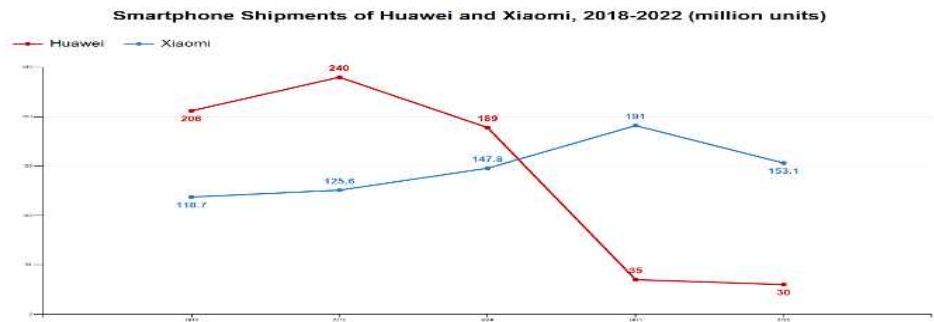
This section uses publicly available market tracking data from International Data Corporation (IDC) and Canalys to reflect the terminal product market trends of Huawei and Xiaomi during the end of the leap year and the initial stage of significant environmental changes. Both IDC and Canalys are internationally authoritative technology industry research institutions, and their smartphone shipment volumes and market share data are widely used in academic research and industry analysis. It should be noted that the relevant data are derived from channel surveys and model estimates by the institutions, and this article is only used to depict overall trends rather than precise financial or sales statistics (IDC, 2023; Canalys, 2023).

Table 9. Comparison of global smartphone shipments between Huawei and Xiaomi (2018–2022, in millionsof units)

a particular year	Huawei shipments	Xiaomi shipments	
2018	206.0	118.7	
2019	240.0	125.6	
2020	189.0	147.8	
2021	35.0	191.0	
2022	30.0	153.1	

⁹ Source: International Data Corporation (IDC), WorldwideQuarterly Mobile Phone Tracker;

Figure 4.Huawei and Xiaomi smartphone shipment curves (2018–2022)



Source: Canalys, Global Smartphone Market Share and ShipmentEstimates

3. Huawei and Xiaomi during the Era of Significant Environmental Changes

From the end of 2019 to the beginning of 2020, global enterprises faced two major external environmental shocks simultaneously: the first was the disruption of the global technology supply chain caused by escalating geopolitical frictions, which had a structural impact on China's technology companies that rely on chips, operating systems, and international markets, with Huawei being particularly affected by supply chain and market restrictions. The second was the contraction of economic activities, supply chain disruptions, and changes in consumption patterns brought about by the COVID-19 pandemic. At the same time, the pandemic also accelerated the global demand for digitalization and intelligence, forcing enterprises to re-examine their strategic paths in a situation where "crisis and opportunity coexist."

During this period of significant environmental changes characterized by "radical shifts in the global competitive landscape," Huawei and Xiaomi, as leading technology enterprises in China, faced equally intense and continuous external changes, yet their ways and degrees of impact were entirely different, leading to differentiated strategic response mechanisms. The divergent paths of Huawei and Xiaomi essentially reflect differences in mechanism selection.

Huawei initiated an adjustment mechanism oriented toward survival and technological sovereignty under external shocks, while Xiaomi leveraged its existing resource base to enter the smart electric vehicle sector across industries, thereby activating a creation mechanism. This difference validates the theoretical judgment of the SER-M model that "mechanisms evolve with changes in environmental intensity" (Cho, 2006).

Huawei entered this phase in 2019, while Xiaomi did so in 2021. This section will systematically compare and analyze the strategic behaviors of the two companies during periods of significant environmental changes based on the SER-M framework, from four dimensions: strategic intent (S), external environmental changes (E), resource allocation restructuring (R), and strategic mechanism adjustments (M).

4.3.1 External Environment (E): Transition from Stable Growth Window to High Uncertainty Constraints

For Huawei, since 2019, its external environment has undergone a significant and abrupt change. The continuous escalation of U.S. export control measures, along with restrictions on core chips, high-end manufacturing equipment, and operating systems, as well as limitations on international market access, have made it difficult to sustain the original competitive model that relied on global supply chains and international markets. This environmental change is not a short-term fluctuation but a long-term institutional and structural constraint, exposing Huawei to systemic risks of "unavailability of critical resources."

In contrast, the external environment in which Xiaomi operates exhibits gradual and cumulative characteristics. Since 2021, global smartphone demand has continued to decline,

regulatory oversight in key overseas markets has tightened, while emerging industries such as smart electric vehicles have accelerated development, creating new competitive landscapes and resource competition pressures. Although Xiaomi has not encountered the disruptive constraints faced by Huawei, the original growth environment driven by scale expansion has significantly weakened.

4.3.2 Subject (S): Strategic Intent Transition from Expansionary to Ecological or Survival-Oriented

For Huawei, since 2019, restrictions on core chips, operating systems, and international market access have made its original global expansion path unsustainable. Against this backdrop, the strategic intent of Huawei (S) shifted from "continuous expansion" to "survival first," with the focus concentrated on root technologies, self-reliant systems, and long-term fundamental research. This shift was not a post-facto conclusion by researchers but was explicitly proposed by the company's top decision-makers. In an interview with the BBC in 2019, Ren Zhengfei emphasized that Huawei must persist in long-term investment in key technologies under external blockade, without sacrificing long-term capabilities for short-term scale or profits (Zhang Xiaonan, 2019). From the perspective of SER-M, this shift in corporate cognition directly triggered a survival-oriented adjustment mechanism, namely, adapting to new environmental constraints through resource restructuring and organizational adjustments.

In contrast, Xiaomi's external pressures during significant environmental shifts primarily manifested as gradual changes including declining demand, stricter overseas regulations, and intensified competition in emerging industries. Under these circumstances, Xiaomi (S) chose not to adopt defensive contraction but instead proactively shaped new growth trajectories through strategic upgrades. When Lei Jun announced Xiaomi's entry into the smart electric vehicle sector in 2021, he explicitly stated that car manufacturing would be the company's core strategy for the next decade, a long-term systematic investment (Lei Jun, 2021). This marked Xiaomi's strategic evolution from "continuous expansion of smartphones × AIoT" to an integrated "human-vehicle-home ecosystem." The shift reflected the company's transition from a hardware efficiency-focused entity to an ecosystem platform, initiating a strategic path characterized by cross-industry innovation and mechanism creation.

4.3.3 Resources (R): Transition from Efficiency-oriented Allocation to Structural Restructuring

우리나라 대부분의 사회문제들을 살펴보면 환경분석과 전수조사는 너무도 잘 되어 있다. 그러나 그 다음, 이 문제를 어떻게 풀 것인가에 대한 해답은 항상 부족하다. '시급한 대책이 필요해 보입니다'로 끝나 버리는 사회문제는 날마다 문제, 그 자체로 남아있다. 과거를 답습하는 정도의 해결책만을 갖고 무엇을 해야 하고, 누가 해야 하는 가가 항상 비어 있기 때문이다.

For Huawei, the disruption of the external environment directly led to blocked access paths for existing core resources. In this context, Huawei shifted its resource allocation focus from terminal scale and market expansion to foundational technologies and industrial infrastructure development, including operating systems, chip architectures, cloud computing, digital energy, and in-vehicle systems. The core logic of resource allocation is no longer about maximizing efficiency, but rather building alternative technological systems to reduce dependence on external uncontrollable resources.

Xiaomi's resource restructuring demonstrates distinct characteristics. Confronting slowing demand and intensifying industry competition, the company has avoided large-scale contraction of existing businesses, instead driving structural reallocation based on existing resources. On one hand, Xiaomi continues to invest in high-end devices, proprietary technologies, and core capability development. On the other hand, it channels substantial capital, human resources, and organizational assets into smart electric vehicles and the "people-vehicle-home" ecosystem. The goal of this resource allocation is to expand new growth opportunities, rather than merely mitigating risks.

From the perspective of the SER-M framework, the differences in the resource restructuring paths of the two companies stem from their distinct strategic intentions and environmental constraints: Huawei focuses on "resource substitution and capability reconstruction," while Xiaomi is guided by "resource extension and cross-border integration." This difference further drives the differentiation of strategic mechanisms.

4.3.4 Mechanism (M): The Divergent Evolution of Adjustment Mechanism and Creation Mechanism

Huawei has formed a strategic path dominated by the "adjustment mechanism" under the impact of a fragmented environment. The core of this mechanism lies in systematically adjusting the existing business structure, resource allocation, and technical routes through strong intervention and organizational restructuring by the Subjective, in order to restore the organization's sustainable operational capacity. The adjustment mechanism does not pursue short-term growth but emphasizes maintaining technological continuity and organizational resilience in a highly constrained environment, laying the foundation for long-term survival.

Amidst incremental environmental pressures, Xiaomi has initiated a strategic evolution characterized by "mechanism creation." By venturing into the smart electric vehicle sector, redefining its brand positioning, and building a multi-device collaborative ecosystem, the company seeks to carve out new competitive frontiers beyond traditional industry boundaries. The essence of mechanism creation lies not in reviving past growth models, but in forging future growth trajectories through innovation and ecosystem expansion.

4.3.5 Comparison of Business Trends During Periods of Significant Environmental Changes:

Analysis of Revenue Changes

To examine the phased results of strategic mechanism adjustments between Huawei and Xiaomi during significant environmental changes, this study selects the revenue trends of Huawei (2019–2022) and Xiaomi (2021–2022) as the observation window. This period not only covers the critical phase of significant external environmental changes but also reflects the operational characteristics exhibited by enterprises during the initial stage of strategic adjustments, making it suitable for phased analysis of mechanism adjustment effects (IDC, 2023; Canalys, 2023).

From SER-M's perspective, revenue fluctuations are not merely operational performance variations, but rather external manifestations of differences in strategic mechanisms.

The revenue contraction of Huawei reflects the short-term compression effect of the "Adjustment Mechanism (M)" on scale; while the phased adjustment of Xiaomi's revenue demonstrates the cost-forwarding characteristic of the "Creation Mechanism (M)" during the new strategic investment period. This shows that the revenue curve provides important conclusive evidence for subsequent mechanism path analysis.

4.3.6 Differentiation Path of Huawei and Xiaomi During Major Environmental Change Period: A Comparative Study of SER-M Mechanism

Based on the SER-M model proposed by Cho (2006), we can further explain the differentiated development paths of Huawei and Xiaomi during major environmental changes from the perspective of mechanism evolution.

(1) Huawei: A subject-driven resource reshaping adjustment mechanism (S to R' to E')

(2) Xiaomi: A resource-driven Strategic Evolutionary Creation Mechanism (R to S to E')

Huawei: Crisis-driven Adjustment Mechanism, Technological Self-reliance to Structural Restructuring to Resilient Recovery

Xiaomi: Resource-driven creation mechanism-resource accumulation to strategic upgrade to ecological expansion

The differences between the two companies on the SER-M chain are manifested as follows: Huawei starts with the subject (S) for defensive restructuring, while Xiaomi starts with resources (R) to drive evolutionary expansion. This differentiation path provides an explanatory comparative sample for understanding the strategic choices and mechanism evolution of China's tech enterprises in highly uncertain environments.

Table 10. Comparison of SER-M management mechanisms during major environmental change periods (Huawei vs. Xiaomi)

SER-M dimension	Huawei (2019–present)	Xiaomi (2021–present)
S–subject strategy	Survival Orientation, Technological Sovereignty and Organizational Resilience	Ecological Expansion, High-end Development, and Cross-border Innovation

E exotic environment	Supply chain disruption, GSM restrictions, and global political pressures	Declining demand, tightening global regulations, and EV market competition pressure
R the distribution of resources	Investment in OS, chips, cloud, energy, and automotive technologies; Build the underlying technology system	Smart cars, AI, high-end smartphones, IoT ecosystem, in-house chips
M strategic mechanism	Adjustment mechanism (result reconstruction + resilience)	Create mechanism (cross-border innovation + ecological expansion)

¹⁰ Source: Personal reference, compiled from materials published on the official websites of Huawei Technologies Co., Ltd. and Xiaomi Group.

Overall, during periods of significant environmental changes, Huawei and Xiaomi have respectively formed two strategic paths with clearly defined mechanisms:

4. Huawei and Xiaomi's Entrepreneurship - Leap Phase - Major Environmental Change Period: A Comparative Analysis of SER-M Strategies

The development trajectories of Huawei and Xiaomi can both be divided into three stages: the entrepreneurial phase, the leap phase, and the period of significant environmental changes. However, their SER-M (Subject-Environment-Resource-Mechanism) models exhibit significant differences in operational logic across these stages, forming two representative growth paths of China's tech enterprises.

Table 11. Summary of Huawei and Xiaomi's phased SER-M strategy

Stages	Huawei core SER-M strategy	Xiaomi's Core SER-M Strategy	Mechanism type
Entrepreneurship	S: Technological conviction; R: High R&D investment; E: Domestic production demand	S: Internet thinking; R: Traffic community; E: Popularization window period	selection and learning mechanism
Leap year	R: Chip technology; S: BLM management; E: Global expansion	R: Ecosystem investment; S: New retail; E: Emerging market boom	coordination and selection mechanism
Transition period	E: Sanction crisis; R: Ecological reconstruction; S: Survival transformation	E: Market window; R: EV investment; S: New decade strategy	Adjustment Mechanism / Creation Mechanism

Source: compiled from official materials published by Huawei Technologies Co., Ltd. and Xiaomi Group for personal reference.

V. Discussions

1. Mechanistic Perspectives and Theoretical Contributions

Based on the SER-M model, this paper conducts a comparative analysis of Huawei and Xiaomi during significant environmental changes, deepening the understanding of the strategic evolution logic of China's technology enterprises from the perspective of

"mechanism". Compared with existing research that mostly focuses on the results of strategic choices or performance, this paper emphasizes that the core of enterprises' response to radical external changes lies not in a single decision itself, but in the strategic mechanism (M) formed during the interaction process of the subject (S), environment (E), and resources (R).

Studies show that in a highly uncertain external environment, Chinese tech companies have not adopted homogeneous response paths. Huawei and Xiaomi, under similar global competitive backgrounds, have respectively formed "adjustment mechanisms" oriented towards survival and technological sovereignty, as well as "creation mechanisms" oriented towards ecosystem expansion and cross-border innovation. This difference indicates that the SER-M model cannot only explain how companies passively adapt to environmental shocks, but also reveal how they actively shape new development spaces through mechanism selection.

Further analysis reveals systematic differences in the "mechanism trigger points" of the SER-M chain between the two companies. Huawei starts with a shift in strategic cognition, gradually adapting to new environmental constraints through resource restructuring and organizational adjustments; Xiaomi, on the other hand, begins with its existing resource advantages, driving strategic upgrades and creating new industrial opportunities. This finding indicates that mechanism evolution is not a linear process but rather a dynamic system triggered by different elements, with its evolutionary path highly dependent on the company's historical accumulation and strategic cognition.

Reading these paths through the permutation logic of the SER-M paradigm (Cho, 2014; Cho & Moon, 2023) sharpens the contrast. Huawei's response during the change phase follows a subject-initiated permutation (S to R' to E'): a cognitive shift in the strategic subject toward "survival and technological sovereignty" drives a deep reshaping of resources, which in turn reconstructs the firm's relationship with a hostile environment. Its decisive lower-order mechanism is therefore one of coordination and adjustment, an internally driven realignment of structure and resources that is consistent with Chandler's (1962) proposition that strategy reshapes structure. Xiaomi's path, by contrast, follows a resource-initiated permutation (R to S to E'): an accumulated stock of ecosystem, capital, and supply-chain resources is leveraged by the subject to redefine strategic intent and to open a new environment in smart vehicles. Its decisive mechanism is creation, echoing the resource-based logic that idiosyncratic, hard-to-imitate resource bundles are the wellspring of new competitive positions. The two firms thus occupy opposite ends of the SER-M permutation space even though both confront the same era of global turbulence.

This finding refines, rather than merely confirms, two strands of prior research. First, against accounts that attribute corporate fortune in this period primarily to the external environment, sanctions, supply-chain shocks, or the electric-vehicle window, the comparison shows that the environment functioned as a trigger rather than a cause: it activated, but did not determine, each firm's response. The direction of adaptation was set by the depth

and transmissibility of resources accumulated in earlier phases and by the strategic intent of the subject, which is consistent with the dynamic-capabilities view that competitive advantage rests on the capacity to reconfigure resources, but extends it by specifying the order in which reconfiguration is triggered. Second, whereas earlier SER-M case studies of Chinese firms have largely documented a single mechanism in a single firm (e.g., Xu Hui et al., 2020; Wang Fei, 2021), the present comparison demonstrates that firms facing a common shock can diverge into systematically different mechanism permutations, and that this divergence is predictable from their prior SER configurations. The mechanism, in other words, is path-dependent, a property Cho (2006) identifies as central to the SER-M view.

From a higher perspective, the different response paths of Huawei and Xiaomi during major environmental changes reveal the structural changes in the sources of corporate competitive advantages: the focus of competition is shifting from "resource possession" to "mechanism efficiency". As Cho emphasized, mechanism is not the resource itself, but the key variable that determines whether an enterprise can transform existing resources into sustainable action capabilities; it determines whether an enterprise remains in a passive response or achieves active evolution in an uncertain environment (Cho, 2025).

The distinctive contribution of this study is therefore threefold. Theoretically, it extends the SER-M model from its established manufacturing and service settings into the arena of radical geopolitical and technological disruption, showing that the model explains not only how firms grow but how they survive and reinvent themselves under existential constraint. Methodologically, it moves SER-M analysis from the prevailing single-case design toward a comparative, two-firm permutation comparison, isolating the subject- versus resource-initiated trigger as the variable that discriminates between an adjustment path and a creation path. Conceptually, it foregrounds "mechanism efficiency", the capacity to convert a given stock of resources into sustained and adaptive action, as the locus of advantage that has shifted from "resource possession" to "mechanism operation". These contributions position the mechanism, rather than the resource or the environment alone, as the decisive explanatory variable for the strategic differentiation of China's technology enterprises. At the practical level, the study suggests that managers should select a strategic mechanism consistent with their firm's own subject intent and resource base rather than imitate the path of others.

2. Limitations and Future Research

As an interpretive, multiple-case study, this research is subject to the limitations inherent in the case method. First, the findings are drawn from two purposively selected firms and are intended for analytical, not statistical, generalization (Yin, 2018); the subject- versus resource-initiated permutations identified here should be read as theoretically transferable propositions rather than as population-level regularities. Second, the analysis relies chiefly on secondary sources, such as annual reports, founder interviews, media coverage, and industry research, so the reconstruction of internal strategic intent is necessarily inferential

and may understate the role of unobserved organizational dynamics. Third, the pattern-matching between observed behavior and the SER-M typology involves qualitative judgment by the researchers, which, despite triangulation across multiple sources, carries a degree of interpretive subjectivity.

Two further boundaries should be noted. The "major environmental change" phase is still unfolding for both firms, so the performance consequences of Huawei's adjustment mechanism and Xiaomi's creation mechanism, particularly the eventual returns to Xiaomi's vehicle venture, cannot yet be fully assessed; the conclusions therefore describe mechanism formation rather than ultimate outcome. In addition, the study deliberately brackets some industry- and policy-level contingencies, for example the structural differences between the ICT-infrastructure and consumer-electronics value chains, in order to keep the SER-M comparison tractable; these contingencies may also shape mechanism choice and merit dedicated attention.

These limitations open several avenues for future work. The two-firm comparison could be extended into a larger, multi-industry sample to test whether the subject- and resource-initiated permutations recur across other Chinese technology firms facing radical disruption, moving the analysis from analytical toward empirical generalization. Longitudinal follow-up as the change phase matures would allow the mechanism-to-performance link to be measured directly. Finally, the "mechanism efficiency" construct advanced here invites operationalization through quantitative or mixed-method designs, so that the SER-M framework can evolve from a descriptive lens into an integrated and testable model of how firms convert resources into adaptive capability (Cho & Moon, 2023).

3. Conclusion and Implications

Based on the SER-M (Subject - Environment - Resource - Mechanism) model, this study systematically compares the strategic evolution paths of Huawei and Xiaomi during their startup phase, leap phase, and major environmental change phase, with a focus on analyzing the differentiation logic of their strategic mechanisms under aggressive external environmental shocks. The research finds that in a highly uncertain and constrained global competitive environment, the competitive advantage of China's tech enterprises no longer primarily stems from resource scale or market share, but increasingly depends on whether the enterprises can establish and sustain efficient strategic mechanisms, namely "mechanism efficiency".

From the perspective of the subjective strategy (S), significant environmental changes force enterprises to redefine their primary development goals, thereby triggering fundamental adjustments at the mechanism level. Huawei faced disruptive external constraints after 2019, shifting its main strategy from global expansion to "survival priority and technological sovereignty," emphasizing long-termism, organizational resilience, and investment in basic research. This strategic shift enabled Huawei to sustain its existence under extreme constraints by reshaping the logic of resource allocation. In contrast, Xiaomi faced

incremental pressures such as declining demand, stricter regulations, and intensified competition in new industries. Its main strategy did not shift toward contraction but evolved into a systematic development logic of "holistic ecosystem encompassing people, vehicles, and homes," proactively reshaping future growth space through cross-border layouts in intelligent electric vehicles and high-end strategies. Both cases demonstrate that the adjustment of main strategy cognition is the starting point of mechanism evolution, not the result.

From the perspective of resource allocation (R), the study further reveals that resources do not automatically translate into competitive advantages; their strategic value depends on whether they are embedded in effective mechanisms. Huawei constructs an alternative technological system by concentrating limited resources on foundational technology areas such as operating systems, chips, cloud computing, and digital energy, addressing external constraints through the "depth" of resources. Xiaomi, on the other hand, leverages its existing ecosystem network, supply chain efficiency, and capital reserves to redirect resources toward intelligent vehicles and multi-device collaboration, supporting strategic expansion through the "transmissibility" of resources. This contrast illustrates that in uncertain environments, the key to resource allocation lies not in "quantity" but in whether it serves a clear and sustainable mechanism logic.

At the mechanism level (M), Huawei and Xiaomi have respectively formed two typical paths: the "adjustment mechanism" and the "creation mechanism". The former emphasizes resilience recovery through organizational restructuring, capability repair, and technological self-reliance in highly constrained environments, while the latter actively shapes new environmental opportunities through cross-border innovation and ecosystem expansion. The study finds that mechanisms are not static arrangements but dynamic evolutionary processes influenced by the intensity of environmental shocks and resource structure conditions. This discovery expands the explanatory power of the SER-M model in radical environmental scenarios.

Theoretically, this study advances the SER-M framework by introducing the concept of "mechanism efficiency" as a new interpretive lens. It highlights that a firm's competitive advantage fundamentally depends on its ability to transform strategic cognition and resource allocation into actionable, adaptable capabilities. As Cho (2025) noted, what determines long-term competitiveness is not resource ownership per se, but the mechanism efficiency in converting resources into sustained operational capacity. When mechanism efficiency is high, firms are more likely to transition from reactive responses to proactive evolution in uncertain environments.

From the perspective of management insights, enterprises should consciously build institutional buffer zones during relatively stable periods, rather than solely pursuing short-term efficiency or scale expansion. When facing major environmental shocks, management needs to identify the boundaries of their own capabilities and resource structures, and choose corresponding institutional paths, rather than simply imitating the

development models of other companies. The comparison between Huawei and Xiaomi shows that the strategic competition among China's tech enterprises is shifting from "resource competition" to "institutional competition," and institutional efficiency will become the key variable determining whether an enterprise can achieve sustainable development.

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Ser-M 모델에 기반한 화웨이(Huawei)와 샤오미(Xiaomi)의 성장 경로 및 전략적 메커니즘에 관한 비교 연구

왕리핑

황명호

본 연구는 SER-M(주체-환경-자원-메커니즘) 모델을 기반으로 화웨이(Huawei)와 샤오미(Xiaomi)의 창업기,도약기,그리고 급격한 환경 변화기별 전략적 진화 과정을 체계적으로 비교 분석하였다.연구 결과,두 기업은 각기 다른 환경적 압박과 자원 부존 조건 하에서 차별화된 성장 경로를 구축해 온 것으로 나타났다.화웨이는 기술적 자립,글로벌 배치,조직적 회복탄력성에 집중하며 환경 변화기에 '주체 주도형 자원 재형성 메커니즘'을 통해 구조적 조정을 달성하였다.반면,샤오미는 생태계 확장,효율성 우위,크로스보더(boderless) 혁신에 의존하며 '자원 주도형 창조 메커니즘'을 통해 '사람-자동차-가정(people-car-home)' 생태계라는 새로운 성장 곡선을 모색하였다.본 연구는 주체의 전략적 의도,자원 축적의 깊이,그리고 환경의 변화 강도가 급변기 기업의 전략적 메커니즘 선택에 복합적인 영향을 미침을 입증하였으며,이는 중국 기술 기업의 회복탄력성 및 글로벌 경쟁력 강화를 위한 중요한 시사점을 제공한다.

Keywords: 샤오미, 화웨이, SER-M, 전략적 메커니즘, 성장 경로

Dual Path Framework를 통한 과학적 정당성의 제도화와 프리미엄 가치형성

과학기반 화장품의 유통채널별 비교사례연구

Dual Path Framework of Scientific Legitimacy Institutionalization

A comparative Case Study of Premium Value Formation in
Science-Based Cosmetics

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Yu Rim Kim

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V. Dual Path Framework와 이론적 명제	
1. 채널별 제도 구조 비교	

최근 화장품 산업에서는 과학적 연구, 임상 근거, 기술 혁신을 강조하는 과학 기반 화장품(science-based cosmetics)이 빠르게 성장하고 있다. 그러나 동일한 과학적 기반을 활용하더라도 브랜드가 선택하는 유통 채널과 제도적 구조에 따라 프리미엄 포지셔닝 전략은 크게 달라질 수 있다. 기존 연구는 화장품의 과학성 또는 프리미엄 브랜드 전략을 개별적으로 논의하는 경향이 있었으며, 과학적 정당성이 서로 다른 유통 채널의 제도적 맥락 속에서 어떻게 해석되고 프리미엄 가치로 전화되는지에 대해서는 상대적으로 충분히 설명하지 못했다. 본 연구는 이러한 연구 공백을 바탕으로, 과학 기반 화장품 브랜드가 유통 채널별 제도 구조 속에서 어떠한 방식으로 프리미엄 포지셔닝을 구축하는지를 비교 사례 연구(comparative case study)방식으로 분석하였다. 연구 대상은 전문 뷰티 시장의 네 가지 주요 채널을 대표하는 글로벌 브랜드 사례로 구성된다. 병·의원 채널에서는 SkinCeuticals와 ZO Skin Health, 럭셔리 리테일 채널에서는 Augustinus Bader와 La Mer, 프로페셔널 살롱 채널에서는 Kérastase와 Olaplex, 약국 채널에서는 Vichy와 Avène을 분석 대상으로 선정하였다.

연구 결과, 과학적 정당성은 모든 채널에서 공통적으로 활용되지만, 각 채널의 제도적 구조에 따라 서로 다른 방식으로 해석되고 제도화되는 것으로 나타났다. 이를 바탕으로 본 연구는 과학적 정당성이 프리미엄 가치로 전화되는 과정을 설명하는 Dual Path Framework를 제안하였다. 병·의원 채널에서는 임상 검증과 피부과 전문성에 기반한 ‘임상 권위 경로(Clinical Authority Path)’가 형성되며, 럭셔리 채널에서는 과학적 서사가 스토리텔링 및 럭셔리 브랜딩 메커니즘과 결합되면서 상징적·감성적 가치로 전환되는 ‘상징적 사이언스 경로(Symbolic Science Path)’가 나타났다. 한편 살롱 채널과 약국 채널은 전문성과 소비자 접근성을 결합한 중간적 위치를 형성하며, 각기 다른 방식으로 과학 기반 프리미엄 전략을 구성하는 것으로 분석 되었다.

본 연구는 과학 기반 브랜드 전략이 단순히 기술적 우수성 자체에 의해 결정되는 것이 아니라, 과학적 정당성이 유통 채널의 제도적 구조 속에서 어떻게 제도화되는가에 따라 프리미엄 가치로 전환된다는 점을 제시한다. 이러한 결과는 화장품 산업에서 과학 기반 브랜드 전략과 채널 전략의 관계를 이해하는 데 이론적 기여를 제공하며, 동시에 글로벌 프리미엄 화장품 브랜드의 전략적 포지셔닝에 대한 실무적 시사점을 제시한다.

주제어: 과학기반 화장품(science-based cosmetics), 프리미엄 포지셔닝(premium positioning), 제도적 정당성(institutional legitimacy), 유통채널(distribution channel), 이중 경로 프레임워크(Dual Path Framework), 비교사례연구(comparative case study)

I. 서론

1. 연구 배경

최근 글로벌 화장품 시장의 가장 두드러진 변화 중 하나는 성분 과학, 생명공학 기술, 그리고 임상 데이터를 전면에 내세운 과학 기반 화장품(Science-based Cosmetics)의 급격한 성장이다. 이들 브랜드는 R&D성과와 객관적 작용 기전을 핵심 자산으로 삼아 기존의 감성 중심 화장품과 차별화된 프리미엄 포지셔닝을 구축해 왔다. 그러나 동일하게 과학을 핵심 자산으로 활용함에도 불구하고, 과학적 정당성이 어떠한 제도적 맥락과 유통 채널 속에서 번역(translation)되는가에 따라 상이한 프리미엄 전략이 나타난다.

논문접수일: 2026년 06월 08일, 게재확정일: 2026년 6월 11일

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병·의원 중심으로 유통되는 메디컬 사이언스 화장품과 럭셔리 리테일 중심의 프리미엄 사이언스 화장품 간에는 브랜드 전략과 소비자 인식 구조에서 뚜렷한 차이가 관찰된다. 전자는 의료 전문가의 권위와 임상적 근거를 통해 신뢰를 구축하는 반면, 후자는 과학적 정당성을 감성적·상징적 가치로 전환한다. 이 두 극단 사이에는 약국 유통 채널과 살롱 채널처럼 의료적 권위와 소비자 친화성이 혼합된 중간 영역의 브랜드들도 존재한다.

기존 마케팅 연구에서는 과학 기반 브랜드의 채널 선택을 주로 비용 효율성, 시장 접근성, 브랜드 이미지와 적합성관점에서 설명해 왔다. 이러한 연구들은 채널을 브랜드 전략의 실행수단으로 이해하는데 기여하였다. 그러나 동일한 과학적 자산을 보유한 브랜드들이 서로 다른 프리미엄 가치를 획득하는 과정에서 유통채널의 제도적 권위 구조가 수행하는 역할에 대한 메커니즘적 설명은 여전히 부족하다. 최근 화장품 유통 연구에서는 옴니채널 속성이 채널 신뢰와 행동의도에 영향을 미친다는 결과가 보고되었으나 (김효춘, 2023), 채널의 제도적 권위 구조가 과학적 정당성의 형성과 프리미엄 가치 창출에 미치는 영향은 충분한 논의되지 않았다. 이에 본 연구는 과학 기반 화장품 브랜드가 유통 채널에 따라 상이한 프리미엄 가치를 획득하는 메커니즘을 탐색하고, 이를 'Dual Path Framework'로 개념화하고자 한다.

2. 연구 목적 및 연구 질문

본 연구는 과학 기반 화장품이 글로벌 시장에서 프리미엄 포지셔닝과 가격 정당성을 획득하는 메커니즘을 규명하는 것을 목적으로 한다. 이를 위해 본 연구는 글로벌 시장에서 독보적인 가치를 인정받고 있는 8개의 탑티어 과학 기반 화장품 브랜드를 분석 대상으로 삼는다. 특히 병·의원 유통 프리미엄 메디컬 사이언스 화장품과 럭셔리 유통 프리미엄 사이언스 화장품을 양대 축으로 설정하고, 약국 유통 및 살롱 채널 브랜드를 참고 사례로 포함하여 과학적 신뢰 전환 방식의 차이를 구조적으로 비교한다.

이러한 연구 목적을 달성하기 위해 다음과 같은 연구 질문(Research Questions)을 설정하였다.

첫째, 과학 기반 글로벌 화장품 브랜드는 왜 서로 다른 유통 채널을 통해 프리미엄 포지셔닝을 구축하는가?

둘째, 각 채널은 어떠한 제도적 권위 구조(institutional authority structure)를 형성하고 있는가?

셋째, 각 채널의 제도적 권위 구조는 과학적 자산을 어떠한 방식으로 프리미엄 가치와 가격 정당성으로 전환하는가?

넷째, 이러한 차이가 과학 기반 브랜드의 채널 포트폴리오 전략에 주는 실무적 시사점은 무엇인가?

3. 연구 방법 및 범위

본 연구는 질적 문헌 분석을 기반으로 유통채널별 제도적 권위 구조의 차이를 비교하고, 이러한 차이가 과학적 자산의 정당화 방식과 프리미엄 가치 형성에 어떠한 메커니즘으로 작용하는지를 규명하기 위해 비교 사례 연구(comparative case study) 접근을 채택하였다. 병·의원, 럭셔리, 살롱·스파, 약국의 네 채널에서 각 2개 브랜드씩 총 8개 사례를 선정하여 분석하였으며, McKinsey(2025), Euromonitor(2025) 등 산업 보고서와 각 브랜드의 공식 커뮤니케이션 자료를 주요 분석 자료로 활용하였다.

II. 이론적 배경

1. 과학 기반 화장품과 정당성

과학 기반 화장품(science-based cosmetics)은 과학적 지식 체계가 브랜드 정당성(legitimacy)을 구성하는 핵심 논리로 작동하는 화장품 범주로 정의할 수 있다. 정당성은 조직이나 브랜드가 사회적으로 바람직하고 적절한 것으로 인식되는 상태를 의미하며(Suchman, 1995), 이는 제도적 환경 속에서 규범적·인지적 승인 과정을 통해 형성된다(Scott, 2014). 따라서 과학은 단순한 기능적 요소가 아니라, 브랜드가 제도적 승인과 사회적 신뢰를 획득하는 인식적 기반(epistemic foundation)으로 기능한다.

기존 연구에서는 코스메슈티컬(Gao et al., 2008), 더모코스메틱(Malinowska, 2020) 등의 개념을 중심으로 과학 기반 화장품의 기능적 특성과 시장적 의미를 논의해 왔다. 그러나 이들 연구는 제품 기능이나 규제수준에 초점을 맞추었을 뿐, 동일한 과학적 자산이 유통 채널별 제도적 맥락 속에서 어떻게 해석되고 정당화 되며, 궁극적으로는 프리미엄 가치로 전환되는지에 대한 메커니즘은 상대적으로 충분히 규명되지 않았다.

2. 유통채널의 제도적 기능과 권위 구조

제도이론 관점에서 유통 채널은 단순한 물류경로가 아니라 제품의 의미와 가치가 해석되는 제도적 맥락(institutional context)으로 이해되어야 한다. 특히 화장품 산업에서 유통 채널은 과학적 자산의 정당성을 규정하는 권위구조로 작동한다. 본 연구는 Shuman(1995)의 정당성 이론을 토대로, 유통 채널이 브랜드의 과학적 자산을 해석·승인하는 제도적 권위 구조(Institutional authority structure)로 기능함을 분석한다. 이 같은 접근은 최근 마케팅 연구에서도 지지되고 있다. Moumade et al. (2024)는 소비자와 브랜드 관계연구에서 Suchman의 정당성 3유형이 각각 독립적인 소비자 반응 메커니즘으로 작동함을 질적 연구를 통해 검증하였으며, 이는 정당성 유형에 따라 소비자의 브랜드 수용 방식이 본질적으로 달라진다는 본 연구의 분석 틀과 부합한다. 기존 마케팅 연구에서 유통 채널은 주로 시장 접근성과 유통 효율성 관점에서 논의되어 왔으나(Kotler & Keller, 2016), 과학 기반 브랜드에서는 채널이 권위주체·규범·소비자 해석 체계와 결합된 제도적 환경으로 기능한다. 병·의원 채널에서는 의료 전문가의 권위가, 럭셔리 채널에서는 브랜드 헤리티지와 문화적 상징성이, 살롱채널에서는 전문가의 수행적 신뢰가, 약국채널에서는 약학 전문성과 제도적 안전성이 각각 핵심 권위 자원으로 작동한다. 따라서 동일한 과학적 자산이라도 채널별 권위 구조에 따라 서로 프리미엄 가치 형성 경로로 전환될 수 있다. 한편 브랜드 인지도와 소비자의 가치평가는 가격 정당화 수준에 유의미한 영향을 미치며, 가격평가보다 가치평가가 가격 정당화에 더 중요한 변수임이 국내 실증 연구를 통해 확인된다(윤노엘 외, 2024). 이는 채널의 제도적 권위 구조가 소비자의 가치평가 방식을 규정함으로써 궁극적으로 가격 정당화 수준을 결정한다는 연구의 논리를 지지한다.

III. 연구 방법

1. 연구 설계

본 연구는 비교사례연구(Comparative Case Study) 방법론을 채택한다. 비교사례연구는 동일한 현상

이 서로 다른 맥락에서 어떻게 상이하게 작동하는지를 탐색하는데 적합한 질적 연구 방법으로(Yin, 2018), 본 연구가 분석하는 ‘과학적 자산이라는 동일한 요소가 유통 채널별 제도적 권위구조에 따라 어떻게 상이한 프리미엄 가치 형성 경로로 전환되는가’라는 연구 질문의 성격과 부합한다. 본 연구가 비교 사례연구를 채택한 이유는 세 가지이다. 첫째, 연구 대상인 과학 기반 프리미엄 화장품의 포지셔닝 메커니즘은 계량적 측정보다 맥락적 해석이 요구되는 현상이다. 브랜드가 과학을 어떠한 방식으로 제도화하고 의미화하는가는 수치로 환원하기 어려우며, 채널 맥락과 권위 구조의 상호작용 속에서 이해되어야 한다. 둘째, 비교사례연구는 단일 사례의 심층 분석보다 폭넓은 이론 발전이 가능하며(Eisenhardt, 1989), 유사한 자원을 보유한 브랜드들이 서로 다른 채널 맥락에서 어떻게 상이한 포지셔닝 결과를 달성하는지를 비교함으로써 메커니즘 기반의 설명을 도출할 수 있다. 셋째, 본 연구는 유통채널별 정당성 형성 메커니즘을 비교함으로써 새로운 이론적 설명 틀을 도출하고자 하는 탐색적 성격을 지니며, 탐색적 이론 구축에는 사례 기반 접근이 적합하다(Eisenhardt & Graebner, 2007). 분석의 논리는 복제논리(replication logic)에 기반하며(Yin, 2018), 동일 채널 내 두 브랜드 간 유사 패턴은 이론적 복제(literal replication)로, 채널 간 상이한 패턴은 이론적 대조(theoretical replication)로 해석된다.

2. 사례 선정 기준

사례 선정의 임의성을 최소화하고 이론적 대표성을 확보하기 위해, 본 연구는 다음의 세 가지 기준을 적용하였다(Eisenhardt, 1989).

기준 1(전형성): 해당 채널 내 포지셔닝 전략의 전형성(typicality)을 대표하는 브랜드

기준 2(인지도): McKinsey(2025), Euromonitor(2025) 등 업계 보고서에서 높은 브랜드 인지도가 확인된 브랜드

기준 3(정당성 명시성): 임상 데이터, 특허 기술, 전문성 기반 실천지식을 통해 과학적 정당성을 명시적으로 활용하는 브랜드

이에 따라 병·의원 채널의 SkinCeuticals와 ZO Skin Health, 럭셔리 채널의 Augustinus Bader와 La Mer, 살롱·스파 채널의 Kérastase와 Olaplex, 약국 채널의 Vichy와 Avène을 최종 분석대상으로 선정하였다.

3. 분석 프레임워크

분석은 Suchman(1995)의 제도적 정당성 이론을 주 이론으로, 다섯 가지 분석 차원으로 구성된다.

과학 커뮤니케이션 방식, 핵심 권위 매개자, 가격 정당화 논리, 타깃 고객의 과학 수용방식, 정당성 유형의 5개 차원으로 구성되며, 결과는 [표 1], [그림 1], [그림 2]로 시각화 된다

IV. 비교사례분석

1. 병·의원 채널 (Medical Channel)

채널 구조 개관

병·의원 유통 채널에서 과학은 의료 전문가 집단이라는 외부 권위에 의해 객관적 지식으로 승인되며, 기

능적 효능을 중심으로 프리미엄이 정당화된다. 이 경로에서 브랜드 신뢰는 개인 소비자의 판단이 아니라 의료 제도와 전문직 합의에 의해 매개된다. 과학적 지식은 동료 심사를 거친 연구 논문, 임상 데이터, 치료 프로토콜 및 전문적 사용 환경을 통해 지속적으로 강화되며, 프리미엄 가격은 상징적 차별화보다 기능적 효능과 전문가 검증이라는 합리적 근거를 통해 정당화된다.

대표 사례 1. (ZO Skin Health): 오바지(Zein Obagi) 박사가 설립한 ZO Skin Health는 메디컬 채널의 전형적인 '임상 권위 경로'를 보여준다. 이 브랜드는 일반 소매 판매를 철저히 배제하고, 오직 의사의 진단과 처방을 통해서만 제품이 소비자에게 전달되도록 제한한다. 과학 커뮤니케이션은 고농축 레티놀과 하이드로퀴논의 작용 기전, 피부 세포 재생 주기 리모델링 등 철저히 의학적·임상적 데이터에 기반한다. 가격 정당성은 레이저나 필링 등 메디컬 시술의 효과를 극대화하거나 부작용을 관리해 준다는 '치료적 효능'에서 도출되며, 소비자는 의사의 전문적 권위에 의존하여 고가격을 기능적 정당성으로 수용한다.

복제 사례 1. (SkinCeuticals): 스킨슈티컬즈(SkinCeuticals)는 항산화 연구의 권위자인 핀넬(Sheldon Pinnell) 박사의 특허 기술을 바탕으로 병·의원 채널에 진입한 브랜드로서, ZO Skin Health 사례를 통해 도출된 임상 권위 메커니즘이 다른 콘셉트의 브랜드에서도 동일하게 작동함을 보여주는 리터럴 복제(Literal Replication) 사례이다. 비타민 C·E와 페룰산의 결합에 따른 항산화 시너지 임상 데이터를 의사들에게 교육하고 병원 내 처방을 유도하는 구조는, 매개 게이트키퍼(의사)의 권위를 통해 기능적 효능에 대한 실용적 정당성과 전문가 집단의 승인에 기반한 도덕적 정당성을 동시에 획득하며 프리미엄 가격을 실현하는 동일한 메커니즘이 관찰된다.

2. 럭셔리 채널 (Luxury Channel)

채널 구조 개관

럭셔리 유통 채널에서 과학은 기능적 증명의 근거라기보다 브랜드 신화와 혁신성의 상징으로 재구성된다. 연구 배경은 브랜드의 기원 서사로 활용되며, 커뮤니케이션에서는 감성적·문화적 해석이 우선한다. 이는 Holt(2004)의 문화적 브랜딩 전략이 작동하는 구조이다. 특히 이 채널에서 소비되는 '경험'은 단순히 서비스 노동이나 시술 자체를 상품화하여 대중적으로 판매하는 일반적인 살롱 채널(Practice Path)의 실천적 경험과 근본적으로 구별된다. 럭셔리 채널의 경험은 고도로 통제된 폐쇄적 공간과 엄격한 멤버십을 통해 제공되는 '희소성 기반의 문화적 경험'이다. 즉, 소비자는 단순한 관리 서비스를 구매하는 것이 아니라, 브랜드가 구축한 독점적 세계관에 진입하여 자신의 문화적 자본과 사회적 지위를 확인받는 상징적 리추얼(Ritual)을 향유하는 것이다.

대표 사례 2: La Mer

La Mer는 항공우주 물리학자 Max Huber가 산업 사고로 입은 화상 치료를 위해 개발한 '미라클 브로스(Miracle Broth)'라는 과학적 발견에서 출발했으나, 소비자에게 전달되는 과정에서는 과학 자체보다 브랜드 서사와 희소성에 대한 상징적 의미가 더욱 강조된다. 수개월간 발효하는 사운드 및 빛 에너지를 강조하는 서사 중심의 스토리텔링을 구사하며, 백화점 바이어와 럭셔리 카운셀러(브랜드 큐레이터)가 매개자가 된다. 가격 정당성은 기능적 수치를 넘어 브랜드가 제공하는 독점적 희소성과 VVIP로서의 사회적 지위 표현에서 기인하며, 타깃 고객은 이 감성적 서사에 동조하여 프리미엄 가격을 기꺼이 지불한다.

복제 사례 2: Augustinus Bader

복제 사례 대조 서술 (Augustinus Bader): 오거스티누스 바더(Augustinus Bader)는 세계적인 줄기세포 및 바이오 의학 전문가인 바더 박사의 30년 연구 자산(TFC8® 부스터 기술)을 기반으로 설립된 브랜드로, 라메르와 유사하게 과학적 자산이 브랜드 서사와 희소성의 언어로 재구성되는 패턴을 보여준다.

이 브랜드는 고도의 메디컬 테크놀로지를 보유했음에도 병원이 아닌 최고급 백화점 프리미엄 채널을 선택했다. 과학적 수치를 나열하기보다 '화상 환자의 피부 재생을 연구하던 세계적 학자의 헤리티지'를 하이에드 럭셔리 서사로 재포장하고, 유통 공간의 극단적인 독점성(Exclusivity)을 활용해 상징적 정당성을 구축한다. 이는 강력한 과학적 자산이 럭셔리 채널을 거치면서 기능적 효능의 언어보다 상징 자본의 언어로 재해석된다는 점에서 La Mer와 유사한 정당성 형성 패턴을 보여주는 복제사례로 해석할 수 있다.

3. 살롱·스파 채널 (Professional Salon & Spa Channel)

채널 구조 개관

살롱·스파 유통 채널에서 과학은 전문가의 수행과 반복적 관리 경험 속에서 실천적 지식으로 번역된다. 과학은 '증명되어야 할 지식'이 아니라 '전문적 수행을 가능하게 하는 도구적 지식'으로 작동하며, Bourdieu(1977)의 실천이론 관점에서 이는 사회적 행위 속에서 지식과 의미가 재생산되는 과정으로 이해된다. 신뢰는 의료 전문가의 공식적 권위나 럭셔리 브랜드의 문화적 위신에 기반 하기보다, 숙련된 기술자의 전문적 수행과 반복적 서비스 경험을 통해 축적되는 수행 기반 신뢰(performance-based trust)로 형성된다.

대표 사례 3: Olaplex

올라플렉스(Olaplex)는 모발 내부의 깨진 디설파이드 결합을 재연결하는 단일 성분(Bis-Aminopropyl Diglycol Dimaleate)의 특허 과학을 바탕으로 헤어살롱 채널을 장악했다. 올라플렉스의 과학 커뮤니케이션은 디자이너의 기술 과정에서 모발 손상을 근본적으로 차단하는 '포물러 메커니즘'에 집중된다. 핵심 권위 매개자는 전문 헤어 디자이너이며, 이들의 기술 기술과 결합하여 즉각적인 모발 개선 효과를 시각적으로 증명함으로써 가격을 정당화한다.

비교 사례 3: Kérastase

케라스타즈(Kerastase)는 프로페셔널 헤어케어 시장의 전통적 강자로서, 올라플렉스 케이스와 인과적 메커니즘의 궤를 같이하는 리터럴 복제 사례이다. 케라스타즈는 비록 출시 시점은 올라플렉스보다 앞서지만, 살롱 마스터의 두피 진단과 전문적인 케어 프로토콜(디자이너의 숙련된 기술)이 브랜드의 고기능성 헤드 스파 포물러와 결합될 때 비로소 최고의 가치가 발현되도록 구조화되어 있다. 즉, 제품의 과학적 자산이 '전문가의 기술 및 관리 행위'라는 매개 메커니즘을 통해 소비자에게 번역되고 프리미엄 가격이 정당화된다는 점에서 두 브랜드는 동일한 경로 인과 구조를 공유한다.

옴니채널 확장과 정당성의 전이: 현대 유통 환경에서 Olaplex와 Kerastase가 리테일(세포라, 올리브영 등) 및 일부 약국 채널로 확장하여 소비자용(B2C) 제품을 판매하고 있는 현상은 본 연구가 제시한 채널 분기 메커니즘의 유효성을 약화시키지 않는다. 메커니즘 경영 관점에서 볼 때, 이들이 일반 리테일 채널에서 실현하는 프리미엄 가격은 리테일 채널 자체의 상징성에서 오는 것이 아니라, 프로페셔널 살롱 채널에서 숙련된 전문가의 기술과 반복적 경험을 통해 구축된 수행기반 신뢰가 일반 소비자 시장으로 확산(Spillover effect)된 결과이기 때문이다. 가치의 원천(Source of Value)은 여전히 프로페셔널 경로에 고착되어 있으며, 리테일 채널은 이를 수확(Harvesting)하는 통로로 기능할 뿐이다.

4. 약국 채널 (Pharmacy/ Dermocosmetic Channel)

채널 구조 개관

약국 채널에서는 과학적 신뢰가 타 채널과 같은 적극적인 차별화 전략이라기보다, 해당 시장 범주에 진

입하기 위한 기본 요건(Hygiene Factor)으로 작동한다. 임상 테스트 완료, 피부과 추천 서사, 그리고 더 모코스메틱(Dermocosmetic) 정체성은 이 채널에서 신뢰를 획득하기 위한 최소한의 기준을 형성하며, 이를 충족하지 못하는 브랜드는 채널 내에서 최소한의 위치 자체를 확보하기 어렵다.

이 채널에서 약사는 의료 전문가(의사)와 같은 강력한 처방 권위를 행사하지는 않지만, 소비자의 일상적 건강과 피부 고민에 대해 전문적 조언을 제공하는 준전문가 및 신뢰 매개자로 기능한다. 이에 따라 약국 채널에서 과학은 질병 치료를 위한 처방의 언어가 아닌, 일상적 안전성 보증의 언어로 치환되어 작동한다.

이를 Suchman(1995)의 정당성 유형론으로 해석하면 인지적 정당성(Cognitive Legitimacy)의 성격이 강하게 투영된 구조이다. 즉, 이 채널의 소비자들에게 과학적 근거와 안전성 검증은 특별히 의심하거나 증명할 필요가 없는, '약국 유통 브랜드라면 당연히 갖추어야 할 사회적 전제이자 상식'으로 받아들여지기 때문이다.

대표 사례 4: Vichy

약국 채널의 대표 사례(Focal Case)로 선정한 Vichy는 프랑스 비쉬 온천수 연구를 기반으로 성장한 더 모코스메틱 브랜드이다. 브랜드는 화산수의 미네랄 성분과 피부 장벽 강화 효과를 과학적 근거로 제시하며, 피부과 전문의 협력 연구와 임상 테스트를 핵심 신뢰 자산으로 활용한다.

그러나 Vichy의 과학 커뮤니케이션은 병·의원 채널처럼 복잡한 임상 데이터나 생화학적 작용 기전을 직접 설명하기보다, 'Dermatologically Tested', 'Recommended by Dermatologists'와 같은 제도화된 인증 언어를 통해 과학적 신뢰를 전달한다. 소비자는 과학 자체보다 약국이라는 제도적 환경과 약사의 권고를 통해 브랜드를 신뢰하게 된다.

결과적으로 Vichy의 프리미엄은 치료적 효능이나 상징 자본이 아니라 안전성과 합리적 전문성에 기반하여 형성되며, 이는 약국 채널에서 과학이 범주 진입의 기본 조건으로 작동함을 보여준다.

비교 사례 4: Avène

Avène은 프랑스 아벤 온천수 연구와 민감성 피부 치료 프로그램을 기반으로 성장한 브랜드로서, Vichy가 보여준 약국 채널의 정당성 메커니즘을 재확인하는 Literal Replication 사례이다.

Avène은 피부 진정 및 장벽 회복에 관한 보다 특화된 과학적 연구 자산을 보유하고 있지만, 소비자에게 전달되는 방식은 의료 처방이 아닌 약국 기반의 안전성 신뢰 구조를 따른다. 즉, 과학적 자산의 깊이가 증가하더라도 최종적으로는 약사의 권고와 약국 채널의 제도적 신뢰를 통해 정당성이 형성된다는 점에서 Vichy와 동일한 메커니즘이 관찰된다.

이는 프리미엄 가치의 상한선이 과학 자체의 수준만이 아니라, 해당 과학이 어떠한 채널 구조 속에서 제도화되는가에 의해 결정된다는 본 연구의 주장을 지지한다.

따라서 약국 채널은 과학적 자산이 제도적 신뢰와 안전성의 언어로 번역되는 사례를 보여주며, 유통채널별 정당성 형성 방식의 차이를 비교하는 데 유용한 분석 대상이라 할 수 있다. 이러한 채널별 차이는 다음 장에서 통합적으로 비교·해석되어 보다 일반화된 이론적 설명으로 발전될 것이다.

<표 1>. 5대 분석 범주 및 정당성 유형 기반의 8개 대표 브랜드별 메커니즘 매트릭스

분석 대상 브랜드	과학커뮤니케이션 방식	핵심권위매개자	가격정당화 논리	타깃고객의 과학수용방식	Suchman(1995) 정당성 유형
Skin Ceuticals	SCI급 임상 데이터 및 대조군 시각화	피부과 전문의 및 의학화	객관적 임상 효능 및 성분 정밀성	데이터 신뢰 기반의 전문가 권위 위임	실용적+도덕적 정당성 (Pragmatic + Moral)
ZO Skin Health	오바지 박사 치료 프로토콜 및 병원 내 처방 연계 데이터	피부과·성형외과전 문의	원내 시술 및 전문 진단 기반의 확실한 개선 효과	전문적 진단에 따른 의료적 처방 수용	실용적+도덕적 정당성 (Pragmatic + Moral)
La Mer	우주물리학자의 사고 치료 및 해조 발효 원액의 신화적 서사	백화점 프레스티지 바이어 및 카운셀러	브랜드 헤리티지와 문화적 위신, 희소성 자본	하이엔드 라이프스타일 스토리텔링에 대한 감성적 동조	인지적 정당성 (Cognitive)
Augustinus Bader	줄기세포·재생의학 특허 기술(TFC8®)의 블랙박스화 된 서사	럭셔리 전문 큐레이터 및 하이엔드 미디어	바이오 테크의 혁신성 기반 초고가 가치	글로벌 셀러브리티 신뢰에 기반한 상징적 가치 수용	인지적 정당성 (Cognitive)
Olaplex	모발 단결합 (Bonding) 특허 기술의 실천적 지식 제공	프로페셔널 헤어 디자이너 크루	시술 테크닉과 결합된 즉각적 구조 개선 효과	살롱 실전 체험 및 비포&애프터 상호작용적 수용	실용적 정당성 (Pragmatic)
Kérastase	맞춤형 케어 포뮬러와 두피 진단 루틴의 지식화	헤어 마스터 및 전문 살롱 디자이너	맞춤형 제안과 숙련된 기술이 결합된 서비스 가치	정기적 관리 루틴 속에서의 관계적·경험적 수용	실용적 정당성 (Pragmatic)
Vichy	프랑스 온천수의 치유력과 피부과 테스트완료데이터	약사 및 드럭스토어 카운셀러	인접 의학 기반의 안전성과 중고가 접근성	규제 안정성 및 민감성 케어에 대한 이성적 안심	인지적 정당성 (Cognitive)
Avène	하이드로테라피센터 기반의 피부 장벽 회복 서사	약사 및 메디컬 접점 매니저	규제 기반 신뢰 및 합리적 안심 가치 교환	성분 안전성 및 약사 권고에 기반한 이성적 확신	인지적 정당성 (Cognitive)

V. Dual Path Framework와 이론적 명제

1. 채널별 권위구조 비교

제IV장의 비교사례분석 결과는 과학 기반 화장품 브랜드들이 동일하게 과학적 자산(scientific assets)을 보유하고 있음에도 불구하고, 이를 프리미엄 가치로 전환하는 과정은 유통 채널이 제공하는 제도적 권위 구조에 따라 현저하게 달라짐을 보여준다.

분석 결과, 프리미엄 가치사슬을 주도하는 두 개의 핵심 축인 병·의원 채널과 럭셔리 채널은 과학적 정당성이 형성되고 번역되는 두 개의 상이한 제도적 경로를 확고히 구축하고 있었다.

병·의원 채널에서는 의사와 의료 전문가 집단이 과학적 신뢰를 승인하는 핵심 권위자로 기능하며, 과학은 객관적 효능과 임상 검증을 통해 기능적 가치로 전환된다. 반면 럭셔리 채널에서는 브랜드 큐레이터, 프레스티지 리테일러, 창립자 서사와 같은 문화적 권위 구조가 과학을 상징 자본(symbolic capital)으로 재구성하며, 소비자는 이를 희소성과 문화적 위신의 형태로 수용한다.

한편 살롱 채널과 약국 채널은 이러한 양 극단의 중간 영역(intermediate zone)에 위치하되, 과학 자산을 활용하는 방식에서 서로 구별된다. 살롱 채널에서는 과학적 자산 자체가 전면에 나서기보다, 숙련된 전문가의 시술과 반복적 서비스 경험을 통해 그 효능이 체감되는 방식으로 프리미엄 가치가 형성된다. 즉, 브랜드의 과학성은 전문가의 숙련도를 통해 소비자에게 전달되며, 이 과정에서 전문가의 수행 능력 자체가 가격 정당화의 핵심 근거가 된다. 약국 채널은 과학을 소비자가 일상적으로 신뢰할 수 있는 안전성과 제도적 보증의 언어로 전환한다. 특정 전문가의 권위나 브랜드 서사보다 "약국"이라는 채널 자체가 부여하는 제도적 신뢰가 전면에 작동하며, 이를 통해 과학은 보다 대중적이고 접근 가능한 형태의 프리미엄으로 소비자에게 수용된다.

이러한 결과는 유통 채널이 단순한 판매 경로가 아니라, 동일한 과학적 자산이 서로 다른 방식으로 활용되고 가치화되는 제도적 구조(institutional structure)임을 시사한다.

2. 프리미엄 형성의 Dual Path 메커니즘

사례 분석 결과, Suchman(1995)이 제시한 정당성 유형은 유통채널의 제도적 권위 구조에 따라 서로 다른 방식으로 형성되고 번역되는 것으로 나타났다. 본 연구는 이러한 번역 메커니즘을 설명하기 위해 Clinical Authority Path와 Symbolic Science Path라는 두 개의 상위 경로를 제시한다.

첫 번째는 임상 권위 경로(Clinical Authority Path)이다. 이 경로에서는 과학적 자산이 의료 전문가 또는 전문 시술자의 권위를 통해 기능적 정당성(functional legitimacy), 즉 Suchman(1995)의 실용적(pragmatic)·도덕적(moral) 정당성으로 전환된다.

ZO Skin Health와 SkinCeuticals는 임상 연구와 의료 전문가 네트워크를 기반으로 브랜드 신뢰를 구축하였다. 소비자는 과학적 효능을 직접 검증하기보다 의사의 전문적 판단에 의존하여 이를 수용하며, 프리미엄 가격 역시 치료적 효과와 임상적 개선 가능성이라는 합리적 근거를 통해 정당화 된다.

살롱 채널의 Olaplex와 Kérastase는 이 경로의 실천적 변형으로 이해할 수 있다. 의사의 처방이 아닌 숙련된 전문가의 시술 수행이 권위 매개자로 기능하며, 소비자는 시술 현장에서 즉각적인 효능 체험을 통해 과학성을 수용한다. 과학이 기능적 효능으로 번역된다는 메커니즘의 본질은 동일하나, 그 번역을 매개하는 권위 주체의 성격이 다르다는 점에서 살롱 채널은 Clinical Authority의 실천적 확장형에 해당한다.

두 번째는 상징적 사이언스 경로(Symbolic Science Path)이다. 이 경로에서는 과학이 기능적 증명의 대상이 아니라 브랜드 신화와 혁신성을 뒷받침하는 상징 자본으로 활용된다. La Mer와 Augustinus Bader는 모두 강력한 연구 배경을 보유하고 있지만, 소비자에게 전달되는 핵심 메시지는 임상 데이터보

다 브랜드 헤리티지, 희소성, 혁신 서사에 집중되어 있다. 소비자는 과학을 검증하기보다 신뢰하며, 과학은 문화적 위신과 사회적 차별화의 근거로 기능한다.

약국 채널의 Vichy와 Avène은 이 경로의 실용적 변형으로 이해할 수 있다. 럭셔리 채널처럼 희소성이나 창립자 서사를 전면에 내세우기보다, 과학을 안전성과 사회적 신뢰의 제도적 신호로 활용한다. ‘약국에서 판매되는 브랜드라면 당연히 안전하다’는 인지적 수용 구조가 작동하며, 소비자는 과학 자체를 검증하는 것이 아니라 채널이 제공하는 제도적 보증을 통해 제품을 수용한다. 상징화의 방향이 문화적 위신보다 안전성 신뢰에 맞춰져 있고 프리미엄의 높이가 럭셔리 채널보다 구조적으로 낮다는 차이는 있으나, 과학이 직접 증명되기보다 채널의 상징 체계를 통해 간접적으로 수용된다는 메커니즘의 본질은 동일하다.

결국 두 경로는 과학이라는 동일한 출발점에서 서로 다른 번역 방식을 통해 상이한 프리미엄 가치를 형성한다는 점에서, 프리미엄 형성의 핵심 변수는 과학 자체의 수준이 아니라 과학이 어떤 채널 구조를 통해 소비자에게 도달하는가에 있음을 재확인시켜 준다.

따라서 본 연구의 기여는 Suchman(1995)의 정당성 이론을 부정하거나 대체하는 것이 아니라, 동일한 과학적 자산이 유통채널이라는 제도적 맥락 속에서 어떠한 방식으로 정당화되는지를 설명하는 채널 기반 정당성 형성 메커니즘(channel-based legitimacy formation mechanism)을 제안하는 데 있다

3. 과학 정당성의 제도화 과정: 이론적 명제

본 연구는 8개 글로벌 과학 기반 화장품 브랜드에 대한 비교사례분석을 통해 다음의 네 가지 이론적 명제를 도출하였다.

Proposition 1 (Clinical Authority Based Legitimacy)

과학 기반 화장품 브랜드가 병·의원 또는 프로페셔널 살롱 채널을 선택할 경우, 전문가 집단의 권위를 정당성의 핵심 매개 메커니즘으로 활용하며, 프리미엄 가격은 기능적 효능의 검증 가능한 증거 또는 전문가의 수행 능력에 의해 정당화된다.

ZO Skin Health와 SkinCeuticals는 의사 집단의 임상적 권위를 통해 과학적 신뢰를 확보하였으며, Olaplex와 Kérastase는 전문 기술자의 수행 능력을 통해 유사한 기능적 신뢰 구조를 형성하였다. 두 채널에서 권위 매개자의 성격은 다르나, 과학이 기능적 효능으로 번역되어 프리미엄을 정당화한다는 구조적 원리는 동일하게 반복된다.

Proposition 2 (Symbolic Science-Based Legitimacy)

과학 기반 화장품 브랜드가 럭셔리 리테일 또는 약국 채널을 선택할 경우, 과학의 상징적 재현(symbolic representation of science)을 정당성 메커니즘으로 활용하며, 프리미엄 가격은 브랜드 서사와 채널이 제공하는 제도적 신뢰에 의해 정당화된다.

La Mer와 Augustinus Bader는 과학을 혁신 서사와 문화적 위신으로 전환하여 초고가 럭셔리 포지셔닝을 구축하였다. Vichy와 Avène은 과학을 안전성과 제도적 신뢰의 상징으로 활용하여 소비자의 인지적 수용을 이끌어냈다. 두 채널은 상징화의 강도와 프리미엄 수준에서 차이를 보이나, 과학이 직접 증명되기보다 채널의 상징 체계를 통해 간접적으로 정당화된다는 메커니즘은 공유한다.

Proposition 3 (Path Dependence)

두 경로 간 전환(path switching)은 각 경로에서 축적된 정당성 자산의 채널 특수성(channel-specificity)으로 인해 높은 마찰 비용을 수반하며, 전환 과정에서 기존 정당성 자산의 활용이 제한될 가능성이 존재한다. 임상 권위를 기반으로 성장한 브랜드가 럭셔리 채널로 이동할 경우 기능적 신뢰성이 희석될 위험

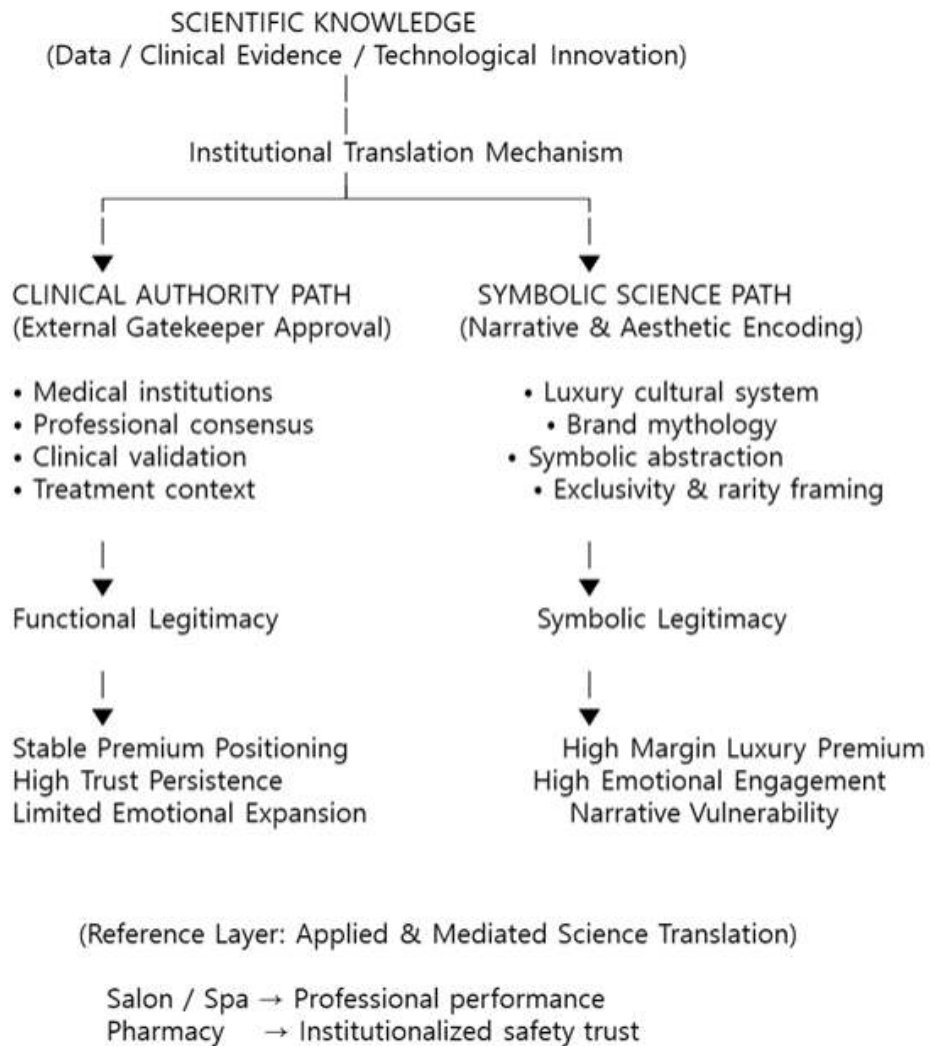
이 존재하며, 반대로 럭셔리 채널에서 구축된 상징 자본은 병의원 채널에서 임상적 권위로 자동 인정받지 못한다. 이는 채널 확장이 단순한 유통 확대가 아니라, 새로운 정당성 체계를 처음부터 구축해야 하는 전략적 과업임을 의미한다.

Proposition 4 (Translation Mechanism)

채널 선택은 브랜드가 과학을 소비자에게 번역하는 방식을 결정하며, 이 번역 방식의 차이가 동일한 과학적 자산에서 출발하는 프리미엄 가치의 차이를 설명한다.

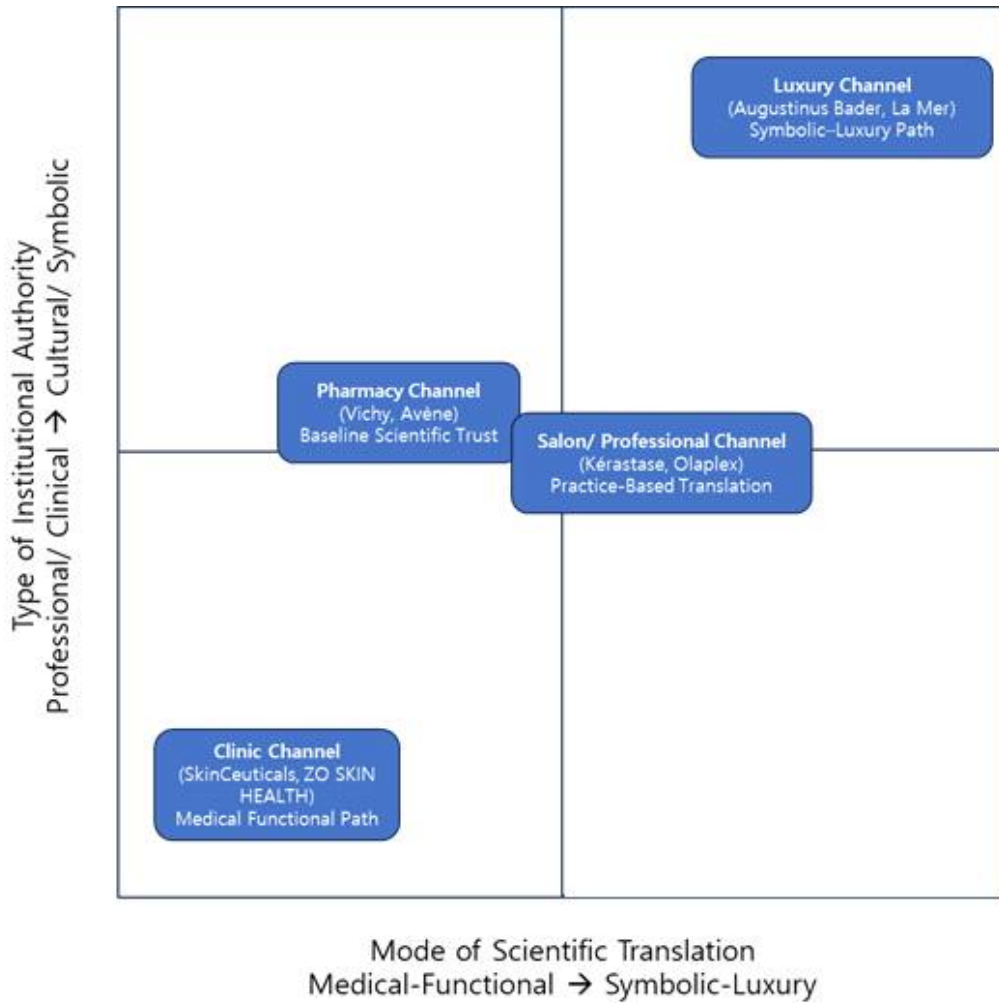
SkinCeuticals와 Augustinus Bader는 모두 강력한 연구개발 기반을 보유하고 있지만, 전자는 임상 데이터와 전문가 검증의 언어를, 후자는 혁신 서사와 희소성의 언어를 통해 소비자에게 과학을 전달한다. 따라서 프리미엄 형성의 차이는 과학의 절대적 수준보다 과학이 어떠한 채널 구조를 통해 번역되는가에 의해 결정된다. 이러한 번역 과정은 소비자가 브랜드의 과학적 자산을 어떠한 가치로 지각하는가에 직접적인 영향을 미친다. 이는 소비자가 지각하는 가치평가가 가격 정당화에 중요한 영향을 미친다는 최근 연구 결과와도 일치한다(윤노엘 외 2024). 윤노엘 외(2024)는 소비자가 브랜드에 대해 높은 가치평가를 형성할수록 가격 정당화 수준 역시 유의하게 증가함을 확인하였다. 본 연구의 사례에서도 채널별 제도적 권위 구조는 과학적 자산 자체보다 소비자가 지각하는 가치의 형성 방식에 영향을 미치며, 이를 통해 프리미엄 가격의 정당화 메커니즘을 형성하는 것으로 해석할 수 있다.

[그림 1] 과학 기반 프리미엄 화장품의 이중경로 (Dual Path) 제도화 메커니즘



주: 과학적 정당성은 유통 채널의 제도적 권위 구조를 통해 두 가지 경로로 프리미엄 가치로 전환된다. 임상 권위 경로(Clinical Authority Path)는 임상 검증과 전문가 권위를 통해 기능적 정당성을 형성하며, 상징적 사이언스 경로(Symbolic Science Path)는 문화적·상징적 의미 체계를 통해 상징적 정당성을 형성한다. 살롱·스파 및 약국 채널은 두 경로의 중간 영역에서 나타나는 정당성 형성의 변형 형태를 보여준다.

[그림 2] 과학 기반 프리미엄 화장품브랜드의 채널별 제도화 포지셔닝 매트릭스 (Institutional Positioning Matrix of Science-Based Premium Brands)



주: 과학 기반 프리미엄 브랜드의 채널별 제도적 포지셔닝을 나타낸다.
X축은 과학의 번역 방식, Y축은 제도적 권위유형을 의미한다.

VI. 결론

1. 연구 결과 요약

본 연구는 8개 글로벌 브랜드의 비교사례분석을 통해, 과학 기반 화장품의 프리미엄 가치가 과학적 자산 자체가 아니라 유통 채널의 제도적 권위 구조 속에서 형성되는 정당성 번역 메커니즘에 의해 결정됨을 확인하였다. 이를 임상 권위 경로와 상징적 사이언스 경로로 구성된 Dual Path Framework로 개념화 하였으며, 4개의 이론적 명제를 도출하였다.

첫째, 과학 기반 브랜드는 유통 채널에 따라 서로 다른 번역 경로를 통해 프리미엄을 형성한다 (Proposition 1, 2). 병·의원 및 프로페셔널 살롱 채널에서는 전문가 집단의 권위를 매개로 과학이 기능적 가치로 전환되는 Clinical Authority Path가 작동하는 반면, 럭셔리 리테일 채널에서는 과학적 자산이 브랜드 서사와 상징 자본으로 재구성되는 Symbolic Science Path가 작동한다. 살롱 채널과 약국 채널은 이 두 경로의 중간 영역에 위치하며, 각각 기능적 번역과 상징적 번역의 실천적·실용적 변형 형태로 이해된다.

둘째, 채널은 단순한 판매 경로가 아니라 과학의 활용 방식과 의미를 규정하는 제도적 해석 장치로 기능한다. 동일한 수준의 과학적 자산을 보유하더라도 브랜드가 위치한 채널에 따라 과학의 역할, 권위의 근원, 소비자 신뢰 형성 방식, 가격 정당화 논리가 구조적으로 달라졌다.

셋째, 각 경로에서 축적된 정당성 자산은 강한 채널 특수성(channel-specificity)을 가지며, 경로 간 전환에는 상당한 마찰 비용이 수반된다(Proposition 3). 임상 권위 경로에서 구축된 의료적 신뢰는 럭셔리 채널에서 상징 자본으로 자동 전환되지 않으며, 그 역도 마찬가지이다.

넷째, 채널 선택은 브랜드가 과학을 소비자에게 전달하는 번역 방식 자체를 결정한다(Proposition 4). 이 번역 방식의 차이가 동일한 과학적 자산으로부터 서로 다른 수준의 가격 프리미엄이 형성되는 핵심 원인이다.

종합하면, 본 연구는 과학 기반 프리미엄 브랜드의 경쟁 우위가 과학적 자산의 절대적 수준보다, 그 자산이 유통 채널의 제도적 권위 구조 속에서 어떠한 방식으로 번역되고 정당화되는지에 의해 결정됨을 보여주었다.

2. 학문적 시사점

본 연구는 국제마케팅 및 브랜드 전략 연구에 다음과 같은 세 가지 학문적 기여를 제공한다.

첫째, 과학적 정당성이 유통채널의 제도적 권위구조를 통해 프리미엄 가치로 전환되는 과정을 설명하는 채널기반 정당성 번역 메커니즘을 제시하였다. 이러한 메커니즘은 Clinical Authority path와 Symbolic Science Path라는 두 개의 경로로 구조화된다. 기존 연구들이 과학적 우수성과 브랜드 성과 간의 관계를 선형적 관점에서 설명하였다면, 본 연구는 동일한 과학적 자산이라도 채널의 제도적 권위 구조에 따라 활용 방식이 달라지고, 그 결과 상이한 프리미엄 가치가 형성될 수 있음을 보여주었다. 이는 프리미엄 형성 과정을 설명하는 새로운 중범위 이론(middle-range theory)으로서의 의의를 가진다.

둘째, 유통 채널을 Suchman(1995)의 제도적 정당성 이론 관점에서 재개념화하였다. 기존 연구들이 채널을 접근성이나 유통 효율성 중심으로 분석하였다면, 본 연구는 채널이 과학적 자산의 의미와 정당성을 규정하는 제도적 권위 구조로 기능함을 밝혔다. Suchman(1995)의 정당성 이론을 적용한 결과, 채널별 제도적 권위 구조가 과학적 자산의 정당화 방식에 차이를 만들어 내는 것으로 나타나, 제도적 정당성 이론이 브랜드 채널 전략 연구에 유효하게 적용될 수 있음을 보여주었다. 나아가 동일한 과학적 자산이 채

널의 제도적 맥락에 따라 서로 다른 정당성 유형으로 전환된다는 발견은, 유통 채널을 정당성 전략의 핵심 변수로 이해해야 함을 시사하며, 이는 채널 전략 연구와 제도이론 연구를 연결하는 새로운 이론적 접점을 제공한다. 셋째, 본 연구는 브랜드 프리미엄 형성을 설명함에 있어 자산(asset) 중심 설명에서 메커니즘(mechanism) 중심 설명으로 분석 단위를 전환하였다. 기존 연구들은 R&D 역량이나 기술 혁신 수준과 같은 자산 보유 여부에 초점을 맞추었으나, 본 연구는 동일한 과학적 자산이 어떠한 제도적 경로를 통해 소비자에게 번역되는지가 프리미엄 형성의 핵심 변수임을 제시하였다.

3. 실무적 시사점

본 연구는 글로벌 프리미엄 브랜드를 구축하고자 하는 경영자와 브랜드 실무자들에게 다음과 같은 시사점을 제공한다.

첫째, 채널 선택은 단순한 유통 전략이 아니라 과학적 자산의 활용 방식을 결정하는 정당성 전략이다. 브랜드는 제품을 어디에서 판매할 것인가를 결정하는 동시에, 보유한 과학을 누구의 권위를 통해, 어떤 언어로 소비자에게 전달할 것인가를 결정하게 된다. 따라서 채널 선택은 과학적 자산의 가치화 방식 전체를 규정하는 핵심 전략적 의사결정으로 이해되어야 한다.

둘째, 채널별로 요구되는 과학 활용 방식은 본질적으로 다르다. 병·의원 채널에서는 임상 데이터와 전문가 네트워크가 핵심 자산이 되며, 럭셔리 채널에서는 브랜드 서사와 상징 자본의 구축이 중요하다. 프로페셔널 살롱 채널은 전문가의 수행적 전문성을 통해 과학을 체험적 가치로 전환하며, 약국 채널에서는 과학성이 차별화 요소라기보다 채널 진입을 위한 기본 신뢰 요건으로 기능한다. 따라서 동일한 과학적 자산을 보유하더라도 채널에 따라 전혀 다른 커뮤니케이션 전략과 파트너십 구조가 요구된다.

셋째, 채널 확장 과정에서 기존 정당성의 자동 이전을 가정해서는 안 된다. 특정 채널에서 축적된 신뢰와 권위는 다른 채널에서 동일한 의미를 갖지 않을 수 있으며, 기존 정당성 자산의 효과가 제한될 가능성이 존재한다. 새로운 채널로 진입할 경우에는 기존 자산을 활용하되, 해당 채널의 제도적 권위 구조에 적합한 방식으로 과학을 재번역하는 별도의 전략을 수립해야 한다.

4. 연구의 한계

본 연구는 비교사례연구를 통해 과학 기반 화장품 브랜드의 채널별 정당성 형성 과정을 분석하고, 이를 바탕으로 Dual Path Framework와 네 개의 이론적 명제를 제안하였다. 따라서 본 연구의 목적은 통계적 일반화(Statistical generalization)가 아닌 분석적 일반화(analytic generalization)에 있으며(Yin, 2018), 제안된 프레임워크와 명제는 향후 실증 연구를 통해 추가적으로 검증될 필요가 있다.

첫째, 표본 추출 및 사례 범위의 한계이다. 본 연구는 채널당 2개씩 총 8개 브랜드를 분석 대상으로 삼았다. 이는 각 채널 내 전형적 패턴을 포착하기에는 충분하나, 채널 내 다양성을 완전히 대표하기에는 제한이 있다. 또한 분석 대상 브랜드가 유럽·북미 시장 중심으로 편중되어 있어, K-뷰티·J-뷰티 등 아시아 시장에서 독자적인 과학 정당성 생태계를 구축하고 있는 브랜드들의 특수성은 반영되지 않았다.

둘째, 동태적 분석의 시간적 한계이다. 본 연구는 특정 시점의 브랜드 포지셔닝을 분석하는 횡단적(cross-sectional) 구조를 취하고 있어, 브랜드가 성장 단계에 따라 채널 전략을 전환하거나 정당성 구조가 진화하는 동태적 과정을 포착하지 못한다. Olaplex의 살롱 전용에서 옴니채널로의 확장과 같이 브랜드의 채널 전략이 시간에 따라 변화하는 과정은 본 연구의 정적 분석 틀로는 충분히 설명되지 않는다.

셋째, 지역적·문화적 편향의 한계이다. 본 연구에서 도출된 Dual Path 구조는 서구 중심의 제도적 맥락

에서 구성된 분석 결과이다. 문화적·제도적 환경이 상이한 아시아, 중동, 신흥 시장에서 동일한 메커니즘이 동일하게 작동하는지는 추가적인 검증이 필요하다.

5. 향후 연구 방향

본 연구의 학술적 한계를 보완하고 정당성 번역 이론을 더욱 정교화하기 위해 다음과 같은 후속 연구를 제안한다.

첫째, 소비자 행동 연구와의 연계를 통한 실증적·계량적 검증이 요구된다. 본 연구가 제시한 Dual Path Framework와 채널별 과학 번역 방식의 차이가 실제 소비자의 브랜드 신뢰, 구매 의도, 프리미엄 가격 수용성에 미치는 영향을 설문조사 및 실험 설계를 통해 검증해야 한다. 동일한 과학적 클레임이 병·의원 채널과 럭셔리 채널이라는 상이한 맥락 속에서 소비자의 지각 구조에 어떻게 다르게 투영되는지를 실험적으로 규명한다면, 본 연구의 인과적 메커니즘을 보다 강력하게 지지할 수 있을 것이다.

둘째, 아시아 시장을 포함한 비교 문화 연구가 필요하다. 특히 한국의 고도화된 더마 코스메틱 브랜드(닥터자르트(Dr.Jart+), 라운드랩(Round Lab) 등)과 일본의 전통적인 과학 기반 스킨케어 브랜드가 형성하는 권위 구조와 프리미엄 논리가 본 연구의 Dual Path 구조와 어떻게 수렴하거나 분기하는지를 비교함으로써, 문화적·제도적 맥락이 과학 번역 방식에 미치는 영향을 분석할 수 있을 것이다.

셋째, 종단적 연구(longitudinal study)를 통한 동태적 진화 경로의 추적이 필요하다. 특정 브랜드가 성장 단계에 따라 유통 채널 전략을 전환하거나 옴니채널로 확장할 때, 기존에 구축된 정당성 자산이 어떻게 재편되거나 약화되는지를 시계열적으로 추적하는 연구는 본 연구의 정적 분석이 포착하지 못한 동태적 과정을 설명하는 데 기여할 것이다.

넷째, 산업 범위의 확장 및 디지털 환경으로의 적용 가능성 검토가 필요하다. 화장품 산업에서 도출된 Dual Path 구조가 헬스케어, 바이오테크, 기능성 식품, 의료기기 등 과학적 증명을 핵심 자산으로 삼는 산업 전반에서도 동일한 원리로 작동하는지 비교 분석할 필요가 있다. 또한 향후 연구에서는 본 연구가 제시한 정당성 번역 메커니즘을 디지털 플랫폼 환경으로 확장하여, 소비자가 생성하는 건강 및 생활 관련 데이터가 AI 기반 디지털 매개체를 통해 어떻게 신뢰 가능한 서비스 가치로 전환되는지, 그리고 이러한 과정에서 어떠한 형태의 제도적 정당성이 형성되는지를 분석할 필요가 있다. 이는 본 연구가 다룬 오프라인 유통 채널의 정당성 구조를 디지털 헬스케어 및 플랫폼 생태계로 확장하는 유의미한 연구 방향이 될 수 있다.

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본 논문의 연구 주제 선정과 논리 전개 과정에서 아낌없는 지도와 세심한 조언을 주신 조동성 교수님
깊은 감사를 드립니다.

Dual Path Framework of Scientific Legitimacy Institutionalization

A comparative Case Study of Premium Value Formation in Science-Based Cosmetics

YU RIM KIM

In recent years, the cosmetics industry has witnessed rapid growth in science-based cosmetics emphasizing scientific research, clinical evidence, and technological innovation. However, even when brands rely on similar scientific foundations, their premium positioning strategies diverge significantly depending on the distribution channels and institutional environments in which they operate. Existing studies have often examined scientific claims in cosmetics or premium branding strategies separately, but relatively little research has explored how scientific legitimacy is institutionally translated into premium value across different channel contexts.

This study addresses this gap by examining how science-based cosmetic brands construct premium positioning through distinct institutional structures embedded within distribution channels. Using a comparative case study approach, the research analyzes eight global brands representing four major channels in the professional beauty market. The medical channel includes SkinCeuticals and ZO Skin Health; the luxury retail channel includes Augustinus Bader and La Mer; the professional salon channel includes Kérastase and Olaplex; and the pharmacy channel includes Vichy and Avène. The findings suggest that although scientific legitimacy is widely employed across all channels, its interpretation and institutionalization vary according to the structural characteristics of each channel. Based on these findings, this study proposes a Dual Path Framework explaining how scientific legitimacy is translated into premium value through channel-specific institutional authority structures. In the medical channel, scientific legitimacy is primarily grounded in clinical validation and dermatologist expertise, forming what this study conceptualizes as a “Clinical Authority Path.” In contrast, the luxury channel constructs premium value through a “Symbolic Science Path,” in which scientific narratives are transformed into symbolic and emotional value through storytelling and luxury branding mechanisms. Meanwhile, salon and pharmacy channels occupy intermediate positions by combining professional expertise with consumer accessibility in different ways. By demonstrating how channel-specific institutional authority structures shape the translation of scientific legitimacy into premium value, this study proposes a Dual Path Framework of premium value formation and contributes to the literature on institutional legitimacy, premium branding, and science-based marketing strategy.

Keywords: science-based cosmetics, premium positioning, institutional legitimacy, distribution channel, Dual Path framework, comparative case study

메커니즘 연구 6권 2호 (2026. 06.)

발행 : 메커니즘 경영학회

발행인 : 백권호

편집위원장 : 백유성

사무 : 서울특별시 서대문구 신촌로 203 7층(대현동, 핀란드타워)

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2026년 06월 30일 발행

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