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Strategic Formulation and Performance Indicators for the Thai Original Equipment Manufacturing (OEM) Industry

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Abstract

This conceptual paper aims to propose strategic frameworks and identify key performance indicators (KPIs) for the Original Equipment Manufacturer (OEM) industry in Thailand with particular emphasis on the dietary supplement health and beauty sectors. The study adopts an integrative approach based on an extensive literature review and synthesis of prior empirical studies in the areas of strategic management marketing digital leadership Buddhist-based leadership and Environmental Social and Governance (ESG) frameworks.

The findings suggest that an effective strategic model for the Thai OEM industry should be structured around five foundational pillars (1) enhancing competitive advantage through Smart Factory and digital integration (2) fostering product innovation via collaborative ecosystems (3) developing human capital through ethical and value-based leadership (4) strengthening industrial infrastructure and networks (5) promoting brand equity through ESG-driven sustainability practices.

Key performance indicators include the Labor Productivity Index, the ratio of research and development (R&D) expenditure to total revenue, and the achievement of international certification standards. In addition corporate credibility and digital

communication channels are identified as critical factors influencing the decision-making of modern entrepreneurs.

This study contributes by offering an integrated conceptual framework that links strategic formulation with measurable performance indicators. The proposed model provides practical implications for OEM practitioners seeking to enhance operational efficiency and long-term competitiveness, as well as policy recommendations to support Thailand's transition toward a high-value, innovation-driven manufacturing economy.

Keywords: OEM Industry, Strategic Formulation, Key Performance Indicators (KPIs), Nutraceutical Innovation, ESG Sustainability

Introduction

In the era of Economy 4.0 the Original Equipment Manufacturer (OEM) industry particularly within the nutraceutical health and beauty sectors has emerged as a critical driver of Thailand's economic development. (Dindar, 2025). This growth is largely fueled by increasing consumer health awareness and the rapid expansion of e-commerce platforms. (Worapongpat, 2025h). However amid intensifying global competition and ongoing technological disruption Thai OEM enterprises face significant challenges in sustaining competitive advantage ensuring rigorous quality standards and responding to increasingly diverse and sophisticated demands from brand owners including direct sales businesses SMEs and digital influencers. (Pamukcu, 2025).

In response to these challenges the development of robust strategic frameworks and the institutionalization of comprehensive Key Performance Indicators (KPIs) across management marketing and governance dimensions have become essential. (Lundgren, Viganò, 2024). Prior studies have emphasized the importance of marketing effectiveness organizational capabilities and leadership in enhancing firm performance. In particular service marketing mix factors digital transformation and sustainability-oriented practices have been identified as key drivers of industrial competitiveness. (Worapongpat, 2025g). Additionally emerging perspectives on ethical and value-based leadership including those grounded in cultural and philosophical traditions, have been increasingly

recognized as contributing to long-term organizational resilience and employee well-being. (Park, et. al., 2025).

Despite the growing body of literature there remains a significant research gap in the integration of these multidisciplinary perspectives into a unified strategic framework tailored specifically to the Thai OEM context. (Lexé, Lago, 2023). Existing studies often examine individual dimensions such as marketing performance, leadership or ESG practices in isolation without providing a holistic model that connects strategic formulation with measurable performance indicators. (Worapongpat, 2025 f). Furthermore, limited attention has been given to contextualizing global strategic and sustainability frameworks within Thailand's socio-cultural and industrial landscape. (Karintseva, et. al., 2025).

Therefore, this study aims to propose an integrated strategic framework and corresponding KPIs for the Thai OEM industry through a systematic synthesis of relevant literature. (Pekarcikova, et. al., 2025). The framework incorporates key dimensions including service marketing management digital leadership, ESG principles and ethical leadership inspired by Buddhist philosophy in order to develop a comprehensive and context-sensitive model. (Nielsen, 2023).

The contribution of this paper lies in advancing a conceptual model that links strategic formulation with actionable performance metrics offering practical implications for OEM practitioners in areas such as production planning human capital development and network collaboration. (Worapongpat, 2025 e). In addition the study provides strategic insights for policymakers seeking to enhance the global competitiveness of the Thai OEM sector and to support its transition from cost-based manufacturing toward a high-value innovation-driven economy.

1. Core Content Analysis

1.1 Strategic Objectives Formulation

The strategic framework for the administration and advancement of the Thai OEM industry should be anchored in the paradigm of a "Smart, Sustainable, and Competitive OEM Industry."

Table 1: Strategic Dimensions and Objectives for the Thai OEM Sector

Dimension	Strategic Objectives	Rationale and Description
1. Competitiveness (Worapongpat, 2025d).	Augmenting manufacturing excellence, technological integration, and operational quality.	To mitigate reliance on low-cost labor advantages and pivot toward value-based competitive positioning.
2. Innovation & R&D (Worapongpat, 2025a).	Advancing specialized knowledge, proprietary technologies, and product innovation.	To facilitate the industrial transition from OEM to Original Design Manufacturer (ODM) and eventually to Original Brand Manufacturer (OBM).
3. Sustainability (ESG) (Worapongpat, 2025b).	Institutionalizing eco-friendly, transparent, and equitable production systems.	To align with global Environmental, Social, and Governance (ESG) standards and the Bio-Circular-Green (BCG) economic model.
4. Human Capital Development (Worapongpat, 2025c).	Upskilling and reskilling personnel across production, engineering, marketing, and management.	To enhance labor productivity in alignment with Industry 4.0 requirements.
5. Industrial Linkage (Nacchiero, 2025).	Fostering collaborative networks among OEMs,	To cultivate a robust "Innovation Ecosystem"

Dimension	Strategic Objectives	Rationale and Description
	SMEs, Startups, and academic institutions.	through strategic synergies.
6. Reputation & Trust (Werner, 2023).	Strengthening the "Thai OEM: Global Standards" brand identity.	To bolster corporate credibility and penetrate regional and international markets.

2. Strategic Planning Framework

The overarching strategic framework for the Thai OEM industry is structured into five core pillars, each integrated with measurable Key Performance Indicators (KPIs) to ensure systemic development and global competitiveness.

Strategy 1: Elevating Competitive Capabilities

Operational Objectives Transitioning manufacturing systems toward Smart Factory and Digital OEM paradigms.

Promoting comprehensive international standard certifications (e.g., GMP, ISO, Halal, and ESG).

Establishing the National OEM Manufacturing Technology Center as a central hub for industrial excellence.

Key Performance Indicators (KPIs) A minimum of 60% of OEM facilities integrating digitalized systems within a five-year horizon.

An annual 10% increase in the number of enterprises attaining international standard certifications.

Strategy 2: Cultivating Collaborative Innovation and R&D Systems

Operational Objectives: Accelerating the development of "Prototype R&D" for innovative product formulations.

Fostering R&D collaborations between OEMs and academic/research institutions (e.g., NSTDA, TSRI).

Developing the Thai OEM Innovation Hub as a digital platform for research synergy.

Key Performance Indicators (KPIs): The annual volume of new product innovations generated through collaborative research.

The ratio of R&D investment to total revenue maintained at $\geq 2\%$.

Strategy 3: Human Capital Development and Managerial Competency

Operational Objectives: Curating the "Digital OEM Management Program" tailored for executive leadership.

Advancing specialized skills in R&D, Data Analytics, and ESG Management.

Institutionalizing "Reskilling & Upskilling" initiatives via a dedicated OEM Academy.

Key Performance Indicators (KPIs):

The annual count of personnel successfully completing specialized professional training.

An annual 5% growth in the Labor Productivity Index.

Strategy 4: Strengthening Ecosystems and Collaborative Networks

Operational Objectives: Establishing regional OEM Clusters categorized by sector (Food, Health, Cosmetics, and Pharmaceuticals).

Forging strategic alliances with Startups, Logistics providers, and Branding agencies.

Adopting the Triple Helix Model (Government–Industry–Academia) to drive industrial growth.

Key Performance Indicators (KPIs): The annual proliferation of newly established collaborative networks. The year-on-year increase in the value of co-investments within the industrial sector.

Strategy 5: Brand Evolution and Global Sustainability

Operational Objectives: Promoting the "Thai OEM Standard" as a mark of global quality assurance.

Propelling export growth through integrated international e-Marketplace platforms.

Formulating guidelines for Green OEM operations and comprehensive ESG Reporting.

Key Performance Indicators (KPIs):

An annual export value growth rate for the OEM sector of $\geq 15\%$.

The annual increment in the number of OEM firms publishing formal ESG Reports.

3. Action Plan Development

3.1 Strategic Action Plan Formulation

The formulation of a Strategic Action Plan is executed through four fundamental phases, ensuring a systematic transition from theoretical framework to operational reality.

Table 2: Phases of Strategic Action Plan Development

Phase	Description	Key Deliverables
1. Strategic Diagnosis (Worapongpat, 2023a).	Conducting a comprehensive situational analysis utilizing SWOT/TOWS Matrix to evaluate the Thai OEM industrial landscape.	Identification of critical strategic imperatives.
2. Strategic Formulation (Worapongpat, 2023b).	Defining core strategies long-term objectives, and systematic operational guidelines.	A comprehensive Strategic Master Plan.
3. Action Plan Development (Worapongpat, 2024a).	Deconstructing broad strategies into actionable sub-projects, such as the	Annualized operational plans with budgetary allocations.

Phase	Description	Key Deliverables
	"Digital OEM Upgrade Project."	
4. Monitoring & Evaluation (M&E) (Worapongpat, 2024b).	Institutionalizing a robust evaluation system based on pre-defined KPIs and outcome-based metrics.	Continuous improvement and iterative planning based on empirical results.

4. Organizational Action Plan: Practical Application (OEM Factory Example)

Strategic Objectives	Programs / Action Plans	Outcome Indicators
Optimizing Operational Efficiency	Smart Production System Initiative	Reduction in production waste to < 2% annually.
Fostering Product Innovation	Functional Nutraceutical Formulation Project	Development of ≥ 5 new product innovations per annum.
Human Capital Advancement	Digital Manufacturing Specialized Training	≥ 80% certification rate among participating personnel.
Global Market Penetration	Thai OEM Brand Equity Initiative	Export value growth of ≥ 10% per annum.
Advancing Sustainability	Green OEM Initiative	≥ 20% reduction in energy consumption within a 3-year horizon.

5. Conceptual Strategic Planning Model

The strategic architecture for the Thai OEM industry follows a hierarchical and integrated flow, ensuring alignment from vision to policy feedback:

VISION

STRATEGIC OBJECTIVES

STRATEGIC THEMES (Competitiveness | Innovation | Sustainability | Human Capital | Linkage)

STRATEGIES (5 Core Strategic Pillars)

ACTION PLANS (Specific Projects & Programs)

KEY PERFORMANCE INDICATORS (KPIs)

MONITORING & LEARNING (M&E System & Iterative Evaluation)

ORGANIZATIONAL DEVELOPMENT & POLICY FEEDBACK

Research Methodology

This study adopts a conceptual research design based on a systematic literature synthesis approach. The objective is to integrate multidisciplinary knowledge relevant to strategic formulation and performance measurement within the Thai Original Equipment Manufacturer (OEM) industry.

The research process involves a comprehensive review of both theoretical and empirical studies drawn from key domains including strategic management service marketing digital leadership Environmental Social and Governance and ethical leadership grounded in Buddhist philosophy. Academic journal articles policy reports and industry-related publications were systematically examined to identify recurring themes critical success factors and relevant performance indicators.

The selection of literature was guided by relevance to the OEM industry context conceptual contribution and applicability to emerging economies particularly Thailand. Sources published in both domestic and international contexts were considered to ensure a balanced and comprehensive perspective.

The analytical process employed a thematic synthesis technique whereby key concepts and findings from the reviewed literature were categorized and integrated into coherent strategic dimensions. These dimensions were subsequently developed into a

unified strategic framework consisting of core strategic pillars and corresponding Key Performance Indicators.

To enhance the robustness of the framework triangulation was applied by comparing insights across different streams of literature including management theory industrial practice and sustainability frameworks. This integrative approach enables the development of a holistic model that reflects both global best practices and the specific socio-economic context of the Thai OEM industry.

It should be noted that this study does not involve primary data collection or statistical analysis. Instead its contribution lies in conceptual development and theoretical integration providing a foundation for future empirical validation.

Discussion

The findings of this study contribute to the growing discourse on strategic transformation in manufacturing industries, particularly within emerging economies. The proposed five-pillar framework aligns with Porter's concept of competitive advantage emphasizing the shift from cost-based competition toward differentiation through innovation and quality. (Ahmed, 2026). In comparison with Kaplan and Norton's Balanced Scorecard approach the KPIs identified in this study extend beyond financial and operational metrics to incorporate ESG and human capital dimensions, reflecting the evolving priorities of modern industrial ecosystems.

Moreover the integration of digital leadership corresponds with Industry 4.0 paradigms, where data-driven decision-making and automation are critical drivers of productivity. This is consistent with prior studies highlighting the role of digital transformation in enhancing manufacturing competitiveness. (Chen, et. al., 2025). A distinctive contribution of this study lies in the incorporation of Buddhist-based leadership principles, which introduce an ethical and human-centric dimension rarely addressed in conventional strategic management literature. This perspective complements ESG frameworks by strengthening the social and governance components through moral leadership and employee well-being.

However as this study is conceptual in nature the proposed framework requires empirical validation in real-world industrial settings. Future research should test the

relationships between strategic pillars and performance outcomes using quantitative or mixed-method approaches.

Conclusion

This study presents an integrated strategic framework for the Thai OEM industry by synthesizing multidisciplinary knowledge across strategic management digital transformation and ethical leadership. The proposed model provides a structured approach linking vision strategy action plans and Key Performance Indicators enabling organizations to transition toward a high-value, innovation-driven paradigm.

The findings highlight that sustainable competitiveness in the OEM sector is not solely dependent on technological advancement but requires a balanced integration of innovation human capital development collaborative ecosystems and ESG-oriented governance.

Limitations:

This study is conceptual in nature and relies primarily on secondary data and literature synthesis. It does not incorporate primary empirical data or statistical validation which may limit the generalizability of the proposed framework.

Future Research Directions:

Future studies should focus on empirical testing of the proposed OEM Strategic Synergy Model (OEM-SSM) particularly examining the causal relationships between strategic implementation and organizational performance. Additionally comparative studies across different industrial sectors or countries would further enhance the robustness and applicability of the framework.

Ultimately this research provides a foundational platform for both academic inquiry and practical application supporting the transformation of Thai OEM enterprises into globally competitive and sustainability-driven organizations.

Summary

The strategic administration and advancement of the Thai OEM industry under this integrated framework transcend mere operational efficiency it represents the creation of a sophisticated Innovation Ecosystem that tangibly merges technology

human capital and Environmental Social and Governance (ESG) standards. The establishment of precise KPIs empowers enterprises to benchmark their capabilities and remain resilient amidst global market dynamics. Ultimately this transition will propel Thai OEMs from conventional contract manufacturers to Value-Driven Innovation Partners. This leads to a critical concluding inquiry As technological disruptions redefine the global landscape are Thai OEM entrepreneurs prepared to reconfigure their organizational DNA toward comprehensive and enduring sustainability

Strategic Matrix: The Convergence of Strategy, Action Plans, and Key Performance Indicators (KPIs)

The implementation of the Thai OEM industrial framework is conceptualized through a strategic matrix that aligns long-term visions with granular operational projects and quantifiable outcomes.

Table 3: Integrated Strategic Matrix for the Thai OEM Industry

Strategy	Action Plans / Illustrative Projects	Key Performance Indicators (KPIs)
1. Smart OEM Transformation	Implementation of Industrial Automation and Big Data Analytics within manufacturing cycles.	• Percentage of digitalized manufacturing facilities (Target: >60%). • Rate of new international standard certifications (e.g., ISO, GMP).

Strategy	Action Plans / Illustrative Projects	Key Performance Indicators (KPIs)
2. Collaborative R&D Innovation	The "Thai OEM Innovation Hub" initiative for prototype formulation in partnership with academic institutions.	• Volume of new Product SKUs derived from collaborative research. • R&D Intensity: Ratio of R&D expenditure to total revenue (Target: $\geq 2\%$).
3. Leadership & Human Capital Development	Digital & Ethical Leadership curricula for executives and specialized Workforce Upskilling programs.	• Labor Productivity Index (Target: 5% annual growth). • Employee Engagement and Well-being Index.
4. Strengthening Industrial Ecosystems	Formation of Regional OEM Clusters and strategic business matching with Startups and Logistics providers.	• Number of newly formalized strategic alliances and Memoranda of Understanding (MoUs).

Strategy	Action Plans / Illustrative Projects	Key Performance Indicators (KPIs)
		Total value of co-investment within the industrial supply chain.
5. Sustainable Global Branding	The "Green OEM Initiative" and institutionalization of formal ESG Sustainability Reporting.	- Export value growth rate (Target: $\geq 15\%$ per annum). - Net reduction in energy consumption or carbon footprint intensity.

New Contribution to Knowledge

Through the systematic synthesis and rigorous analysis of literature pertaining to the Thai OEM industry this study establishes a novel integrated framework for sustainability and competitive advantage designated as the OEM Strategic Synergy Model (OEM-SSM). This model conceptualizes the multifaceted dynamics required for industrial evolution.



Figure 2: The OEM Strategic Synergy Model (OEM-SSM) for Industrial Development

Figure 2 elucidates the symbiotic interaction between four core pillars that dictate the success of contemporary OEM enterprises:

Strategic Leadership & Human Capital: This pillar integrates Buddhist Governance (specifically the principles of Iddhipada IV and Brahmavihara IV) with Digital Leadership. The objective is to cultivate employee well-being and psychological capital, which serve as the foundational catalysts for enhancing Labor Productivity and driving strategic execution.

Marketing & Service Excellence: By leveraging the Service Marketing Mix (7Ps) framework, this dimension emphasizes the cultivation of Institutional Trust and corporate credibility via digital media. This is strategically designed to attract modern brand owners, including high-growth SMEs and digital influencers.

Operational Innovation: This represents the industrial transition from conventional manufacturing to R&D Expertise. By utilizing Smart Factory systems, OEMs can achieve significant waste reduction and optimize the nexus between cost-efficiency and uncompromising quality.

ESG Integration: This involves the systematic institutionalization of Environmental, Social, and Governance (ESG) criteria across the entire value chain. This integration fosters a Green OEM identity, ensuring alignment with increasingly stringent global trade regulations and sustainability standards.

Synthesis of the Novel Contribution

The OEM-SSM demonstrates that strategic formulation for Thai OEMs can no longer rely solely on operational efficiency. Instead it necessitates a sophisticated convergence of Soft Power (Ethics and Virtuous Leadership) and Hard Technology (Digitalization and R&D). This synergy, governed by the ESG framework generates a balanced set of Key Performance Indicators (KPIs) that harmonize short-term profitability with long-term organizational resilience and global sustainability.

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