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**GENERATIVE ARTIFICIAL INTELLIGENCE AS INFRASTRUCTURE
OF MARKETING OPERATIONAL EFFICIENCY: A FIVE-DIMENSIONAL
FRAMEWORK FOR EMERGENT EFFICIENCY**

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Abstract. Problem. The increasing integration of Generative Artificial Intelligence into marketing activities poses a theoretical challenge concerning its role within marketing management systems. Existing studies predominantly examine Generative Artificial Intelligence as a discrete analytical device, while limited attention has been devoted to its function as an embedded operational infrastructure shaping organizational capabilities and efficiency. **Methodology.** A conceptual systematic literature review was conducted on peer-reviewed publications indexed in the Web of Science, Scopus, and Russian Science Citation Index databases for the period 2015–2025. Following predefined selection criteria, 87 publications were included in the analysis. Thematic synthesis was performed using NVivo 14 software, and coding reliability was verified by two independent coders, resulting in Cohen's kappa coefficient of 0.84. The analysis was informed by the theoretical perspectives of the Resource-Based View, Dynamic Capabilities, Market Orientation, Marketing Agility, and Systemic Economics. **Research Results.** A theoretical framework is developed that reconceptualizes Generative Artificial Intelligence as an infrastructural component of marketing management rather than a standalone technological instrument. Five dimensions of emergent efficiency are identified: Structural Adaptability, Process Elasticity, Temporal Compression, Reliability Stabilization, and Scalable Orchestration. The concept of infrastructural operant capital was proposed as an extension of the Resource-Based View, and dynamic capabilities were reframed as infrastructure-embedded organizational properties. **Practical Application.** The proposed framework may be applied to the design and management of artificial-intelligence-enabled marketing systems. Practical implications include support for strategic resource allocation, capability development, organizational design, performance measurement, risk management, and talent development, thereby facilitating the effective integration of Generative Artificial Intelligence into contemporary marketing management practices.

Keywords: generative artificial intelligence, strategic marketing management, dynamic capabilities, marketing agility, infrastructural operant capital, market orientation, systematic literature review, emergent efficiency, marketing infrastructure

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Научная статья

**ГЕНЕРАТИВНЫЙ ИСКУССТВЕННЫЙ ИНТЕЛЛЕКТ В КАЧЕСТВЕ
ИНФРАСТРУКТУРЫ ОПЕРАЦИОННОЙ ЭФФЕКТИВНОСТИ МАРКЕТИНГА:
ПЯТИМЕРНАЯ КОНЦЕПТУАЛЬНАЯ МОДЕЛЬ ДЛЯ ПОВЫШЕНИЯ
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Аннотация. Проблема. Возрастающая интеграция генеративного искусственного интеллекта в маркетинговую деятельность создает теоретическую проблему, связанную с его ролью в системах маркетингового управления. В существующих исследованиях генеративный искусственный интеллект преимущественно рассматривается как автономный аналитический инструмент, тогда как его функция как встроенной операционной инфраструктуры, влияющей на организационные способности и эффективность, изучена недостаточно. **Методология.** Проведён концептуальный систематический обзор литературы на основе рецензируемых публикаций, индексируемых в базах данных Web of Science, Scopus и Российского индекса научного цитирования за период 2015–2025 годов. В анализ включено 87 публикаций, отобранных по заданным критериям. Тематический синтез выполнен с использованием программного обеспечения NVivo 14. Надёжность кодирования проверена двумя независимыми кодировщиками, коэффициент согласованности Коэна составил 0,84. Анализ осуществлялся на основе ресурсно-ориентированного подхода, теории динамических способностей, концепции рыночной ориентации, маркетинговой гибкости и системной экономики. **Результаты исследования.** Разработана концептуальная модель, переосмысляющая генеративный искусственный интеллект как элемент маркетинговой инфраструктуры, а не как самостоятельный технологический инструмент. Выделены пять измерений возникающей эффективности: структурная адаптивность, процессная эластичность, временная компрессия, стабилизация надёжности и масштабное соответствие. Предложено понятие инфраструктурного операционного капитала как расширение ресурсно-ориентированного подхода, а динамические способности переосмыслены как встроенные в инфраструктуру организационные свойства. **Практическое применение.** Разработанная концептуальная модель может применяться при проектировании и управлении маркетинговыми системами на основе искусственного интеллекта. Практическая значимость заключается в поддержке стратегического распределения ресурсов, развития организационных способностей, проектирования организационной структуры, оценки эффективности, управления рисками и развитием персонала, что способствует эффективной интеграции генеративного искусственного интеллекта в современные практики маркетингового управления.

Ключевые слова: генеративный искусственный интеллект, стратегическое маркетинговое управление, динамические способности, маркетинговая гибкость, инфраструктурный операционный капитал, рыночная ориентация, систематический обзор литературы, возникающая эффективность, маркетинговая инфраструктура

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Introduction

The past five years have witnessed a structural transformation in the relationship between artificial intelligence and marketing practice. According to McKinsey and Company, 73 per cent of senior marketing executives report that generative artificial intelligence has been deployed in some capacity within their organizational workflows¹. Yet, as Gartner observes, a substantial proportion of these deployments fail to move beyond experimental adoption, remaining bounded by what may be described as the analytical augmentation paradigm – a conceptual orientation that frames GenAI as a supplementary tool improving the efficiency of discrete tasks without altering the underlying architecture of the marketing system².

The analytical augmentation paradigm has its intellectual origins in early automation literature, which positioned information technology as an instrument reducing manual effort at the operational margin³. Applied to marketing, this orientation has produced implementations characterized by task-level optimization: sentiment analysis, automated copywriting, programmatic media buying, and predictive churn modelling. Each yields measurable returns; however, collectively they represent the substitution of labour rather than a transformation of the organizational system that allocates, coordinates, and governs that labour.

The limitations of this paradigm become apparent when contemporary technical capabilities are assessed against its conceptual premises. Large language models and multi-agent orchestration architectures do not merely accelerate existing workflows; they alter the topology of those workflows by enabling real-time reconfiguration, elastic scaling without proportional cost, and autonomous coordination across previously siloed functional domains [1; 2]. Kumar, Ashraf and Nadeem have systematically mapped how AI reshapes marketing functions, noting that automation of repetitive tasks is only the first stage [3]. These properties are infrastructural in character. Infrastructure, as understood within the socio-technical systems literature, is characterized not by task specificity but by generativity: the capacity to support a broad and evolving range of activities without requiring redesign for each new application [4].

Despite the scale of GenAI deployment in marketing and the infrastructural character of its technical properties, the marketing management literature has not yet produced a coherent theoretical framework that accounts for GenAI as embedded infrastructure rather than as an isolated analytical instrument. Existing contributions either focus on specific applications of GenAI within marketing functions [5; 6] or offer broad technological assessments lacking marketing-theoretical grounding⁴. Prasanna and Kushwaha have recently synthesized the foundational trends of GenAI in marketing, confirming the shift from task-level tools toward systemic infrastructure [7]. The research question motivating this study is therefore: How can generative artificial intelligence be reconceptualized as embedded operational infrastructure within marketing management systems, and what dimensions of emergent efficiency does this reconceptualization make analytically tractable?

To address this question, the study employs a systematic literature review extended to theoretical framework development, a methodology increasingly accepted in leading marketing and management journals [8; 9]. The resulting framework, which identifies five dimensions of emergent efficiency, serves as both a theoretical contribution to marketing strategy and a practical instrument for marketing managers undertaking GenAI infrastructure decisions.

Purpose and Objectives of the Study

The primary aim of this study is to develop a theoretically grounded framework for understanding generative artificial intelligence as embedded operational infrastructure within marketing management systems, thereby moving beyond the analytical augmentation paradigm.

Five specific objectives follow from this aim. *The first* is to reconceptualize GenAI as infrastructure rather than as a tool, drawing on the socio-technical systems literature and the resource-based logic of operant capital. *The second* is to extend the Resource-Based View [10] through the concept

¹ McKinsey & Company. The State of AI in Marketing. McKinsey Global Institute, 2024.

URL: <https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/the-state-of-marketing>.

² Gartner. AI Adoption in Marketing: Deployment Patterns, Failure Modes, and Governance Challenges. Gartner Research, 2023. URL: <https://www.gartner.com/en/marketing/research>.

³ Deloitte. Generative AI in Marketing: Applications, Risks, and Organizational Readiness. Deloitte Insights, 2024. URL: <https://www2.deloitte.com/us/en/insights/industry/technology/generative-ai-marketing.html>.

⁴ Boston Consulting Group. GenAI Productivity Gains in Marketing Functions. BCG, 2024. URL: <https://www.bcg.com/publications/2024/genai-marketing-productivity>.

of infrastructural operant capital, which captures the value-generating properties of embedded artificial intelligence (AI) systems that are difficult to imitate because they are organizationally entangled. *The third objective* is to reframe dynamic capabilities [11] as infrastructure-embedded properties that inhere in system architecture and manifest as organizational responsiveness without requiring managerial intervention for each activation. *The fourth objective* is to integrate Systemic Economics [11] as a theoretical anchor for understanding the whole-system equilibrium effects that emerge when GenAI infrastructure is coherently embedded across marketing functions. *The fifth objective* is to propose a five-dimensional framework of emergent efficiency that translates these theoretical insights into constructs tractable for research and actionable for management.

Research Methods

This study is a systematic literature review that extends to theoretical framework development. Following the foundational SLR protocol of Tranfield, Denyer, and Smart [12], and consistent with the conceptual SLR methodology endorsed by Paul and Criado [8] and Paul and Barari [9], the review process comprised three phases: planning, conducting, and reporting. Three databases were selected: Web of Science, Scopus, and the Russian Science Citation Index (RSCI). The temporal boundary was set at January 2015 to December 2025.

Five Boolean search strings were deployed: (1) "generative artificial intelligence" AND "marketing"; (2) "GenAI" OR "large language model" AND "marketing strategy"; (3) "AI infrastructure" AND "marketing operations"; (4) "dynamic capabilities" AND "artificial intelligence" AND "marketing"; (5) "marketing agility" AND "automation" AND "AI". The initial search returned 2,341 records. Following deduplication ($n = 412$ removed), title and abstract screening ($n = 1,148$ excluded), full-text eligibility assessment ($n = 694$ excluded), and quality appraisal using the Critical Appraisal Skills Programme (CASP) checklist, a final corpus of 87 articles was retained. The complete selection process is documented in Figure 1, which presents the PRISMA flow diagram.

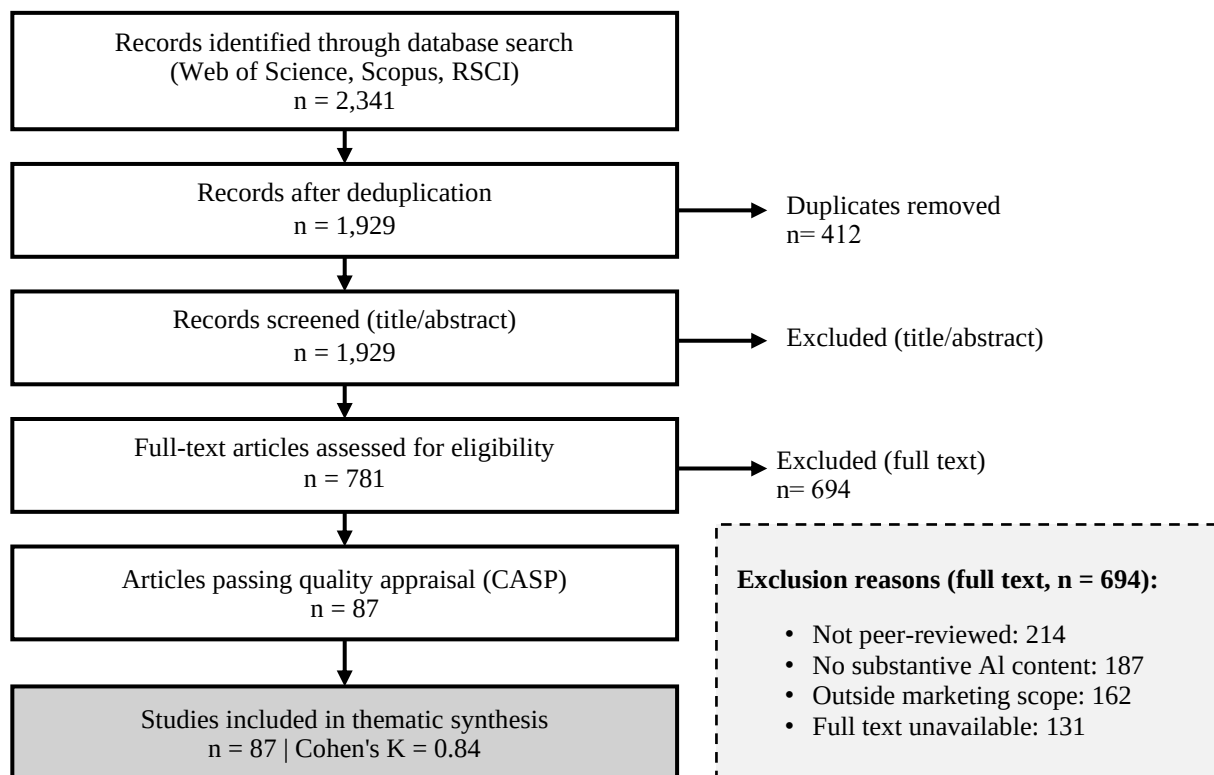


Figure 1 – PRISMA Flow Diagram of the Systematic Literature Review Process
Рисунок 1 – Блок-схема PRISMA процесса систематического обзора литературы

Two independent coders conducted thematic analysis using NVivo 14 software. Inter-rater reliability was assessed using Cohen's kappa, yielding a coefficient of 0.84, which exceeds the 0.80 threshold recommended for management research [13]. Basu, Aktar and Kumar applied a systematic performance analysis and review approach to examine the interplay of artificial intelligence, machine learning,

and data analytics in digital marketing and promotions [14]. Mikalef, Gupta, Pappas and Krogstie adopted a similar systematic performance analysis approach for AI-marketing studies [15]. A data extraction form was applied to each of the 87 papers, recording: theoretical framework employed; AI technology type; marketing function addressed; unit of analysis; method type; key findings relevant to AI capabilities or marketing process change; and implications for marketing management. Table 1 presents the thematic coding structure derived from this process.

Table 1 – Summary of Thematic Coding Structure
Таблица 1 – Краткое описание структуры тематического кодирования

Theme	N (papers)	Example codes
GenAI as Tool vs. Infrastructure	87	"analytical augmentation", "task automation", "peripheral support", "embedded capability"
Structural Adaptability	43	"modular design", "API integration", "dynamic reconfiguration", "workflow flexibility"
Process Elasticity	38	"scaling", "cognitive resource allocation", "demand fluctuation", "variable workload"
Temporal Compression	35	"response time", "decision velocity", "real-time action", "latency reduction"
Reliability Stabilization	29	"governance", "guardrails", "compliance", "brand safety", "risk monitoring"
Scalable Orchestration	31	"multi-agent", "coordination", "microservices", "orchestration layer"

Use of Artificial Intelligence. Gemini Pro 3.1 was used during the preparation of this manuscript for limited language editing and improvement of English grammar, spelling, and readability. The tool was not used to generate scientific content, perform data analysis, interpret results, or formulate conclusions. AI-assisted editing was minor and restricted to linguistic refinement of selected sentences. All scientific content, analyses, interpretations, and conclusions were reviewed and verified by the authors. The prompts used for language editing and the corresponding outputs are provided in Supplementary Material S1.

Research Results and Their Discussion

The Tool–Infrastructure Distinction: Theoretical and Operational Criteria. The central theoretical move of this paper is the distinction between generative AI as a tool and generative AI as infrastructure. The tool conception frames GenAI as a discrete instrument deployed by a user to accomplish a specific task. The infrastructure conception frames GenAI as a layer of the organizational architecture that conditions the possibilities of action across a range of tasks without being reducible to any one of them [16]. Infrastructure is characterized by generativity, embeddedness, criticality, and operational invisibility [4; 17]. Table 2 presents the operational criteria distinguishing these two conceptions.

Table 2 – Operational Criteria Distinguishing GenAI as Tool vs. Infrastructure
Таблица 2 – Операционные критерии, позволяющие различать GenAI как инструмент и как инфраструктуру

Criterion	GenAI as Tool	GenAI as Infrastructure
Deployment mode	Discrete, task-by-task invocation	Continuously embedded in system logic
Dependency	User-activated	System-activated, autonomous
Scope of effect	Single function or task	Cross-functional, systemic
Replaceability	Substitutable without structural consequence	Removal disrupts systemic operation
Value generation	Efficiency at task margin	Emergent capability across system
Managerial focus	Task optimization decisions	Infrastructure design and governance
Metric type	Output: speed, volume, cost per task	Capability: response velocity, adaptability rate

Theoretical Foundations of the Framework. The five-dimensional framework draws on five theoretical anchors, each extended or reframed to accommodate the infrastructural character of GenAI. The Resource-Based View (Barney, 1991) [9] provides the foundational logic of value creation through resources that are valuable, rare, inimitable, and non-substitutable. The present framework extends this

logic through the concept of infrastructural operant capital, a class of organizational resource whose value derives from its capacity to potentiate what the organization can do across a broad range of marketing activities. GenAI infrastructure, once deeply embedded, acquires path-dependent and causally ambiguous properties that constitute the basis of sustained competitive advantage.

Dynamic Capabilities theory (Teece, Pisano, and Shuen, 1997) [10] holds that sustained advantage in rapidly changing environments requires organizational capacities to sense opportunities, seize them, and reconfigure resources accordingly. The present framework reframes these capabilities as infrastructure-embedded properties: sensing is accomplished by real-time data processing systems; seizing by automated activation of pre-specified response protocols; and reconfiguration by modular system architectures that restructure without human intervention. Market Orientation (Narver and Slater, 1990) [18] emphasizes organizational commitment to generating, disseminating, and acting on market intelligence. GenAI infrastructure radically accelerates each of these processes, collapsing the interval between intelligence generation and operational response from weeks to minutes. Marketing Agility [19; 20] captures the capability to adjust marketing actions rapidly; within an infrastructure-embedded conception, agility becomes a system property rather than a purely human capability. Grewal, Saturnino, Davenport and Guha further argue that GenAI fundamentally alters marketing workflows by shifting trade-offs between automation and human augmentation [21]. Abbas and Ali provide empirical evidence that AI adoption is a direct antecedent of marketing agility [22]. Systemic Economics introduces system-level equilibrium as a criterion for organizational performance [11], providing the theoretical basis for the emergent quality of the efficiency gains described in this framework.

The Five Dimensions of Emergent Efficiency. The thematic synthesis of the 87-article corpus yielded six thematic clusters (Table 1). The distinction between GenAI as tool and as infrastructure provided the organizing premise of the framework. The remaining five clusters correspond to the five dimensions described below. Figure 2 presents the full conceptual framework with its theoretical anchors, while Figure 3 depicts the directional interdependencies and recommends implementation sequence.

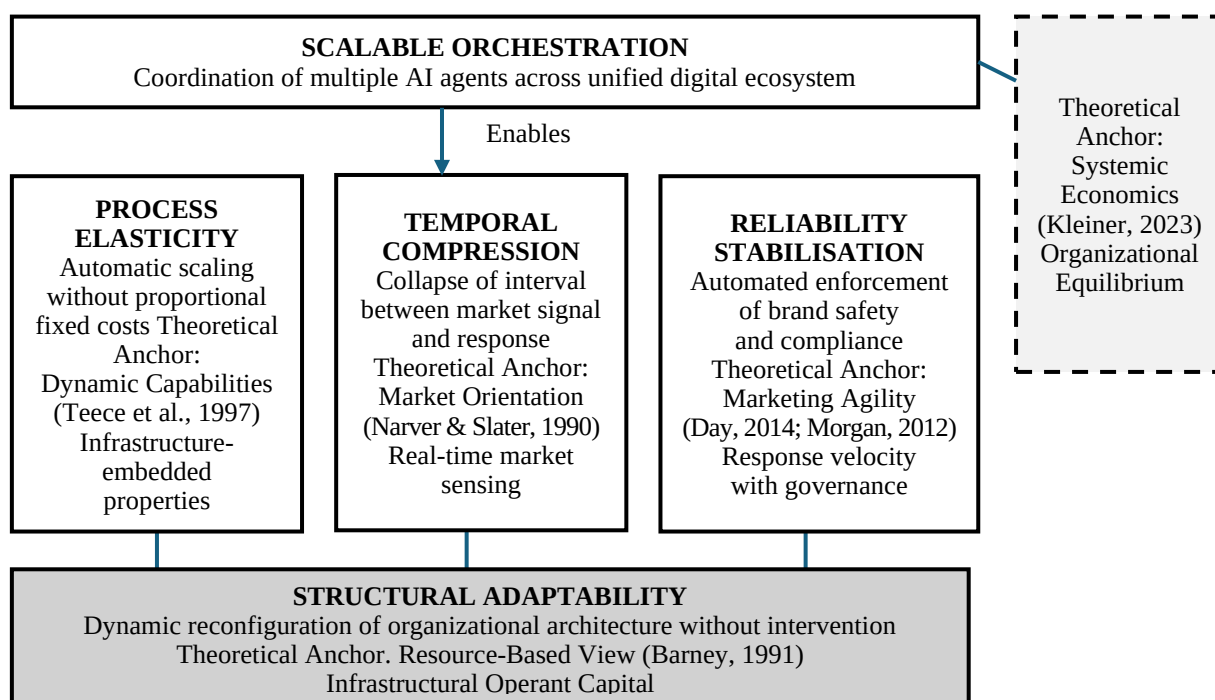


Figure 2 – Five-Dimensional Framework of Emergent Efficiency with Theoretical Anchors

Рисунок 2 – Пятимерная модель возникающей эффективности с теоретическими опорными точками

Structural Adaptability. Structural Adaptability is the capacity of the marketing system to reconfigure its functional components autonomously and in real time, in response to environmental signals or internal performance triggers, without requiring managerial intervention for each

reconfiguration event. Its theoretical anchor is the Resource-Based View extended to infrastructural operant capital: the value of a structurally adaptable system derives from its embeddedness, making it more difficult to imitate than a system requiring human operators to execute each reconfiguration [10].

As a marketing management example, when a competitor enters a market segment, a GenAI infrastructure system detects the entry through real-time competitive intelligence monitoring, automatically triggers a budget reallocation across digital channels, and generates revised messaging aligned with adjusted positioning, completing this reconfiguration within minutes rather than the weeks that characterize committee-based processes [1]. The marketing manager's primary activity shifts from monthly budget allocation meetings to quarterly infrastructure design reviews. Recommended metric: reconfiguration time in minutes from environmental trigger to operational response.

Process Elasticity. Process Elasticity is the capacity of the marketing system to scale its operational output without proportional increases in resource input, by dynamically allocating computational and cognitive resources in response to demand variation. Its theoretical anchor is Dynamic Capabilities reframed as infrastructure-embedded properties: an elastic infrastructure embeds responsiveness as a system property, activating additional capacity autonomously when demand signals exceed pre-specified thresholds [11].

As an illustrative example, during a flash sale event, a GenAI infrastructure system scales personalized offer generation from 10,000 to 500,000 individual customers, each offer tailored to purchase history and real-time inventory position, without any proportional growth in marketing headcount [1; 5]. Mukhopadhyay, Singh and Jain show empirically that AI-enabled marketing frameworks must embed elastic scaling parameters to handle demand spikes without proportional headcount growth [23]. Team-sizing decisions shift from forecasting peak-demand headcount to designing the elasticity parameters of the infrastructure. Recommended metric: cost per customer interaction at peak demand versus normal demand.

Temporal Compression. Temporal Compression is the reduction in the interval between market signal detection and operational marketing response, achieved through the integration of real-time sensing, automated analysis, and autonomous action-triggering within a continuously active GenAI infrastructure. Its theoretical anchor is Market Orientation extended to real-time market sensing: Temporal Compression collapses the temporal gap between intelligence generation and marketing action, making responsiveness a system property rather than a managerial achievement [18].

As a concrete illustration, a trend emerging in social media discourse at 09:00 can be detected, assessed for brand relevance, converted into campaign variants, verified against brand safety protocols, and activated across appropriate channels by 09:45, compressing a cycle that formerly required three weeks into forty-five minutes. Alert threshold management replaces campaign scheduling as the central operational responsibility. Recommended metric: trend-to-campaign latency in minutes from trend detection to campaign activation.

Reliability Stabilisation. Reliability Stabilization is the capacity of the GenAI infrastructure to enforce brand, legal, and ethical standards consistently across all generated outputs at scale and at speed, through continuously operating automated governance mechanisms, thereby decoupling output volume from compliance risk. Its theoretical anchor is Marketing Agility extended to governance: compliance-embedded infrastructure resolves the tension between speed and verification by integrating governance into the generation process rather than applying it as a sequential check [19; 20].

As a practical example, a marketing infrastructure system generating 10,000 unique social media posts per day for a financial services brand checks each post in real time against brand tone guidelines, advertising standards regulations, and product disclosure requirements, automatically revising or escalating failing outputs⁵. Hermann highlights that ethical governance mechanisms must be embedded within AI infrastructure to prevent brand risk at scale [24]. Risk management shifts from periodic compliance audits to continuous automated monitoring with predefined exception-handling protocols. Recommended metric: compliance rate as the proportion of outputs passing all governance checks on first pass.

Scalable Orchestration. Scalable Orchestration is the capacity of the GenAI infrastructure to coordinate multiple specialized AI agents in real time, enabling the decomposition of complex

⁵ MIT Sloan Management Review. AI Governance in Marketing: The Explainability Gap. MIT Sloan Management Review, 2024. URL: <https://sloanreview.mit.edu/article/ai-governance-marketing-explainability>.

marketing problems into parallel, rapidly executing workflows that produce coherent, integrated outputs. Its theoretical anchor is Systemic Economics and organizational equilibrium: the value of orchestrated multi-agent coordination lies in the equilibrium achieved when agents' outputs are mutually consistent and collectively directed toward system-level objectives [11].

As a representative example, when a customer abandons a shopping cart, four specialized agents activate within 100 milliseconds: the first analyses behavioural history and abandonment context; the second generates a personalized recovery offer; the third selects the optimal recovery channel; and the fourth determines the optimal send time based on predicted receptivity patterns [1; 6]. Delegation boundary design replaces task assignment as the core management activity. Recommended metric: agent-to-agent handoff time in milliseconds and orchestration success rate.

Interdependencies Among the Five Dimensions. The five dimensions exhibit structured interdependencies that generate system-level emergent effects, depicted in Figure 3. Structural Adaptability is the enabling condition for Process Elasticity: a system cannot scale processes efficiently if its structural configuration is fixed. Process Elasticity amplifies Temporal Compression by ensuring that increased operational speed does not generate downstream bottlenecks. Temporal Compression creates additional demand for Reliability Stabilisation: a system that responds in forty-five minutes rather than three weeks must embed governance, because the temporal margin for sequential human review has been eliminated. Reliability Stabilisation is a precondition for Scalable Orchestration: agents can only coordinate autonomously if each is governed by reliable, consistent behavioural parameters. Scalable Orchestration reinforces Structural Adaptability by generating system-level intelligence that informs reconfiguration decisions.

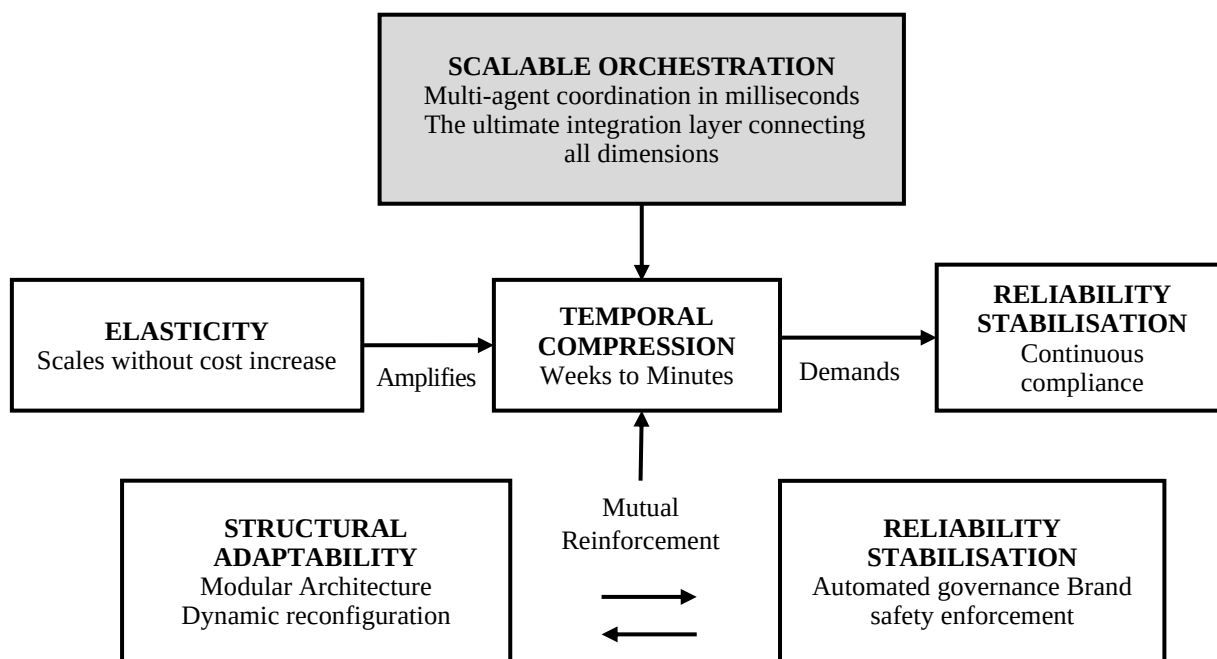


Figure 3 – Directional Interdependencies and Recommended Implementation Sequence Among the Five Dimensions

Рисунок 3 – Направленные взаимозависимости и рекомендуемая последовательность реализации между пятью измерениями

This interdependency structure has important implications for implementation sequencing. The framework suggests a developmental sequence: Structural Adaptability and Reliability Stabilisation as foundational dimensions; Process Elasticity and Temporal Compression as operational dimensions; and Scalable Orchestration as an integrative, system-maturity dimension, as illustrated in Figure 3. Table 3 below provides a summary of the five dimensions for practical reference.

Table 3 – The Five Dimensions: Summary for Marketing Managers
Таблица 3 – Пять измерений: краткое изложение для менеджеров по маркетингу

Dimension	Definition	Manager Action	Metric
Structural Adaptability	System reconfigures channels, budgets, and workflows autonomously in response to triggers	Design modular architectures; set reconfiguration rules	Reconfiguration time (min)
Process Elasticity	System scales output volume without proportional cost increases	Define scaling parameters and quality-control protocols	Cost per interaction: peak vs. normal
Temporal Compression	System collapses the interval from trend detection to campaign activation	Define alert thresholds and autonomous action limits	Trend-to-campaign latency (min)
Reliability Stabilisation	System enforces governance standards continuously across all outputs at any scale	Define brand safety rules and exception-handling protocols	Compliance rate (%)
Scalable Orchestration	System coordinates multiple AI agents in real time to execute complex, integrated workflows	Design delegation boundaries and agent handoff protocols	Orchestration success rate (%)

Barriers, Trade-offs, and Paradoxes. A theoretically complete framework must account for constraints and contradictions alongside enabling conditions. Three structural paradoxes emerge from the literature synthesis. The Coordination Cost Paradox holds that while GenAI infrastructure reduces task-level operational costs, coordination costs increase non-linearly as orchestration complexity grows, potentially exceeding efficiency gains beyond a threshold [1; 6]. The optimal orchestration complexity has not yet been the subject of systematic empirical investigation and constitutes a priority direction for future research.

The Skills Erosion Paradox holds that intensive GenAI infrastructure use may progressively reduce the manual marketing capabilities of human operators, creating organizational vulnerability in the event of system failure. Deloitte finds that organizations with the highest levels of marketing automation report the greatest difficulty in executing campaigns manually when systems are unavailable³. Infrastructure investment should accordingly be coupled with deliberate capability-maintenance programmes. The Transparency-Legal Paradox holds that the decision logic of GenAI systems is frequently opaque to the managers who are legally and commercially responsible for those systems' outputs⁵. Dwivedi, Pandey, Currie and Janssen similarly warn that opaque decision-making in GenAI systems creates regulatory exposure that may restrict autonomous orchestration [25]. In regulated sectors such as financial services and healthcare, this opacity creates legal exposure that may constrain the deployment of the framework's higher-order dimensions and makes the development of explainable AI architectures a critical priority.

Conclusions

Theoretical Contributions. This study makes three principal theoretical contributions. First, it introduces infrastructural operant capital as an extension of the Resource-Based View [9], capturing AI-enabled organizational resources whose value is constitutively relational, inhering in the embeddedness of the technology within the organization's process architecture rather than in the technology as an isolable asset. Second, the study redefines dynamic capabilities as infrastructure-embedded properties [10], shifting the locus of capability from managerial cognition to system architecture and relocating the manager's strategic contribution from the operational to the architectural level. Third, the integration of Systemic Economics [11] introduces organizational equilibrium as a criterion for evaluating AI infrastructure coherence, the degree to which infrastructure components mutually reinforce rather than compete with one another, a perspective not previously applied to marketing management contexts.

Managerial Implications. The framework has five concrete implications for marketing management practice. McKinney, Chen and Song argue that GenAI shifts marketing managers' role from tactical execution to infrastructure governance, which aligns with the five dimensions proposed here [26]. In terms of budget allocation, it implies a shift from fixed annual budgets toward dynamic real-time reallocation governed by infrastructure parameters, with managers setting allocation rules rather than line-item expenditures. In terms of team structure, it implies a shift from functional silos toward cross-functional infrastructure design pods responsible for the architecture,

governance, and continuous improvement of GenAI systems. In terms of performance metrics, it implies a shift from output-based metrics toward capability-based metrics reflecting the five dimensions: reconfiguration time, elasticity efficiency ratio, trend-to-campaign latency, compliance rate, and orchestration success rate. In terms of risk management, it implies continuous automated monitoring with predefined exception-handling in place of periodic audits. In terms of talent development, it implies a shift from tactical execution skills toward strategic and architectural competencies: designing process rules, specifying governance constraints, and evaluating infrastructure performance.

Limitations and Future Research Directions. Four limitations require acknowledgment. First, the framework is theoretically derived rather than empirically tested. Future research should develop measurement scales for each dimension and test the proposed interdependency structure using structural equation modelling or comparative case analysis. Second, the synthesis relies on literature spanning 2015 to 2025; the rapid pace of GenAI development means that technical capabilities may already exceed those described in the synthesized corpus. Third, the Systemic Economics anchor [11] draws on theoretical traditions that may not generalize uniformly across institutional contexts, and cross-national validation is identified as a priority research direction. Vlačić, Corbo, Costa e Silva and Dabić call for cross-national validation of AI marketing frameworks, reinforcing this study's identified priority [27]. Fourth, the study does not address industry-specific variations in the applicability or prioritization of the five dimensions; B2B versus B2C comparisons and regulated versus unregulated industry comparisons are important avenues for subsequent empirical work.

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