

AI AND MARKETING ANALYTICS ADOPTION IN DEVELOPING COUNTRIES

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Abstract

The rapid advancement of artificial intelligence (AI) and marketing analytics has fundamentally transformed decision-making processes in contemporary marketing practice. While developed economies have experienced accelerated adoption of AI-driven tools, developing countries continue to exhibit uneven and fragmented implementation patterns. This disparity raises critical questions regarding the structural, organizational, and institutional factors shaping AI and analytics adoption in marketing functions within developing economies. This study examines the drivers, barriers, and strategic outcomes of AI-enabled marketing analytics adoption in developing countries. Drawing upon innovation diffusion theory, resource-based view, and institutional theory, the article proposes an integrative conceptual framework explaining adoption dynamics under conditions of resource constraints, data limitations, and institutional volatility. The study further outlines managerial implications and policy considerations aimed at facilitating responsible and effective AI integration in marketing practices across developing markets.

Keywords

Artificial Intelligence, Marketing Analytics, Developing Countries, Emerging Markets, Digital Transformation, Data-Driven Marketing

1. Introduction

1.1 Background and research context

Artificial intelligence has emerged as one of the most influential technological forces reshaping the global marketing landscape. AI-powered systems now enable firms to automate customer segmentation, personalize content at scale, predict consumer behavior, optimize pricing, and allocate marketing budgets with unprecedented precision. These capabilities are largely underpinned by advanced marketing analytics, which transforms large volumes of structured and unstructured data into actionable strategic insights. In developed economies, AI-driven marketing analytics has become a core component of competitive

advantage, embedded within organizational decision-making and performance management systems.

In contrast, the adoption of AI and marketing analytics in developing countries remains uneven and context-dependent. While digital platforms such as social media, mobile commerce, and programmatic advertising have diffused rapidly across developing economies, the depth of AI integration within marketing functions often remains shallow. Many firms rely on basic descriptive analytics or platform-provided dashboards rather than advanced predictive or prescriptive models. This gap is not merely technological; it reflects deeper structural constraints related to data availability, human capital, institutional maturity, and strategic orientation.

Developing countries present a paradoxical environment for AI adoption. On one hand, high mobile penetration, young populations, and rapid digital platform growth create fertile conditions for data-driven marketing. On the other hand, fragmented consumer data, limited interoperability between systems, and weak data governance frameworks constrain meaningful analytics implementation. As a result, AI adoption in marketing is frequently experimental, opportunistic, or externally driven rather than strategically embedded.

1.2 Problem statement

Despite the growing relevance of AI in marketing, existing academic research disproportionately reflects the experiences of firms operating in developed economies. Dominant models of AI adoption assume stable data infrastructures, advanced analytical capabilities, and institutional environments that support long-term digital investment. These assumptions are often misaligned with the realities of developing countries, where firms face volatile demand, capital constraints, and limited access to specialized talent.

Moreover, much of the AI adoption literature focuses on technological readiness while underestimating the strategic and organizational dimensions of marketing analytics adoption. For marketing managers in developing economies, AI is rarely adopted as a standalone innovation; rather, it competes with immediate operational priorities such as customer acquisition, cash flow stability, and short-term performance measurement. Consequently, AI tools are often perceived as costly, opaque, or misaligned with managerial decision-making needs.

This disconnect generates a critical research gap: there is insufficient understanding of how AI-driven marketing analytics adoption unfolds under conditions of institutional fragility, data scarcity, and managerial risk aversion. Without context-sensitive frameworks, both scholars and practitioners risk

overestimating the transformative potential of AI while underappreciating the structural barriers that shape adoption outcomes.

1.3 Research objectives and contributions

The primary objective of this article is to develop a strategic and context-aware understanding of AI and marketing analytics adoption in developing countries. Specifically, the study aims to:

- Identify the key structural, organizational, and institutional barriers to AI-driven marketing analytics adoption;
- Examine the strategic drivers that motivate firms to invest in AI despite resource constraints;
- Propose an integrative conceptual framework explaining adoption dynamics in developing economies;
- Derive managerial and policy-level implications to support effective and responsible AI integration.

This article contributes to the marketing and information systems literature in three important ways. First, it extends AI adoption research by foregrounding the marketing function as a distinct domain with unique performance logics and decision-making pressures. Second, it contextualizes AI adoption within developing economies, challenging the universal applicability of dominant adoption models. Third, it bridges theory and practice by translating conceptual insights into actionable recommendations for managers and policymakers.

1.4 Structure of the article

The remainder of the article is structured as follows. Section 2 reviews relevant literature on AI, marketing analytics, and technology adoption theories. Section 3 examines the readiness conditions for AI-driven marketing analytics in developing economies. Section 4 analyzes key adoption barriers, while Section 5 discusses strategic drivers and enablers. Section 6 presents the proposed conceptual framework. Sections 7 and 8 outline managerial and policy implications, followed by limitations, future research directions, and concluding remarks.

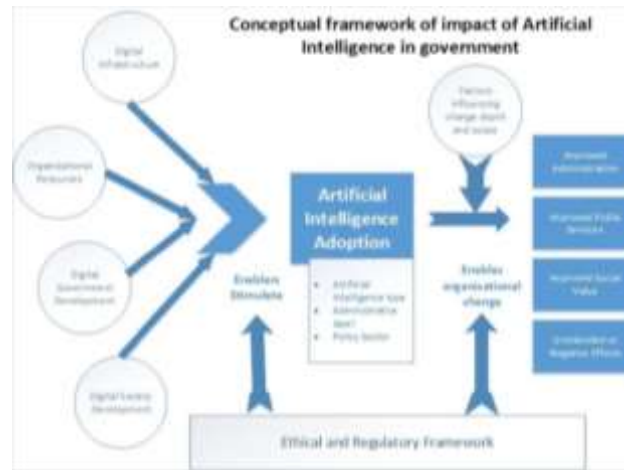


Figure 1. A Conceptual Framework of AI Use in Government Services Using Organisational Theory

2. Literature Review

2.1 Artificial intelligence and marketing analytics: conceptual foundations

Artificial intelligence in marketing is commonly defined as the application of machine-based systems capable of learning from data, identifying patterns, and making decisions with minimal human intervention. Within marketing, AI is primarily operationalized through analytics-driven applications such as customer segmentation, recommendation systems, churn prediction, dynamic pricing, and automated content personalization. Marketing analytics serves as the foundational layer enabling AI functionality, transforming raw data into insights that support both strategic and tactical decisions.

Existing literature conceptualizes marketing analytics across three levels: descriptive analytics, which summarizes historical performance; predictive analytics, which forecasts future outcomes; and prescriptive analytics, which recommends optimal actions. AI-driven marketing systems are predominantly associated with the latter two levels, where algorithmic learning enhances decision accuracy and speed. However, empirical studies demonstrate that firms in developing countries disproportionately rely on descriptive analytics due to infrastructural and capability constraints, limiting the value extraction potential of AI applications.

Scholars increasingly emphasize that AI adoption in marketing should not be treated as a purely technological innovation. Rather, it represents a socio-technical system embedded within organizational routines, managerial cognition, and institutional environments. This perspective is particularly salient in developing economies, where technological capabilities are often decoupled from strategic integration.

2.2 Technology adoption theories in the context of AI

The adoption of AI and analytics technologies has traditionally been examined through established innovation adoption frameworks, most notably the Technology Acceptance Model, Diffusion of Innovations Theory, and the Technology-Organization-Environment framework. These models highlight perceived usefulness, ease of use, organizational readiness, and environmental pressures as key determinants of adoption.

While these theories offer valuable explanatory power, their applicability to AI-driven marketing analytics in developing countries is limited. First, they tend to assume rational evaluation of technology benefits based on reliable information and stable performance metrics. In practice, marketing managers in developing economies often face uncertainty regarding data quality, algorithm transparency, and return on investment, which complicates adoption decisions.

Second, conventional adoption models underemphasize the dynamic and iterative nature of AI implementation. AI systems require continuous data inflows, model training, and organizational learning. In environments characterized by fragmented data ecosystems and high market volatility, this iterative requirement becomes a major barrier rather than an enabler.

As a result, recent literature calls for hybrid adoption models that integrate technological readiness with strategic intent, managerial risk perception, and institutional trust. Such integrative approaches are particularly relevant for marketing analytics, where outcomes are probabilistic rather than deterministic.

2.3 Resource-based view and marketing analytics capabilities

The resource-based view provides a complementary lens for understanding AI adoption by focusing on firm-specific capabilities rather than technology characteristics alone. From this perspective, AI-driven marketing analytics constitutes a higher-order capability derived from the interaction of data assets, analytical skills, technological infrastructure, and decision-making processes.

In developing countries, firms often lack scalable data infrastructures and specialized analytical talent. However, they may possess alternative strategic resources, such as deep customer knowledge, relational networks, and contextual market insights. The literature suggests that successful AI adoption in such contexts depends less on technological sophistication and more on the firm's ability to recombine existing resources into analytics-enabled decision routines.

Importantly, RBV-oriented studies highlight that AI capabilities are path-dependent. Early investments in data governance, experimentation culture, and cross-functional collaboration significantly influence long-term analytics maturity. Firms that approach AI adoption as a one-time technology purchase rather than a capability-building process tend to experience limited strategic impact.

2.4 Institutional environment and data governance challenges

Institutional theory provides critical insights into how external environments shape AI adoption in developing countries. Weak regulatory frameworks, inconsistent data protection enforcement, and limited standardization often create uncertainty around data usage and consumer privacy. These conditions affect both the supply and demand sides of AI-driven marketing analytics.

On the supply side, technology vendors may offer simplified or opaque AI solutions that prioritize scalability over contextual relevance. On the demand side, firms may hesitate to invest in advanced analytics due to concerns over compliance risks, reputational damage, or consumer distrust. Furthermore, the absence of industry benchmarks and transparency standards reduces managers' ability to evaluate AI performance objectively.

The literature also highlights the role of institutional isomorphism, where firms adopt AI tools primarily due to competitive pressure or normative expectations rather than strategic alignment. Such symbolic adoption often results in superficial implementation, where AI tools are present but not meaningfully integrated into decision-making processes.

2.5 Synthesis and research gaps

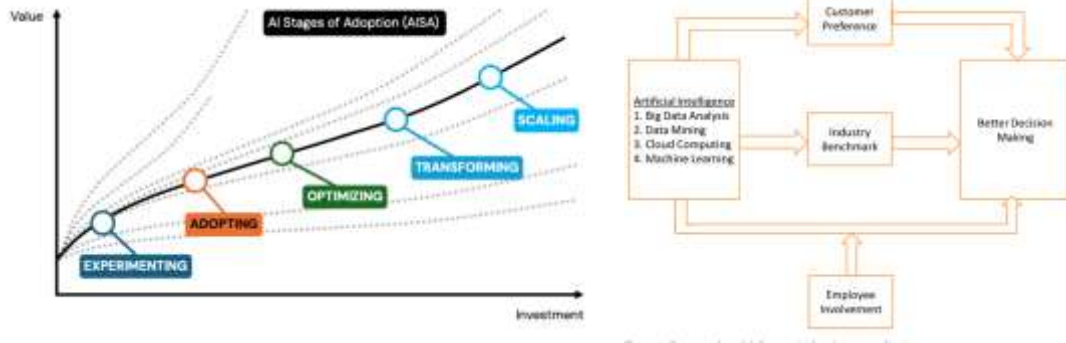
The review reveals several persistent gaps in the literature. First, AI adoption research insufficiently differentiates between functional domains, treating marketing analytics as interchangeable with operational or financial analytics. Second, existing studies often overlook the interaction between data scarcity and managerial decision logic, particularly in emerging markets. Third, there is a lack of integrative frameworks that simultaneously account for technological, organizational, and institutional dimensions of AI-driven marketing analytics adoption.

These gaps underscore the need for a context-sensitive conceptual framework that explains not only whether AI is adopted, but how and why adoption translates—or fails to translate—into marketing performance outcomes in developing countries.

3. Conceptual Framework for AI-Driven Marketing Analytics Adoption

3.1 Framework overview (Figure 1)

The proposed conceptual framework positions AI-driven marketing analytics adoption as a multi-level process shaped by the interaction of **environmental conditions**, **organizational capabilities**, and **managerial cognition**, ultimately influencing **marketing decision quality** and **performance outcomes**.



3.2 Key framework components

1. Environmental and institutional context

This layer includes regulatory maturity, data governance standards, digital infrastructure, and market volatility. In developing countries, weak institutions moderate the relationship between AI adoption and performance by increasing uncertainty and reducing trust in algorithmic outputs.

2. Organizational readiness and resources

This dimension captures data availability, IT infrastructure, analytics talent, and cross-functional integration. Rather than absolute resource levels, the framework emphasizes configurational fit—the alignment between available resources and analytics objectives.

3. Managerial cognition and strategic orientation

Managers' perceptions of AI transparency, risk, and strategic relevance play a critical mediating role. In developing economies, adoption decisions are often influenced by short-term performance pressures and experiential judgment rather than formal ROI models.

4. AI-driven marketing analytics adoption

Adoption is conceptualized as a continuum ranging from experimental use (e.g., platform-based automation) to embedded strategic integration (e.g., predictive modeling informing budget allocation).

5. Marketing decision quality and performance outcomes

Improved decision accuracy, speed, and adaptability represent intermediate outcomes, while revenue growth, customer retention, and marketing efficiency constitute final performance indicators.

3.3 Theoretical implications

The framework advances existing literature by reframing AI adoption as an adaptive strategic process rather than a binary technological choice. It highlights that in developing countries, AI-driven marketing analytics delivers value only when supported by managerial sense-making and institutional alignment.

AI and Analytics Readiness in Developing Economies

3.4 Concept of AI readiness in marketing

AI readiness refers to the extent to which an organization and its surrounding ecosystem possess the technological, organizational, and cognitive capabilities required to effectively adopt and leverage AI-driven solutions. In the context of marketing analytics, readiness extends beyond technical infrastructure to include data maturity, human capital, strategic alignment, and governance mechanisms. Unlike developed economies, where AI readiness is often treated as a linear progression toward advanced analytics maturity, developing economies exhibit uneven and non-linear readiness patterns.

Marketing functions in developing countries frequently operate within hybrid environments, combining digital platforms with offline processes and informal data flows. As a result, AI readiness cannot be evaluated solely based on the presence of digital tools. Instead, it must be assessed through the firm's ability to translate fragmented data inputs into coherent decision-making processes. The literature suggests that readiness is best understood as a dynamic capability that evolves through experimentation, learning, and adaptation rather than as a fixed precondition for adoption.

3.5 Data infrastructure and data quality constraints

Data infrastructure represents a foundational component of AI readiness. AI-driven marketing analytics relies on the availability of high-volume, high-velocity, and high-variety data. In developing economies, data is often abundant in quantity but limited in structure, integration, and reliability. Firms may collect customer data through social media interactions, messaging platforms, point-of-sale systems, and informal customer relationships, yet lack centralized data repositories or standardized formats.

Data quality issues—such as missing values, inconsistent identifiers, and limited historical depth—significantly constrain the performance of AI models. Marketing analytics applications that depend on clean longitudinal data, such as customer lifetime value modeling or churn prediction, are particularly affected. Consequently, many firms remain locked into descriptive analytics, using dashboards and summary reports that do not require advanced data preprocessing.

The literature emphasizes that data governance practices, including ownership definition, access control, and data cleaning routines, are often underdeveloped in developing countries. This governance gap reduces managerial confidence in analytics outputs and reinforces reliance on intuition-based decision-making.

3.6 Human capital and analytical skills

Human capital represents another critical determinant of AI readiness. Advanced marketing analytics requires not only technical expertise in data science and machine learning, but also domain knowledge that enables meaningful interpretation of results. In developing economies, the supply of specialized analytics talent remains limited, and competition for skilled professionals is intense.

As a result, marketing departments often depend on external vendors, platform-provided AI tools, or generalist marketers with limited analytical training. While such arrangements may facilitate initial adoption, they frequently impede deep organizational learning and capability accumulation. The literature notes that firms relying heavily on external analytics solutions may struggle to internalize insights or adapt models to changing market conditions.

Importantly, AI readiness is also shaped by managerial analytical literacy. Even when technical tools are available, managers may lack the cognitive frameworks required to evaluate probabilistic outputs, interpret model uncertainty, or integrate analytics into strategic planning. This skill gap contributes to skepticism toward AI recommendations and limits their influence on decision-making.

3.7 Organizational structure and cross-functional integration

Organizational readiness for AI-driven marketing analytics depends on the degree of coordination between marketing, IT, and data-related functions. In many developing-country firms, organizational structures are functionally siloed, with limited collaboration between departments. Marketing analytics initiatives may therefore suffer from misalignment between strategic objectives and technical execution.

Cross-functional integration is particularly important for AI adoption because marketing data often originates from multiple touchpoints, including sales, customer service, and digital platforms. Without shared ownership and integrated workflows, analytics outputs remain isolated and underutilized. The literature highlights that firms with flatter organizational structures and informal communication channels may paradoxically exhibit greater flexibility in analytics experimentation, despite lacking formal governance mechanisms.

3.8 Digital platforms as readiness accelerators

Digital platforms play a dual role in shaping AI readiness in developing economies. On one hand, global platforms lower entry barriers by offering built-in analytics, automation, and AI-powered targeting capabilities. These tools enable firms to experiment with AI-driven marketing without significant upfront

investment. On the other hand, platform dependency may constrain strategic autonomy and limit transparency regarding algorithmic logic.

Platform-provided analytics often prioritize operational efficiency over strategic insight, focusing on short-term performance metrics such as clicks or conversions. While useful, these metrics may not support long-term brand building or customer relationship management. The literature cautions that overreliance on platforms can lead to a form of “outsourced intelligence,” where firms adopt AI tools without developing internal analytical capabilities.

3.9 Readiness heterogeneity and adoption pathways

A key insight emerging from the literature is the heterogeneity of AI readiness across firms and sectors within developing economies. Large firms and digitally native startups often exhibit higher readiness levels, while small and medium-sized enterprises face more pronounced constraints. However, readiness does not necessarily translate into effective adoption. Firms with moderate readiness but strong strategic focus may achieve greater impact than technologically advanced firms lacking clear use cases.

The literature identifies multiple adoption pathways, ranging from incremental experimentation to leapfrogging adoption driven by competitive pressure or external partnerships. These pathways suggest that AI readiness should be viewed as a spectrum rather than a threshold condition.

4. Barriers to AI Adoption in Marketing

4.1 Structural and technological barriers

One of the most significant barriers to AI-driven marketing analytics adoption in developing countries is the structural limitation of data ecosystems. Although firms increasingly generate large volumes of digital data, this data is often fragmented across platforms, lacks standardization, and is insufficiently integrated. Such conditions undermine the reliability of AI models and reduce their perceived usefulness for strategic decision-making. Limited interoperability between systems further exacerbates these challenges, preventing holistic customer insights.

In addition, technological infrastructure constraints—such as limited cloud adoption, unstable connectivity, and reliance on legacy systems—impede scalable analytics implementation. As a result, many firms restrict AI usage to platform-provided automation tools rather than developing customized analytics solutions aligned with strategic objectives.

4.2 Organizational and resource-related barriers

Organizational barriers are closely linked to resource constraints. Marketing departments in developing economies frequently operate under tight budgets and prioritize short-term performance outcomes. AI initiatives, which often require

upfront investment and iterative learning, may be perceived as risky or misaligned with immediate business needs.

The shortage of analytical talent represents another critical barrier. Firms often lack personnel capable of translating marketing problems into analytical models and interpreting AI outputs meaningfully. Dependence on external vendors or generic tools limits internal capability development and reduces strategic control over analytics processes.

4.3 Managerial cognition and trust in AI systems

Managerial skepticism toward AI constitutes a less visible but equally important barrier. In contexts characterized by volatile markets and incomplete data, managers may distrust algorithmic recommendations, particularly when model logic is opaque. This lack of trust leads to symbolic adoption, where AI tools are used superficially without influencing core decisions.

Moreover, limited analytical literacy constrains managers' ability to evaluate AI performance, reinforcing reliance on intuition and experiential judgment. The literature emphasizes that trust in AI is not purely technical but socially constructed through experience, transparency, and organizational learning.

4.4 Institutional and regulatory barriers

Institutional environments in developing countries often lack clear data protection regulations and enforcement mechanisms. Uncertainty regarding data ownership, privacy, and compliance discourages firms from investing in advanced analytics. Additionally, weak industry standards reduce benchmarking opportunities, making it difficult to assess AI effectiveness relative to competitors.

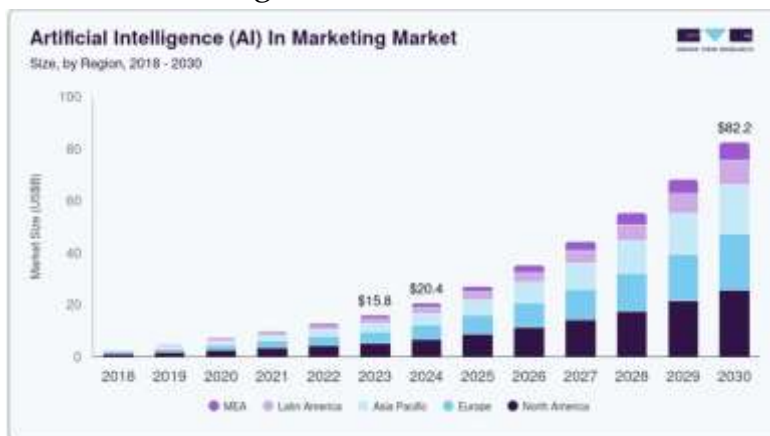


Figure 2. Artificial Intelligence in Marketing Market Size report, 2030

5. Strategic Drivers and Enablers of AI Adoption

5.1 Competitive pressure and market dynamics

Competitive intensity is a primary driver of AI-driven marketing analytics adoption in developing countries. As digital platforms reduce entry barriers, firms increasingly face competition from both local and international players. This

pressure incentivizes managers to seek efficiency gains and performance improvements through data-driven decision-making. AI-enabled analytics offers the potential to optimize customer targeting, improve budget allocation, and enhance responsiveness to market changes, making it strategically attractive despite implementation challenges.

Market volatility further amplifies this driver. In environments characterized by fluctuating demand and price sensitivity, AI-based predictive analytics can support more adaptive marketing strategies. The literature suggests that firms operating in high-uncertainty contexts may be more willing to experiment with AI tools that promise improved forecasting and risk mitigation.

5.2 Cost efficiency and scalability

Cost considerations play a dual role in AI adoption. While advanced analytics solutions can be resource-intensive, cloud-based platforms and software-as-a-service models have lowered entry costs, enabling incremental adoption. Firms can scale AI usage gradually, starting with specific use cases such as campaign optimization or customer segmentation. This modular adoption approach reduces perceived risk and aligns AI investment with measurable outcomes.

Scalability is particularly relevant for firms seeking growth beyond local markets. AI-driven analytics enables standardized decision processes across regions and channels, supporting expansion without proportional increases in marketing expenditure.

5.3 Learning orientation and managerial openness

Organizational learning orientation significantly influences AI adoption outcomes. Firms that view AI as a learning tool rather than a deterministic decision engine are more likely to integrate analytics into strategic processes. Managerial openness to experimentation, tolerance for initial inefficiencies, and willingness to adapt workflows facilitate deeper adoption.

The literature emphasizes that managerial sense-making plays a critical enabling role. When managers understand AI limitations and uncertainties, they are better positioned to combine analytics with contextual judgment, increasing both trust and utilization.

5.4 External partnerships and ecosystem support

External partnerships with technology vendors, startups, and academic institutions can compensate for internal capability gaps. In developing economies, such collaborations often serve as catalysts for AI adoption by providing access to expertise and infrastructure. However, the effectiveness of partnerships depends on knowledge transfer and alignment with strategic objectives.

6. Managerial Implications

The findings of this study offer several actionable implications for marketing managers operating in developing countries. First, AI-driven marketing analytics should be approached as a **capability-building process** rather than a one-time technology investment. Managers are advised to begin with clearly defined, high-impact use cases—such as campaign optimization or customer segmentation—where analytics outputs can be directly linked to performance improvements. This incremental approach reduces risk and builds organizational confidence in AI systems.

Second, managers should prioritize **data governance and data quality practices** before pursuing advanced AI applications. Even basic standardization of data collection and integration across channels can significantly enhance the reliability of analytics outputs. In resource-constrained environments, improving data discipline often yields greater returns than investing in sophisticated algorithms.

Third, **analytical literacy at the managerial level** is critical. Training programs that focus on interpreting probabilistic results, understanding model limitations, and integrating analytics with managerial judgment can enhance trust in AI systems. Rather than delegating analytics entirely to technical specialists or external vendors, managers should actively engage with analytics processes to ensure strategic alignment.

Fourth, firms should leverage **external partnerships strategically**. Collaborations with technology providers or academic institutions can accelerate adoption, but managers must ensure knowledge transfer and avoid overdependence on opaque tools. Selecting partners who offer transparency and customization capabilities increases long-term value.

Finally, performance measurement systems should evolve to reflect the nature of AI-driven decision-making. Managers are encouraged to adopt adaptive metrics that capture learning outcomes, decision speed, and strategic flexibility, in addition to traditional financial indicators.

7. Conclusion

This article examined the adoption of AI-driven marketing analytics in developing countries, highlighting the complex interaction between technological capabilities, organizational readiness, and institutional environments. The analysis demonstrates that AI adoption in marketing is not primarily constrained by the absence of technology, but by data fragmentation, skill gaps, managerial cognition, and regulatory uncertainty.

By integrating insights from technology adoption theory, resource-based view, and institutional perspectives, the study proposed a context-sensitive framework

that explains adoption dynamics under conditions of resource constraints and market volatility. The findings suggest that AI-driven marketing analytics can enhance decision quality and performance in developing economies when adoption is incremental, strategically aligned, and supported by managerial learning.

The study contributes to the literature by shifting the focus from technological determinism toward adaptive strategy and organizational sense-making. For practitioners and policymakers, the results underscore the importance of investing in data governance, skills development, and supportive ecosystems to unlock the potential of AI in marketing.

Future research may empirically test the proposed framework across industries and regions, explore longitudinal adoption trajectories, and examine ethical considerations related to AI usage in developing markets.

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