International Conference on Computational Intelligence and Emerging Technologies (ICCINET-25)
ISBN: 978-93-344-3140-7

# HARNESSING AI FOR COMPETITIVE ADVANTAGE IN MARKETING MANAGEMENT: A FUTURISTIC PERSPECTIVE

Amruta Kale-Jadhav, Dipali Dhumal-Jadhav, Seema Jadhav-Pagare, Dr. Tanaji Dabade

1. Assistant Professor, Navsahyadri Education Society's Group of Institutions- Faculty of Management, Affiliated to Savitribai Phule Pune University, Pune, Maharashtra, India.
   **Corresponding Author Email:** amrutajadhav.ngi@gmail.com
2. Assistant Professor, Navsahyadri Education Society's Group of Institutions- Faculty of Management, Affiliated to Savitribai Phule Pune University, Pune, Maharashtra, India.
   Email: dipadhumal@gmail.com
3. Assistant Professor, Navsahyadri Education Society's Group of Institutions- Faculty of Management, Affiliated to Savitribai Phule Pune University, Pune, Maharashtra, India.
   Email: seema.jadhav83@gmail.com
4. Director, Navsahyadri Education Society's Group of Institutions- Faculty of Management, Affiliated to Savitribai Phule Pune University, Pune, Maharashtra, India.
   Email: dadaji2006@yahoo.co.in

**Abstract**

This paper presents an integrated synthesis of recent research and industry reports to map how artificial intelligence reshapes marketing management across strategy, operations, and customer experience. It identifies core AI capabilities — predictive analytics, customer segmentation, personalization, marketing automation, dynamic pricing, content generation, and conversational agents — and links each capability to measurable marketing outcomes such as higher conversion rates, improved customer lifetime value, reduced acquisition costs, and faster campaign optimization. The review highlights common enablers (robust data infrastructure, cross functional teams, and continuous upskilling) and persistent barriers (data silos, legacy systems, talent gaps, and organizational resistance). It also examines non-technical constraints: privacy, algorithmic bias, transparency, and regulatory compliance, proposing governance mechanisms, explainability practices, and ethical design principles to mitigate these risks. Building on empirical cases and theoretical insights, the paper proposes a practical maturity framework that aligns AI use cases with marketing objectives and customer journey stages and offers an adoption roadmap emphasizing pilot to scale pathways, performance metrics, and stakeholder involvement. The study concludes with prioritized research questions

ISBN: 978-93-344-3140-7

for measuring long term business impact and consumer trust, and actionable recommendations for managers seeking responsible, ROI driven AI adoption in marketing.

Keywords: AI, Marketing Management

**Introduction**

Artificial intelligence is rapidly redefining the practice and purpose of marketing management by turning data into actionable insight, automating routine tasks, and enabling highly personalized customer experiences. Recent scholarship and industry reports document that AI technologies — including machine learning, natural language processing, recommendation systems, and generative models — are being embedded across the marketing value chain from strategy and market sensing to execution and performance measurement. These capabilities let firms predict customer needs, tailor communications at scale, optimize pricing and promotions in real time, and automate content creation and campaign delivery, altering both the toolkit and the metrics of modern marketing.

**Motivation and Relevance**

Marketing organizations face escalating pressure to deliver measurable growth while managing costs and customer expectations. AI promises to raise marketing effectiveness by improving targeting precision, shortening experiment cycles, and increasing return on marketing investment. At the same time, adoption raises important managerial and societal concerns: data governance, privacy, explainability, fairness, and the organizational shifts required to capture value. Combining applied case studies, theoretical treatments, and industry analyses shows that realizing AI's promise in marketing requires aligning technological capabilities with clear business objectives and responsible practices.

**Key Themes from the Literature**

Throughout the literature reviewed, several key themes stand out.

- Core AI use cases: Customer Segmentation & Profiling, Personalization & Recommendations, Predictive analytics for churn & Lifetime value, dynamic pricing and promotion optimisation; Marketing Automation & Conversational agents, AI-generated creative content
- Value drivers: improved quality of decisions from real-time analytics, cost reductions by automating processes, thereby improving conversion rates through personalization, and quicker scaling of experiments and insights.
- Constraints and risks: fragmented or poor-quality data, talent and capability gaps, legacy systems, algorithmic bias, transparency shortfalls, and regulatory uncertainty.

ISBN: 978-93-344-3140-7

- Organizational requirements include cross-functional teams, investment in data infrastructure, continuous upskilling, and governance frameworks that balance innovation with ethical safeguards.

**Research Gap and Contribution**

While many studies document specific AI techniques or report single-case successes, there is a need for an integrative managerial perspective that links AI use cases to marketing objectives, customer-journey stages, and capability maturity. This paper synthesizes evidence across empirical studies, conceptual papers, and practitioner reports to produce a practical framework for marketing managers. The framework is designed to (1) classify AI applications by marketing function and impact, (2) identify enablers and barriers to adoption, and (3) recommend governance and capability-building steps for responsible scaling.

**Objectives and Structure**

This study aims to

(1) Map the primary AI applications in marketing management and their expected outcomes,

(2) Analyze organizational and ethical challenges that affect adoption, and

(3) Propose actionable guidelines and a maturity roadmap to help managers deploy AI responsibly and measure its business impact.

The remainder of the paper reviews the empirical and conceptual literature on AI in marketing, presents the proposed framework and maturity model, discusses managerial implications and governance practices, and outlines avenues for future research.

**Problem Statement**

Marketing management is undergoing rapid transformation as artificial intelligence technologies enable new capabilities in customer insight, personalization, automation, and measurement. Despite abundant pilots and vendor claims, many firms struggle to translate AI experiments into sustained marketing performance because of fragmented data, skills gaps, legacy processes, and unclear governance. Simultaneously, ethical, privacy, and bias risks threaten consumer trust and regulatory compliance. There is a practical gap: marketing leaders need an integrated, managerially oriented roadmap that links specific AI use cases to marketing objectives, clarifies organizational enablers and barriers, and prescribes governance and measurement approaches for responsible, scalable adoption.

**Research Objectives**

1. To classify and map the principal AI applications used in marketing management and relate them to concrete marketing outcomes.

ISBN: 978-93-344-3140-7

2. To identify organizational, technical, and ethical barriers impeding AI adoption in marketing.
3. To evaluate enablers and capability needs enabling transitions from pilot to scale
4. To provide a usable framework and maturity roadmap aligned with AI use cases, marketing objectives, customer journey stages, and governance needs.
5. To recommend performance metrics and governance practices for measuring the ROI; to manage ethical, privacy, and bias risks.

**Research Methodology**

- Literature Synthesis: Conducted an integrative review of 19 academic papers, industry reports, technical briefs, theses, and case studies on AI applications in marketing, challenges in adoption, and recommendations on governance.
- Thematic coding: Outlined and coded recurring themes across documents on AI use cases, value drivers, barriers, enablers, ethical issues, and measurement approaches.
- Comparative mapping: Mapped AI capabilities, such as predictive analytics, personalization, generative content, conversational agents, and dynamic pricing, to marketing functions like acquisition, conversion, retention, and analytics, and typical performance outcomes.
- Framework development: Combined findings into one actionable maturity framework with stages-explore, pilot, scale, and govern-and associated recommended practices for data architecture, skills, cross-functional governance, and metrics.
- Validation logic: Triangulated patterns across empirical studies and industry reports to ensure that recommendations reflect both academic evidence and practitioner experience.

**Key Findings**

- Core applications and impact:
  - ✓ Predictive analytics enhance targeting, churn prediction, and lifetime value estimation, thereby increasing campaign efficiency and ROI.
  - ✓ Personalization and recommendation systems materially boost conversion rates and average order value when underpinned by high-quality, integrated customer data.
  - ✓ Marketing Automation and Conversational Agents lower operational costs and response times while improving lead throughput.

ISBN: 978-93-344-3140-7

- ✓ Generative models scale content generation and A/B testing but need human oversight to preserve brand voice and accuracy of facts.
- ✓ Dynamic pricing and optimization of promotion increase margin capture but need robust causal testing in order to avoid negative customer reactions.

- Enablers for successful adoption:
  - ✓ Integrated data infrastructure, like Customer 360 and real-time analytics pipelines
  - ✓ Cross-functional teams that bring together marketing, data science, and engineering with sponsorship.
  - ✓ Continuous upskilling and change management to shift towards data-driven decision processes from campaign-focused ones.
  - ✓ Clear KPIs: experiment-driven approaches-with controlled tests and uplift measurement.
- Barriers and risks:
  - ✓ Data silos, poor data quality, and legacy systems block model accuracy and real-time decisioning.
  - ✓ Talent shortages and organizational resistance slow deployment and scaling.
  - ✓ Ethical risks include privacy violations, algorithmic bias, and opaque automated decisions that can undermine trust and bring along regulatory action.
  - ✓ Measurement challenges: Attribution complexity and over-reliance on short-term metrics will misstate AI's long-term value.
- Governance and measurement:
  - ✓ Effective governance blends technical transparency - model explainability, monitoring - with policy: data use consent, privacy-preserving techniques - and human oversight.
  - ✓ Recommended metrics: ROI (LTV-to-CAC uplift), experiment uplift, incremental conversions, model fairness/explainability scores, and operational KPIs (time-to-personalization, automation rate)
- Sector and scale nuance:
  - ✓ B2C e-commerce and digital-native firms can often realize quicker ROI thanks to richer behavioural data. B2B and regulated sectors require far more stringent governance, and therefore longer pilots.

- ✓ Small firms benefit from off-the-shelf AI services but still need basic data hygiene and clear use-case prioritization.

**Conclusion**

AI offers powerful levers for marketing managers to improve targeting, personalization, efficiency, and measurement, but its value is realized only when technological capabilities are matched with organizational readiness and responsible governance. Successful adoption follows a staged pathway: prioritize high-impact, low-complexity pilots; invest in data integration and cross-functional capabilities; rigorously measure incremental impact through experiments; and institutionalize governance to manage privacy, bias, and transparency risks. Practitioners should adopt a maturity roadmap that moves from exploration to governed scaling, using clear KPIs that capture both short-term performance and long-term customer trust. Future research should empirically measure long-run effects of AI-driven marketing on firm performance and consumer welfare, compare industry-specific adoption patterns, and evaluate governance interventions that balance innovation with ethical safeguards.

**References**

1. Ljepava, N. (2022). AI-enabled marketing solutions in marketing decision making: AI application in different stages of marketing process. TEM Journal, 11(3), 1308–1315. https://www.temjournal.com/content/113/TEMJournalAugust2022_1308_1315.pdf
2. Ziakis, C., & Vlachopoulou, M. (2023). Artificial intelligence in digital marketing: Insights from a comprehensive review. Information, 14(12), 664. https://www.mdpi.com/2078-2489/14/12/664
3. Lakshmipriyanka, A., Harihararao, M., Prasanna, M., & Deepika, Y. (n.d.). A study on artificial intelligence in marketing. https://pdfs.semanticscholar.org/c0e9/d827d5e040f966f30bb7f8dd761167f0df64.pdf
4. Mathur, A., & Tripathi, R. (2025). The impact of AI on consumer behavior in digital marketing. Jagannath University Journal of Research and Review, 1(2), 7–11. https://cdn.jagannathuniversityncr.ac.in/docs/papers_for_second_issue/03-atul_mathur_rahul_tripathi%20(7-11).pdf
5. (Author unknown). (2021). Role of artificial intelligence (AI) in marketing [ResearchGate preprint]. ResearchGate.

https://www.researchgate.net/publication/354200837_Role_of_Artificial_Intelligence_AI_in_Marketing

6. (Author unknown). (n.d.). Title unknown. Journal of the School of Management Sciences and Research, 14(1). https://www.aasmr.org/jsms/Vol14/No.1/Vol.14%20No.1.08.pdf
7. (Author unknown). (n.d.). Article from Journal of Commerce and Management (JCOMA). https://jcoma.com/index.php/JCM/article/view/170/146
8. (Author unknown). (n.d.). Article from Journal of Commerce and Management (JCOMA). https://jcoma.com/index.php/JCM/article/view/170
9. MLQ.ai. . (2025). State of AI in business 2025 report. MLQ. https://mlq.ai/media/quarterly_decks/v0.1_State_of_AI_in_Business_2025_Report.pdf
10. (Author unknown). (2024). Article in Central Management Journal. https://seaopenresearch.eu/Journals/articles/CMJ2024_I1_2.pdf
11. Sujan, A. M. (n.d.). [Master's thesis]. Theseus. https://www.theseus.fi/bitstream/handle/10024/871851/Ahmed_Mohammad%20Sujan.pdf?sequence=3
12. (Author unknown). (n.d.). [Master's thesis]. DiVA Portal. https://www.diva-portal.org/smash/get/diva2:1866245/FULLTEXT01.pdf
13. McKinsey & Company. (n.d.). AI-powered marketing and sales reach new heights with generative AI. McKinsey & Company. https://www.mckinsey.com/~/media/mckinsey/business%20functions/marketing%20and%20sales/our%20insights/ai%20powered%20marketing%20and%20sales%20reach%20new%20heights%20with%20generative%20ai/ai-powered-marketing-and-sales-reach-new-heights-with-generative-ai.pdf
14. (Author unknown). (2023). [Conference paper / journal article]. DPublication. https://www.dpublication.com/wp-content/uploads/2023/07/34-1872.pdf
15. Araf, S. (n.d.). [Master's thesis]. Theseus. https://www.theseus.fi/bitstream/handle/10024/817570/Sayem_Araf.pdf?sequence=2&isAllowed=y
16. (Author unknown). (n.d.). Leveraging artificial intelligence for sustainable marketing: A theoretical exploration of AI in organic products promotion. Journal of Marketing & Sustainability Research. https://jmsr-online.com/article/leveraging-artificial-

intelligence-for-sustainable-marketing-a-theoretical-exploration-of-ai-in-organic-products-promotion-303/

17. (Author unknown). (n.d.). [Working paper / report]. NUS Business School. https://web2-bschool.nus.edu.sg/wp-content/uploads/media_rp/publications/agDQw1603431314.pdf
18. (Author unknown). (2024). AI in commerce and management. KJCMT. https://kjcmt.ac.in/uploads/2024/05/AI-IN-COMMERCE-AND-MANAGEMENT.pdf
19. Ramlutchman, G. (n.d.). [Article]. Expert Journals: Marketing.