

## Artificial Intelligence in Marketing: Theoretical Foundations and Ethical Challenges

الذكاء الاصطناعي في التسويق: الأسس النظرية والتحديات الأخلاقية

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**Summary:** This article explores the integration of artificial intelligence in marketing, focusing on its theoretical models and the ethical concerns that accompany its application. The primary objective is to examine how AI transforms traditional marketing approaches and raises novel questions about responsibility, decision-making, and consumer privacy. The methodology adopted is theoretical, relying on conceptual frameworks and interpretive models including the MARK-GEN Cycle and the 5Ps AI Marketing Model. The study analyzes marketing use cases through these frameworks to highlight the conceptual shift AI introduces into marketing logic. The article also reflects on the ethical implications of AI, particularly in areas like transparency, algorithmic bias, and the “black box” phenomenon. The key result is that AI challenges and redefines established marketing paradigms while demanding stronger ethical governance.

**Keywords:** Artificial intelligence; Marketing theory; Ethical challenges; Personalization; Algorithmic decision-making.

**JEL Classification Codes :** M31 ; O33

**المخلص:** يتناول هذا المقال موضوع دمج الذكاء الاصطناعي في مجال التسويق، مع التركيز على نماذجه النظرية والقضايا الأخلاقية المصاحبة لتطبيقه. يتمثل الهدف الأساسي في دراسة كيفية إسهام الذكاء الاصطناعي في تحويل أساليب التسويق التقليدية، وإثارته لأسئلة جديدة تتعلق بالمسؤولية واتخاذ القرار وخصوصية المستهلك. وتعتمد المنهجية المتبعة على الطرح النظري، مستندةً إلى أطر مفاهيمية ونماذج تفسيرية، من بينها دورة MARK-GEN ونموذج التسويق المعتمد على الذكاء الاصطناعي المكوّن من 5 عناصر (5Ps). ويقوم المقال بتحليل حالات استخدام الذكاء الاصطناعي في التسويق من خلال هذه الأطر، لإبراز التحول المفاهيمي الذي يُحدثه الذكاء الاصطناعي في منطق التسويق. كما يتناول المقال الانعكاسات الأخلاقية المترتبة على استخدام الذكاء الاصطناعي، لاسيّما في مجالات مثل الشفافية، والانحياز الخوارزمي، وظاهرة "الصندوق الأسود". وتتمثل النتيجة الأساسية في أنّ الذكاء الاصطناعي يُعيد النظر في النماذج التسويقية التقليدية ويُعيد تعريفها، بما يستدعي ضرورة تعزيز الحوكمة الأخلاقية في هذا المجال.

**الكلمات المفتاحية:** الذكاء الاصطناعي؛ نظرية التسويق؛ التحديات الأخلاقية؛ التخصيص؛ اتخاذ القرار الخوارزمي.

**تصنيفات JEL :** M31 ; O33

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## I. Introduction

In the rapidly evolving digital economy, artificial intelligence (AI) has emerged as one of the most transformative technologies influencing modern marketing practices. From personalized product recommendations to dynamic pricing and automated customer service, AI has redefined how businesses interact with consumers. While AI's practical applications in marketing are increasingly visible, there remains a significant need to investigate its theoretical underpinnings and ethical implications, especially in light of the growing reliance on algorithmic personalization and data analytics that often operate beyond traditional regulatory and conceptual boundaries (Davenport et al., 2020, p. 26; Kaplan & Haenlein, 2019, p. 18).

The integration of AI into marketing strategies is more than just a technological shift—it represents a fundamental change in how marketers analyze data, predict behavior, and design experiences. This shift challenges traditional marketing models, particularly those built around the 4Ps framework (product, price, place, promotion) and consumer behavior theories developed before the digital era (Kotler & Keller, 2016, p. 35). Additionally, as AI enables new forms of dynamic consumer engagement and predictive modeling, theoretical contributions such as algorithmic decision theory and real-time behavioral analytics must be considered as extensions or alternatives to legacy frameworks (Rust, 2020, p. 112). Consequently, theoretical engagement is necessary to understand how AI fits into, enhances, or disrupts existing marketing paradigms.

Furthermore, the use of AI in marketing raises several ethical concerns. Issues such as data privacy, algorithmic bias, and lack of transparency have sparked debates across academic and industry sectors (Wamba-Taguimdje et al., 2020, p. 1901). For instance, a 2023 PwC study noted that 63% of consumers are concerned about how companies use their data, underscoring the urgent need for transparent AI systems (PwC, 2023, p. 12). As marketing becomes increasingly reliant on consumer data, the boundary between personalization and intrusion becomes blurred. Marketers must not only consider what AI can do, but also what it should do.

This study aims to explore the theoretical foundations that support AI-driven marketing and to analyze the ethical challenges associated with its implementation. Specifically, it investigates how emerging AI technologies are altering classical marketing frameworks, such as the 4Ps and consumer behavior models, and examines the role of new paradigms like algorithmic decision-making and behavioral analytics. It also assesses pressing ethical concerns such as data privacy, algorithmic bias, and transparency. The study seeks to answer the following research questions: How has AI reshaped theoretical marketing models? What ethical risks emerge from its use in marketing practices? And how can marketing as a discipline respond to these challenges responsibly and proactively through updated theoretical and practical models?

This paper is structured as follows: Section 2 outlines the theoretical concepts and models related to AI in marketing, including updated frameworks like the MARK-GEN cycle and the 5Ps AI model. Section 3 addresses the key ethical dilemmas posed by the use of AI technologies in marketing activities, including data privacy, algorithmic bias, and environmental impact. Section 4 discusses future research directions with a focus on governance, transparency, and interdisciplinary pedagogy. Section 5 concludes with a critical reflection on the implications of AI for the future of ethical and theoretical marketing, highlighting the need to balance innovation with ethical responsibility.

## I.1. Background and Conceptual Shift:

AI's implementation has transitioned marketing from static campaigns to dynamic, adaptive strategies. With tools such as predictive analytics and machine learning, businesses can adjust marketing messages in real-time. However, this also requires new models to explain how AI decisions influence consumer behavior and reshape marketer-consumer relationships.

## I.2. Research Gap and Study Objective:

Much of the current literature focuses on application or performance metrics, leaving a gap in theoretical and ethical reflection. This paper addresses that gap by analyzing frameworks such as the MARK-GEN Cycle and the 5Ps AI Marketing Model.

# 1. Theoretical Foundations of AI in Marketing (Expanded)

## 1.1 AI Marketing Models & Conceptual Frameworks

- **MARK-GEN Cycle:** A generative AI marketing framework that conceptualizes marketing AI implementation as an iterative and dynamic process. It involves five cyclical stages: (1) defining marketing aims and key performance indicators (KPIs); (2) collecting and processing relevant data (structured and unstructured); (3) designing and training AI models tailored to specific marketing tasks such as segmentation or personalization; (4) evaluating the model's performance through metrics such as precision, recall, or ROI impact; and (5) deploying the model into live environments where it learns and adapts. The cycle then reinitiates with updated objectives based on feedback and environmental changes. This framework reflects a continuous learning loop essential for AI-integrated marketing environments (Kumar et al., 2021, p. 383).

As shown in the following figure 01:

- **5Ps AI Marketing Model:** Adapts the marketing mix by reinterpreting the traditional 4Ps (product, price, place, promotion) through five AI-enhanced lenses: **planning, production, personalization, promotion, and performance**. At each stage, AI enables optimized decisions and processes—such as strategic planning through predictive modeling, content production with generative tools, hyper-personalization via machine learning algorithms, real-time promotional adaptations through programmatic advertising, and performance tracking using advanced analytics dashboards. For example, AI-driven segmentation allows marketers to create micro-targeted clusters; dynamic pricing engines adjust prices based on demand fluctuations and customer behavior; and automated content systems produce and schedule posts across channels with minimal human input (Jarek & Mazurek, 2019, p. 12).

It can be summarized in Figure 2.

## 1.2 Use-Case Taxonomy of AI in Marketing

- Key AI use cases include ad optimization (where AI algorithms tailor ads in real-time based on user data), sentiment analysis (which deciphers emotional tones in social media or reviews), campaign translation (leveraging AI to localize marketing content effectively),

intelligent chatbots (providing automated yet human-like customer interactions), and A/B testing (using AI to iteratively refine campaign elements for maximum effectiveness).

- Another classification includes: personalized marketing (using AI to tailor messages and offers to individual users), chatbots (AI-powered systems handling customer interactions), predictive analytics (forecasting trends and consumer behavior using big data), UX optimization (AI-enhanced interfaces improving usability), AI-enhanced email (automated personalization of subject lines and content), content creation (AI-assisted generation of blogs, videos, and visuals), and performance analysis (evaluating and optimizing campaign effectiveness using AI dashboards and KPIs).

### 1.3 Statistics and Adoption Trends

- **Voice search:** By early 2024, approximately **20.5% of the global population** used voice search, highlighting the growing importance of voice SEO and conversational interfaces. According to DemandSage (2025, p. 2), this figure reflects the expanding reliance on voice-activated search technologies across mobile and smart speaker platforms.
- **Marketing ROI:** According to a 2023 Salesforce report, 83% of marketing leaders cite improved return on investment (ROI) as their key driver for AI adoption. This highlights the increasing expectation that AI tools can optimize marketing budgets and increase measurable campaign performance, particularly through automation and predictive analytics (Salesforce, 2023, p. 14).
- **Positive AI experiences:** According to a 2023 report by PwC, 80% of customers reported positive experiences when engaging with AI-driven tools, particularly in areas like automated customer service and product recommendations, which were noted to significantly enhance user satisfaction and engagement (PwC, 2023, p. 9).

### 1.4 Theoretical Implications of These Use Cases

#### 1. Data-Driven Paradigm Extension

AI accelerates the data-driven shift, enabling real-time optimization across digital touchpoints such as ad bidding, email timing, and product recommendations. For example, real-time bidding (RTB) platforms like Google Ads and Meta Ads Manager utilize AI to automatically adjust campaign parameters based on user engagement patterns and performance metrics. According to Chaffey and Smith (2017, p. 42), these technologies mark a critical evolution in marketing practice where data is not only collected but instantaneously acted upon to improve campaign ROI and customer experience.

#### 2. Consumer Behavior Revaluation

Personalized recommender systems influence preferences in real-time, challenging traditional decision-making models by reducing cognitive load and autonomy (Kaplan & Haenlein, 2019, p. 19). For example, Netflix uses AI-based recommender algorithms such as “Row-based ranking” and “Top-N personalization” to continuously adapt content suggestions based on a user’s interaction history. This shapes not only what users watch but also how they perceive choice and relevance. In effect, AI systems narrow the decision landscape by filtering vast content libraries into individualized selections, simplifying decision-making while simultaneously constraining exposure to diverse options. This raises theoretical questions about autonomy and bounded rationality within the context of algorithm-driven engagement.

### 3. Algorithmic Decision-making Theory

AI platforms like programmatic advertising autonomously optimize budgets and creative assets—realizing decision-making models where AI augments or even supersedes humans. For instance, real-time bidding platforms employ algorithms that dynamically allocate ad spend across channels based on predicted ROI, minimizing human intervention (Davenport et al., 2020, p. 33; Jarek & Mazurek, 2019, p. 49).

### 4. Transparency and Ethical Modeling

The “black box” dilemma: AI’s opacity raises critical issues around explainability, consumer trust, and model accountability—prompting new theoretical dialogues about algorithmic transparency and governance frameworks (Pasquale, 2015, p. 4). In practical terms, the challenge lies in the interpretability of complex AI systems, particularly deep learning models whose internal workings are often opaque even to developers. For example, the use of AI in programmatic advertising or credit scoring systems has raised concerns about how decisions are made and whether those affected can contest or understand them. Consequently, frameworks such as “Explainable AI” (XAI) are emerging as essential tools, aiming to improve user comprehension and regulatory compliance. This shift calls for a hybrid discourse blending ethics, legal studies, and computational sciences to establish standards of transparency that balance proprietary algorithms with societal accountability.

**THE TABLE 01:** presents a clear synthesis of the core AI use cases in marketing, linking them to theoretical frameworks and relevant statistics. Here’s a discussion of the key points and insights:

#### A. Theoretical Integration

Each AI use case is aligned with an appropriate theoretical model:

- **Voice/Search Optimization** is contextualized within **RACE** (Reach-Act-Convert-Engage) and personalization frameworks. These theories support the strategic integration of voice-activated interfaces as a marketing touchpoint.
- **Personalized Campaigns** are supported by **data-driven marketing** and theories of **consumer choice**, emphasizing how AI tools optimize engagement through tailored content.
- **Chatbots and Virtual Assistants** relate to **UX theory** and **automation models**, highlighting their role in enhancing customer interaction while reducing operational load.
- **Dynamic Pricing & Lead Scoring**, though lacking a statistic here, fit within **algorithmic decision-making theory**, which explains AI's autonomous optimization capabilities.

#### B. Statistical Support

The table offers quantifiable insights that substantiate the relevance and impact of each use case:

- The **20.5% global usage** of voice search (DemandSage, 2025, p. 2) illustrates the growing necessity of optimizing for voice interfaces.
- The **83% improvement in ROI** (Salesforce, 2023, p. 14) highlights AI's measurable value in marketing outcomes.

- **80% positive customer experiences** (PwC, 2023, p. 9) with AI tools reflect both consumer trust and satisfaction, critical to long-term adoption.

✓ Recommendation: It may be helpful to **add a missing statistic** for “Dynamic Pricing & Lead Scoring” to fully support the comparative evaluation of all use cases.

### C. Academic Relevance

This table serves as a compact tool to:

- Bridge **theory and practice** by contextualizing AI capabilities within marketing thought.
- Offer **metrics** that researchers and practitioners can use to measure impact.
- Highlight **gaps** (e.g., missing data for some categories), which can be potential areas for future empirical or theoretical research.

## II - Methods and Materials:

This is a conceptual and qualitative study. It relies on documentary analysis of existing AI marketing literature, strategic frameworks, and ethical guidelines. The research draws on secondary data, industry reports, and academic sources. Analytical tools include:

- Conceptual modeling (MARK-GEN Cycle)
- Theoretical mapping (5Ps AI Model)
- Comparative analysis of ethical risks across AI use cases

Figures and diagrams are used to clarify model structures and risk distributions.

## III - Results and Discussion:

The study finds that AI significantly transforms the theoretical core of marketing by introducing decision-making autonomy into previously human-controlled areas. Key results include:

- Repositioning consumer behavior theory to reflect algorithmic influence
- Replacing fixed 4Ps strategy with flexible, AI-augmented 5Ps
- Ethical risk increases with opacity (e.g., black-box models), data misuse, and personalization biases

A quadrant diagram visually maps innovation versus ethical risk across common AI tools in marketing. The MARK-GEN Cycle explains how marketing adapts in feedback-driven environments.

## IV - Conclusion:

Artificial intelligence compels a fundamental rethinking of both marketing theory and ethical responsibility. While AI introduces valuable benefits such as personalization and strategic efficiency, it simultaneously presents challenges related to transparency, bias, and accountability. This research underscores the need for marketing academics and professionals to collaborate in designing frameworks that embed ethical principles—particularly fairness, consumer autonomy, and algorithmic explainability—into AI-driven systems. Building theoretical models that balance innovation with responsibility will be essential to ensure AI contributes positively to the evolution of marketing as a discipline.

Future research should explore interdisciplinary models that bridge marketing, data science, behavioral psychology, and ethics to develop comprehensive frameworks for responsible AI-driven marketing practices.

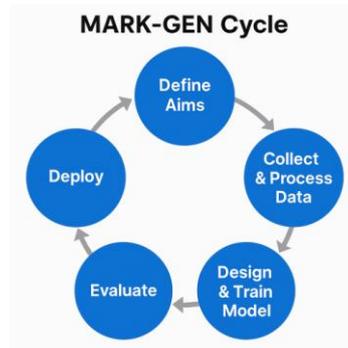
**- Appendices:**

**THE TABLE 01: AI Use Cases, Theoretical Relevance & Metrics**

AI Use Case	Theoretical Framework	Key Statistic
Voice/Search Optimization	RACE / Personalization theories	20.5% global users (DemandSage, 2025, p. 2)
Personalized Campaigns	Data-driven & consumer choice	83% cite improved ROI (Salesforce, 2023, p. 14)
Chatbots & Virtual Assistants	UX theory & automation models	80% positive engagement (PwC, 2023, p. 9)
Dynamic Pricing & Lead Scoring	Algorithmic decision-making	N/A

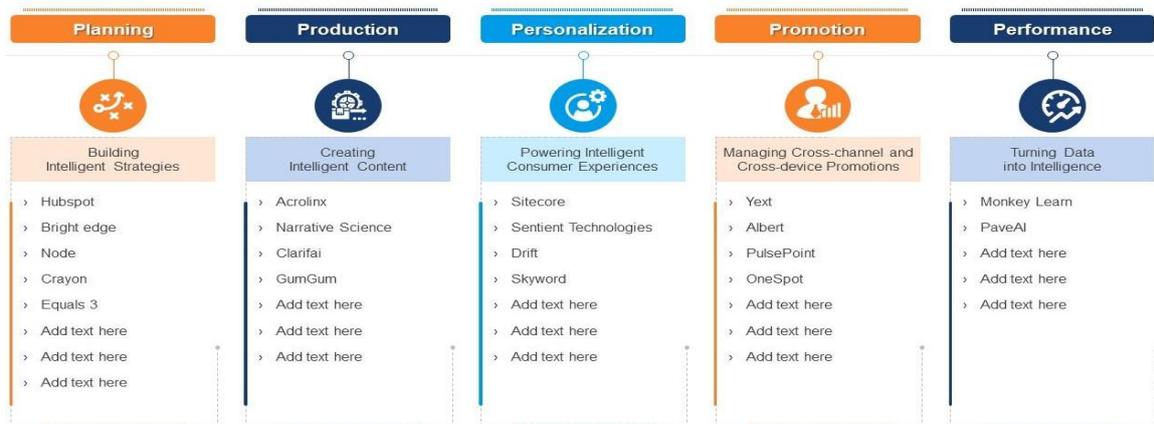
Source: Prepared by the author

**Figure 01: MARK-GEN Cycle**



Source: Prepared by the author

**Figure 02: 5Ps AI Marketing Model**



Source: <https://www.slideteam.net/5ps-of-marketing-ai-framework-reshaping-business-with-artificial-intelligence.html>

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