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Measuring the Return on Investment of AI in Marketing: A Multi Industry Study

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Abstract

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This study examines how organisations measure the return on investment of artificial intelligence in marketing across different industries. Drawing on a systematic literature review of peer reviewed journal articles, the study synthesises evidence on where artificial intelligence is deployed in marketing, which financial and non financial metrics are used, and how organisational capabilities shape outcomes. The review shows that artificial intelligence has evolved into a strategic marketing capability that supports granular segmentation, personalisation, dynamic pricing, and service automation, but that most studies still evaluate outcomes through intermediate indicators such as engagement, conversion, and satisfaction rather than audited financial returns. The findings highlight the central role of data infrastructures, cross functional integration, and clear strategic focus on artificial intelligence in translating technological investments into sustained market and financial performance. The paper concludes by outlining implications for managers seeking to justify artificial intelligence investments and for researchers aiming to design more rigorous, comparable frameworks for measuring artificial intelligence related returns in marketing.

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1. Introduction

Artificial intelligence has moved from experimental pilots to a central driver of marketing transformation across industries such as retail, financial services, tourism, and manufacturing. Firms increasingly embed AI into core marketing activities, including segmentation, dynamic pricing, content personalisation, customer service automation, and campaign optimisation, with the promise of superior customer experiences and improved financial performance (Huang & Rust, 2021; Verma et al., 2021). Conceptual and review papers show that AI is reshaping how firms sense customer needs, design and deliver value propositions, and orchestrate omnichannel journeys, suggesting that AI has become a strategic marketing capability rather than a peripheral technology (Vlačić et al., 2021).

Building on this view, recent studies frame AI as a bundle of organisational capabilities that can enhance marketing agility, innovation, and ultimately firm performance. Research on AI capability and competencies finds that firms able to select, orchestrate, and leverage AI-specific resources translate these resources into superior marketing capabilities and improved organisational outcomes (Mikalef & Gupta, 2021; Mikalef et al., 2023). In parallel, work on AI-enabled digital marketing documents positive effects on customer engagement, conversion, and profitability, especially when AI is used to optimise targeting, creative content, and customer interactions across digital touchpoints (Huang & Rust, 2021; Verma et al., 2021). These findings collectively suggest that AI investments in marketing can generate economic value through both revenue growth and cost efficiency (Wamba-Taguimdje et al., 2020).

However, the scholarly literature has paid relatively less attention to how firms measure the return on investment (ROI) of AI in marketing. Existing research tends to focus either on the high-level business value of AI-based transformation projects or on intermediate marketing performance indicators such as click-through rates, engagement, or customer satisfaction, without systematically linking these metrics to financial returns at the initiative or portfolio level (Wamba-Taguimdje et al., 2020; Mikalef & Gupta, 2021). Empirical studies that do examine AI and performance often concentrate on single sectors or narrow use cases, limiting our understanding of how AI-driven marketing value is realised and captured across heterogeneous industries with different data infrastructures, customer journeys, and regulatory constraints (Vlačić et al., 2021; Mikalef et al., 2023).

At the same time, both practitioners and academics acknowledge that AI projects frequently struggle to demonstrate clear, auditable ROI, creating tension between substantial AI investments and pressure from top management and shareholders for measurable financial outcomes. While recent work highlights AI's potential to enhance marketing performance and profitability, it also emphasises gaps in standardised metrics, attribution models, and time horizons used to evaluate AI-enabled initiatives (Huang & Rust, 2021; Verma et al., 2021). There is therefore a need for empirical research that moves beyond generic "business value" narratives and develops rigorous, comparable approaches to quantifying AI-related marketing returns across industries.

Responding to these gaps, this study investigates how organisations in multiple industries measure the ROI of AI in marketing and which factors explain

variation in realised returns. Specifically, the paper aims to (1) identify the types of AI applications most frequently deployed in marketing across industries, (2) map the financial and non-financial metrics firms use to assess AI-enabled marketing initiatives, and (3) examine how differences in AI capabilities, data maturity, and industry context shape the relationship between AI marketing investments and observed ROI. By offering a multi-industry, measurement oriented perspective, the study seeks to complement existing conceptual frameworks on AI in marketing and provide practical guidance for managers tasked with justifying and prioritising AI investments in increasingly data-intensive competitive environments.

2. Literature Review

Artificial intelligence is increasingly recognised as a transformative force in marketing strategy rather than a marginal technology add on. Conceptual work shows that AI reconfigures core marketing tasks such as customer analysis, targeting and interaction design, and is likely to fundamentally change both marketing strategies and customer behaviour as firms move from rule-based automation to continuously learning systems (Davenport et al., 2020). Systematic literature reviews similarly document how AI is being embedded across segmentation, dynamic pricing, content personalisation and customer service, concluding that AI has evolved into a central theme in contemporary marketing research and practice (Chintalapati & Pandey, 2022; Labib, 2024).

From a capability perspective, the marketing literature increasingly frames AI and machine learning as bundles of organisational resources that underpin superior

analytical and decision-making capabilities. Reviews of machine-learning applications in marketing show that advanced algorithms can enhance prediction accuracy, targeting quality and real-time optimisation, but that these performance gains depend on firms' ability to integrate data, models and domain expertise into coherent marketing processes (Ngai & Wu, 2022). Empirical studies on AI orientation and "AI focus" further find that firms that strategically prioritise AI and align it with their broader marketing and innovation strategies tend to achieve higher levels of market and financial performance, suggesting that AI contributes to competitive advantage when embedded in dynamic capabilities rather than adopted as isolated tools (Chen et al., 2022; Mishra et al., 2022).

Despite this growing evidence that AI can improve marketing effectiveness and firm performance, the literature provides only partial insight into how organisations actually measure the financial return on AI enabled marketing initiatives. Existing reviews and empirical studies generally report intermediate marketing metrics such as engagement, conversion, satisfaction or campaign efficiency and infer business value from these indicators, but rarely trace AI investments through to auditable financial outcomes at the project or portfolio level (Chintalapati & Pandey, 2022; Labib, 2024). Moreover, most empirical work is confined to specific sectors such as e-commerce, services or manufacturing limiting understanding of how heterogeneous industry conditions, data infrastructures and regulatory environments shape the realisation and measurement of AI-related returns (Ngai & Wu, 2022; Chen et al., 2022). These gaps underline the need for multi-industry, ROI-oriented research that links AI marketing capabilities and

applications to both financial and non-financial performance metrics in a systematic and comparable way.

3. Methods

This study employs a systematic literature review (SLR) to synthesise existing evidence on how organisations measure the return on investment of artificial intelligence in marketing across different industries. The review process begins with the formulation of focused research questions concerning AI applications in marketing, the metrics used to evaluate AI-enabled initiatives, and the relationship between AI capabilities and observed financial and non-financial outcomes. A comprehensive search strategy is then implemented across major academic databases such as Scopus, Web of Science, ScienceDirect, and Google Scholar using combinations of keywords related to artificial intelligence, marketing, performance, and return on investment. The search is restricted to peer-reviewed journal articles written in English that examine AI within a marketing context and report performance or ROI related indicators, while conference papers, non peer reviewed sources, and purely technical studies without a marketing focus are excluded. Titles and abstracts are screened to assess relevance, followed by full-text evaluation, duplicate removal, and the application of explicit inclusion and exclusion criteria. To ensure rigour, at least two reviewers independently screen and code the studies, resolving disagreements through discussion. Quality appraisal is conducted using criteria such as conceptual clarity of AI constructs, methodological transparency, appropriateness of performance or ROI metrics, and relevance to marketing

decision-making. A structured data extraction template is used to capture information on study context, industry setting, AI applications, theoretical lenses, research designs, and operationalisation of ROI or related performance metrics. The extracted data are then subjected to descriptive mapping and narrative synthesis to identify convergent findings, contrasting results, and research gaps, with particular attention to how different industries conceptualise and measure AI-related returns and which organisational and contextual factors appear to shape these outcomes.

4. Results and Discussion

The systematic review shows that AI has indeed shifted from isolated pilots to an integral component of marketing architectures across multiple industries, confirming the strategic repositioning highlighted in prior conceptual work (Huang & Rust, 2021; Verma et al., 2021). Across the included studies, AI is most frequently deployed in customer-facing activities such as segmentation, personalised recommendations, dynamic pricing, and service automation. This pattern mirrors the broader transformation of core marketing tasks highlighted by Davenport et al. (2020) and further supported by systematic reviews on AI in marketing (Chintalapati & Pandey, 2022; Labib, 2024). These applications are consistently framed not as "add-ons" but as elements of redesigned customer journeys and omnichannel strategies, reinforcing the view that AI has become a central marketing capability rather than a peripheral technology (Vlačić et al., 2021).

A second key finding concerns how the reviewed studies conceptualise and operationalise performance and ROI. Most articles measure the impact of AI-

enabled marketing through intermediate outcomes such as click-through rates, conversion, engagement, satisfaction, or campaign efficiency, with only a minority explicitly linking these indicators to financial metrics such as revenue uplift, profit contribution, or lifetime value. This pattern supports earlier observations that AI's business value is often inferred indirectly from marketing performance proxies rather than tracked through auditable financial returns (Wamba-Taguimdje et al., 2020; Chintalapati & Pandey, 2022; Labib, 2024). As a result, many studies provide strong evidence that AI "works" in improving marketing effectiveness but offer limited guidance on how managers should calculate and communicate the financial ROI of specific AI initiatives or portfolios.

The synthesis also highlights the central role of organisational capabilities in explaining heterogeneity in reported outcomes. Studies that explicitly consider AI capability, AI competencies, or AI orientation consistently find that firms with stronger data infrastructures, clearer AI strategies, and better integration between technical and marketing teams achieve more substantial performance gains (Mikalef & Gupta, 2021; Mikalef et al., 2023). This aligns with evidence that AI- and machine-learning-based tools yield superior prediction and targeting only when embedded in coherent marketing processes and supported by appropriate human expertise (Ngai & Wu, 2022). Empirical work on AI focus similarly suggests that strategic prioritisation of AI, and its alignment with innovation and market strategies, is associated with stronger market and financial performance (Chen et al., 2022; Mishra et al., 2022). Taken together, these findings indicate that measuring ROI on AI in

marketing cannot be separated from evaluating the maturity of underlying AI capabilities and governance structures.

Cross-industry comparison in the reviewed literature also reveals an uneven empirical landscape. Many studies are concentrated in e-commerce, online services, and digitally intensive sectors, where rich behavioural data and experimentation capabilities make it easier to deploy AI and observe performance effects (Ngai & Wu, 2022; Chen et al., 2022). By contrast, traditional industries such as manufacturing, tourism, or financial services are less frequently examined, despite their prominence in conceptual discussions of AI-driven marketing transformation (Davenport et al., 2020; Huang & Rust, 2021). This imbalance reinforces the concern that current knowledge on ROI is shaped by contexts with relatively advanced data infrastructures and may not generalise to settings with more fragmented data, stricter regulation, or complex offline online customer journeys.

Finally, the review exposes a methodological gap between sophisticated discussions of AI as a strategic capability and relatively simple approaches to ROI measurement. While capability-oriented studies emphasise dynamic, path-dependent effects of AI on marketing agility and innovation (Mikalef & Gupta, 2021; Mikalef et al., 2023), most empirical works still rely on short-term campaign metrics or single period financial indicators. This misalignment suggests an opportunity for future research to design ROI frameworks that better reflect the long-term, capability building nature of AI investments, for example by combining intermediate marketing metrics with multi-period financial outcomes and by explicitly modelling how AI capabilities accumulate and translate into sustainable performance

advantages (Huang & Rust, 2021; Verma et al., 2021). In this sense, the results of the review both confirm the transformative potential of AI in marketing and underline the need for more rigorous, multi-industry approaches to capturing and comparing AI-related returns.

5. Conclusion

The findings of this systematic literature review confirm that artificial intelligence has evolved into a strategic marketing capability that reshapes how firms understand, reach, and interact with customers across industries. AI is no longer confined to experimental pilots but is widely embedded in segmentation, personalisation, dynamic pricing, and service automation, supporting more responsive and data-driven customer journeys. At the same time, the review shows that the performance benefits of AI are not automatic. They depend heavily on the maturity of underlying organisational capabilities, including data infrastructures, cross-functional integration, clear AI strategies, and the alignment of AI initiatives with broader marketing and innovation goals. Firms that treat AI as a dynamic capability rather than a stand-alone tool are more likely to translate AI-enabled enhancements in prediction, targeting, and optimisation into meaningful improvements in market and financial performance.

However, the review also highlights that the way organisations measure the return on AI in marketing remains underdeveloped and uneven across contexts. Most studies focus on intermediate marketing indicators such as engagement, conversion, satisfaction, or campaign efficiency while only a few link AI investments

to auditable financial metrics at the project or portfolio level. Evidence is further skewed toward digitally intensive sectors, limiting generalisation to industries with more complex data and regulatory environments. These gaps suggest that future research needs to develop more rigorous, multi-period ROI frameworks that integrate both financial and non-financial metrics, incorporate capability-building effects over time, and are adaptable to different industry conditions. For practitioners, the results imply that demonstrating the value of AI in marketing requires not only deploying advanced technologies but also investing in measurement systems and governance structures that make AI-related returns transparent, comparable, and strategically actionable.

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