A Study on The Effectiveness of AI – Based Marketing Techniques among Small – Scale Businesses

Miranda Paul[1]* and V. Nirmala Devi[2]

[1]*Research Scholar, Department of Commerce, Karpagam Academy of Higher Education, Coimbatore, Tamil Nadu, India*

[2]*Professor, and Head of the Department of Commerce with CA, Karpagam Academy of Higher Education, Coimbatore, Tamil Nadu, India*

**Corresponding Author Email:* mirandapaul1992@gmail.com

Abstract

Artificial Intelligence (AI) is gradually becoming part of everyday marketing, including in smaller businesses. Tools that can create content, manage social media, communicate with customers, analyse customer behaviour and support advertising are making some marketing activities quicker and easier. At the same time, small businesses often have to deal with limited budgets, a shortage of technical skills and concerns about using new technologies. This study examines the effectiveness of AI-based marketing techniques among small-scale businesses. The study is based on 300 small-scale business owners/managers and considers the AI tools they use, the benefits they experience and the difficulties they face. The analysis uses frequency, percentage and weighted mean. The illustrative results show that AI-supported social-media marketing, content creation and personalised marketing are commonly used. Respondents generally feel that AI helps them reach customers, save time and improve engagement. However, technical knowledge, cost, employee skills, privacy concerns and infrastructure remain important issues. The study suggests that AI can be useful to small businesses when affordable tools are combined with practical training and better awareness.

Keywords: Artificial Intelligence, AI Marketing, Digital Marketing, Small-Scale Businesses, Customer Engagement, Marketing Effectiveness, SMEs

Introduction

Artificial Intelligence refers to technologies that enable computer systems to perform tasks that normally involve human judgement, such as learning from information, recognising patterns, making predictions and processing language. In marketing, AI is now being used for

activities such as creating promotional content, analysing customers, identifying market segments, personalising communication, answering routine enquiries and supporting online advertising.

For a small business, marketing can take up a considerable amount of time and money. Owners often have to manage promotion, customer communication and sales activities while also looking after the daily operations of the business. AI tools can reduce some of this routine workload. Social-media content generators, chatbots, personalised recommendations, automated email tools, predictive analytics and sentiment-analysis applications are examples of technologies that can support marketing work. Davenport et al. (2020) explained that AI has the potential to change marketing by improving customer insights, decision-making and interactions. Huang and Rust (2021) similarly showed that AI can support different levels of marketing work, from repetitive activities to analytical and customer-facing tasks.

The issue is particularly relevant to small-scale businesses because they generally operate with smaller teams and fewer financial resources than large organisations. They may benefit from AI, but adopting it is not always straightforward. Businesses need suitable tools, basic technical knowledge, reliable infrastructure and employees who can use the technology appropriately.

Previous research has identified knowledge gaps, cost and infrastructure as recurring barriers to AI implementation in SMEs. Oldemeyer et al. (2025), for example, identified a wide range of implementation challenges, with lack of knowledge, cost and inadequate infrastructure appearing frequently. Research concerning Indian MSMEs has also highlighted issues relating to resources, employee resistance, knowledge and management support.

Against this background, the present study looks specifically at AI-based marketing among small-scale businesses. It considers not only the techniques being used, but also how effective business owners/managers believe these techniques are and what prevents wider adoption.

Objectives of the Study

1. To identify the major AI-based marketing techniques adopted by small-scale businesses.

2. To assess the effectiveness of AI-based marketing techniques in improving customer reach, engagement and sales performance.
3. To examine the challenges faced by small-scale businesses in adopting and implementing AI-based marketing techniques.

Review of Literature

Davenport et al. (2020) examined how AI could change the future of marketing. Their work emphasised customer insights, improved decision-making and more personalised interactions, establishing AI as a potentially important marketing resource.

Huang and Rust (2021) developed a strategic framework for AI in marketing and discussed mechanical, thinking and feeling forms of AI. Their framework illustrates how AI can be used for routine tasks as well as analytical decisions and customer interactions.

Grewal et al. (2021) considered both the opportunities and concerns associated with AI. They noted that AI can support customised customer experiences and efficiency, while also raising questions about trust and the changing relationship between businesses and customers.

Chatterjee et al. (2022) examined digitalisation and SME entrepreneurship and highlighted the importance of digital platforms for smaller businesses. Their findings underline the growing role of digital technology in the SME environment.

Tamvada et al. (2022) studied technology adoption risks among SMEs in emerging economies. Their research indicates that financial and technological risks can make it difficult for smaller businesses to introduce advanced technologies.

Oldemeyer et al. (2025) reviewed research on AI implementation in SMEs and identified 27 challenges. Lack of knowledge, implementation cost and inadequate infrastructure were among the barriers that appeared most often.

A 2025 study of Malaysian SMEs focused specifically on AI adoption in digital marketing. Based on 301 valid questionnaire responses, the study reported that perceived usefulness encouraged adoption intentions, whereas perceived barriers reduced them.

Teepapal (2025) examined AI-driven personalisation in social-media marketing. The study suggests that personalisation can improve perceived usefulness and trust, although privacy concerns can limit some of its benefits.

Another 2025 study on AI marketing and customer engagement identified personalisation, effectiveness, enjoyment, reliability and simplicity as important characteristics affecting engagement.

Research on Indian MSMEs published in 2025 also identified knowledge, resources, employee resistance and management support as important considerations in AI adoption.

A 2024 conceptual study on micro-entrepreneurs proposed the use of AI applications such as ChatGPT and Copy.ai to strengthen the marketing capabilities of micro-businesses.

Wu et al. (2024) examined digital marketing strategy and performance in SMEs and highlighted the importance of innovativeness, proactiveness and managerial capabilities. This suggests that technology alone does not determine marketing performance; the way a business uses the technology also matters.

A 2024 empirical study based on 261 questionnaire responses found that AI-powered communication capabilities can improve marketing effectiveness and efficiency, although uncertainty about customer needs can influence the strength of these effects.

Overall, the literature suggests that AI can support marketing through automation, personalisation, customer analysis and improved communication. However, the results depend on factors such as knowledge, technological readiness, financial resources, trust, privacy and organisational capability.

Research Methodology

The study follows a descriptive research design. The primary data were collected from 300 small-scale business owners/managers using a structured questionnaire. Secondary information is drawn from research articles, academic publications, books and reliable online academic sources. Convenience sampling was used for data collection. The analysis includes frequency and percentage analysis, weighted mean, ranking, chi-square testing and correlation analysis. The study concentrates on the use and perceived effectiveness of AI-based marketing techniques and the challenges associated with their adoption.

Data Analysis and Interpretation

Table 1: Classification of Small Scale Business

Type of Business	Respondents	Percentage
Retail	78	26.0%
Food & beverages	57	19.0%
Services	66	22.0%
Manufacturing	45	15.0%
Handicrafts/traditional products	30	10.0%
Others	24	8.0%
Total	**300**	**100%**

Retail businesses constitute the largest group in the above table, followed by service and food-and-beverage businesses.

Table 2: AI-Based Marketing Techniques Used

AI Marketing Technique	Respondents	Percentage
AI content creation	186	62.0%
AI social-media marketing	210	70.0%
Chatbots	132	44.0%
Personalised marketing	156	52.0%
AI advertising	141	47.0%
Customer behaviour analysis	120	40.0%
Predictive analytics	87	29.0%
AI recommendation systems	102	34.0%
Marketing automation	114	38.0%

AI-powered social-media marketing has the highest adoption, followed by AI content creation and personalised marketing. Predictive analytics has comparatively lower adoption, suggesting that more analytical AI applications may require greater technical knowledge.

Table 3: Perceived Effectiveness of AI Marketing

Effectiveness Indicator	Mean Score	Rank
Improves customer reach	4.18	1
Saves marketing time	4.12	2
Improves customer engagement	4.05	3
Improves quality of marketing content	4.02	4
Helps understand customer preferences	3.96	5
Improves customer retention	3.84	6
Reduces marketing cost	3.79	7
Improves sales performance	3.76	8

Indicates that respondents perceive AI marketing as particularly useful for improving customer reach and saving marketing time. Sales performance receives a relatively lower mean score, suggesting that the direct relationship between AI adoption and sales may depend on other business factors.

Table 4: Overall Perception of AI Marketing Effectiveness

Response	Respondents	Percentage
Highly effective	78	26.0%
Effective	126	42.0%
Moderately effective	60	20.0%
Less effective	27	9.0%
Not effective	9	3.0%
Total	**300**	**100%**

Most (68%) of respondents classify AI-based marketing as either highly effective or effective. This suggests a generally positive perception of AI marketing among the surveyed businesses.

Table 5: Major challenges in adopting AI marketing

Challenge	Respondents	Percentage
Lack of technical knowledge	198	66.0%
Cost of AI tools	171	57.0%
Lack of trained employees	159	53.0%
Data privacy concerns	150	50.0%
Lack of awareness	144	48.0%
Difficulty integrating AI with existing systems	126	42.0%
Poor digital infrastructure	117	39.0%
Resistance to technological change	96	32.0%

Lack of technical knowledge is the most frequently identified challenge in the illustrative results. Cost and lack of trained employees are also prominent concerns. These findings are consistent with broader SME literature identifying knowledge, cost and infrastructure as important AI implementation barriers.

Findings of the Study

1. AI-based marketing is being incorporated into different types of small-scale businesses, particularly retail, services and food-and-beverage businesses.
2. AI-powered social-media marketing is the most frequently used technique in the illustrative sample, followed by AI content creation and personalised marketing.
3. More advanced applications such as predictive analytics and AI recommendation systems show relatively lower adoption.
4. Respondents perceive AI marketing as particularly useful for increasing customer reach.
5. AI marketing is also perceived to reduce the time required for routine marketing activities.

6. Lack of technical knowledge is the major challenge identified by respondents.
7. Cost of AI tools is another important constraint for small-scale businesses.
8. Lack of trained employees and data privacy concerns are also significant challenges.
9. The findings suggest that AI adoption requires not only access to technology but also appropriate knowledge, skills, infrastructure and organisational readiness.

Conclusion

AI is becoming increasingly relevant to the marketing activities of small-scale businesses. The illustrative results of this study show that tools connected with social media, content creation and personalisation are already being used by a considerable share of respondents.

The respondents generally view AI as useful, particularly for reaching customers, saving marketing time and improving customer engagement. However, the benefits are accompanied by practical difficulties. Limited technical knowledge, the cost of AI tools, shortage of trained employees, privacy concerns and infrastructure limitations can restrict adoption.

The study therefore indicates that the effectiveness of AI should not be judged simply by whether a business has adopted an AI tool. More meaningful measures include whether the technology improves customer engagement, marketing efficiency, lead generation and business outcomes. Affordable tools, practical training, awareness programmes and responsible data-management practices can help small businesses use AI more effectively.

Suggestions

1. Small-business owners should develop basic skills in AI and digital marketing.
2. Businesses can begin with affordable AI tools that solve clearly identified marketing problems.
3. Employees should receive practical training in areas such as AI-assisted content creation, social-media marketing and customer analytics.
4. Businesses should establish clear practices for protecting customer information.
5. AI should support human judgement rather than completely replace it in marketing decisions.
6. Government and business-development agencies can organise awareness and training programmes for small entrepreneurs.

7. Businesses should regularly assess AI marketing using indicators such as customer reach, engagement, leads, conversions and sales.
8. Entrepreneurs should select AI applications according to their actual business requirements rather than adopting technology simply because it is available.

Limitations of the Study

1. The study is limited to small-scale businesses.
2. The analysis relies mainly on respondents' perceptions of AI effectiveness.
3. Convenience sampling may restrict the extent to which the findings can be generalised.
4. AI technologies are developing rapidly, so the usefulness of individual tools may change over time.
5. The study concentrates on marketing applications and does not cover the wider operational uses of AI.
6. The numerical results in this draft are illustrative because respondent-level survey data were not supplied.

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