

Examining the Impact of AI on Marketing Effectiveness and Performance Management in Software Firms”

Dr.A. Sri Devi

Assistant Professor

Department of Commerce

Vels Institute of Science Technology and Advanced Studies

E-Mail: asridevi.sms@velsuniv.ac.in

S Sreevidhya

Research scholar - Full time

Vels institute of science technology and Advance Studies

sarun.sree06@gmail.com

Abstract

This study examines the impact of Artificial Intelligence on marketing effectiveness and performance management in software firms. The study focuses on how AI tools, automation, analytics, and personalization improve customer targeting, engagement, conversion, ROI, KPI tracking, decision-making, and employee productivity. A descriptive and analytical research design was adopted, and data were collected from 300 marketing professionals and employees working in software firms through a structured questionnaire. The data were analysed using SPSS with percentage analysis, descriptive statistics, reliability analysis, correlation, regression, and hypothesis testing. The findings show that AI usage has a significant positive impact on marketing effectiveness. The correlation results also indicate a strong positive relationship between AI usage, marketing effectiveness, and performance management. The regression result shows that AI usage explains 46% of the variation in marketing effectiveness. The study concludes that AI is an important strategic tool for improving marketing efficiency, data-driven decision-making, and performance management practices in software firms.

Keywords: Artificial Intelligence, Marketing Effectiveness, Performance Management, Software Firms, AI Tools, Marketing Analytics.

Introduction

Artificial Intelligence has become an important part of modern marketing because it helps companies understand customers, predict market trends, personalise communication, automate campaigns, and improve decision-making. In the present digital business environment, marketing is no longer based only on traditional promotion; it depends strongly on data, technology, customer behaviour analysis, and quick response to market changes.

In software firms, AI plays a major role because these companies usually work with digital products, online platforms, technical services, and data-driven customers. AI tools help software companies identify potential customers, analyse customer needs, manage online campaigns, improve lead generation, and measure marketing results more accurately. This allows marketing teams to use time, budget, and resources more effectively.

Marketing effectiveness is important because companies need to know whether their marketing activities are producing useful results. Effective marketing improves customer reach, customer engagement, sales conversion, brand awareness, and return on investment. AI supports this by providing accurate data analysis, automated reporting, customer segmentation, and performance tracking.

AI is also closely linked with performance management practices. In software firms, performance management depends on clear targets, measurable outcomes, employee productivity, customer response, and business results. AI helps managers monitor marketing performance, evaluate employee contribution, track key performance indicators, and make data-based decisions. This improves transparency and supports better planning.

However, many firms still face challenges in using AI effectively for marketing and performance management. Some companies use AI tools, but they may not fully understand how these tools improve marketing outcomes or employee performance. There is also limited research focusing specifically on software firms, especially in regional contexts such as Tamil Nadu.

Therefore, this study aims to examine the impact of AI on marketing effectiveness and performance management in software firms. The study focuses on understanding how AI supports marketing activities, improves performance measurement, and contributes to better organisational outcomes.

Objectives of the Study

- To examine the use of AI in marketing activities in software firms
- To analyse the impact of AI on marketing effectiveness
- To evaluate the influence of AI on performance management practices

Hypotheses of the Study

- H1: AI has a significant positive impact on marketing effectiveness
- H2: AI significantly influences performance management practices
- H3: Marketing effectiveness is positively related to performance management

Review of Literature

Artificial Intelligence has become an important tool in modern marketing because it helps organisations automate marketing activities, analyse large volumes of customer data, and create personalised customer experiences. According to **Davenport et al. (2020)**, AI supports marketing by improving customer understanding, decision-making, segmentation, targeting, and service delivery. AI-based tools such as chatbots, predictive analytics, recommendation systems, customer relationship management tools, and automated campaign platforms help companies improve the speed and accuracy of marketing decisions.

AI in marketing is mainly used for **automation, analytics, and personalisation**. Automation helps firms reduce manual work in email marketing, customer support, lead management, and social media campaigns. Analytics helps companies study customer behaviour, market trends, customer preferences, and campaign performance. Personalisation allows firms to deliver customised messages, product recommendations, and offers based on customer needs. **Huang and Rust (2021)** stated that AI can improve customer engagement by supporting mechanical, thinking, and feeling tasks in marketing.

Marketing effectiveness refers to the ability of marketing activities to achieve expected results such as customer reach, lead generation, customer engagement, conversion, sales growth, brand awareness, and return on investment. **Kotler and Keller (2016)** explained that marketing effectiveness depends on how well marketing strategies meet customer needs and create value. In software firms, marketing effectiveness is important because competition is high and customers expect fast, relevant, and personalised digital communication.

Performance management is the process of setting goals, measuring performance, giving feedback, and improving employee and organisational outcomes. According to **Armstrong (2017)**, performance management helps organisations align employee performance with business objectives. In software companies, performance management is closely connected with measurable indicators such as campaign success, customer acquisition, conversion rates, productivity, customer satisfaction, and revenue contribution.

Several studies have shown that AI improves marketing performance by supporting data-driven decision-making and customer-focused strategies. **Chatterjee et al. (2021)** found that AI adoption helps organisations improve customer relationship management and business performance. **Kumar et al. (2019)** highlighted that AI can improve marketing productivity by

enabling better targeting, customer insights, and personalised engagement. These studies suggest that AI can improve both marketing effectiveness and performance measurement.

AI also strengthens performance management by providing real-time data and measurable outcomes. Marketing managers can track employee performance, campaign results, customer responses, and sales conversions through AI-based dashboards and analytics tools. This helps firms make better decisions, identify performance gaps, and improve marketing strategies.

However, there is still a research gap. Many studies discuss AI in marketing generally, but limited research focuses on how AI influences both **marketing effectiveness and performance management practices** in software firms. In addition, fewer studies focus on regional software companies, especially in Tamil Nadu. Therefore, this study attempts to fill this gap by examining the impact of AI on marketing effectiveness and performance management in software firms.

Artificial Intelligence in marketing has changed the way organisations plan, implement, and evaluate their marketing strategies. **Davenport et al. (2020)** stated that AI helps marketers improve customer insights, automate decisions, and deliver better customer experiences. In software firms, AI is useful because most marketing activities are digital, data-driven, and performance-oriented.

AI-based **automation** helps organisations reduce repetitive marketing work such as email campaigns, social media scheduling, customer follow-up, chatbot responses, and lead scoring. This improves speed, reduces human error, and allows marketing employees to focus on strategic tasks. **Huang and Rust (2021)** explained that AI can perform mechanical and analytical marketing tasks, which improves efficiency and service delivery.

AI-based **analytics** supports better marketing decisions by analysing customer behaviour, website traffic, campaign performance, and market trends. Through predictive analytics, software firms can identify potential customers, forecast demand, and improve customer targeting. **Wedel and Kannan (2016)** noted that marketing analytics helps organisations transform customer data into useful marketing decisions.

AI also supports **personalisation**, which is important for improving customer engagement. Software firms can use AI to provide personalised emails, product recommendations, customised advertisements, and customer-specific offers. **Kumar et al. (2019)** stated that AI supports personalised engagement marketing by helping firms understand customer needs and deliver relevant communication.

Marketing effectiveness is measured through outcomes such as lead generation, customer engagement, conversion rate, customer retention, brand awareness, sales growth, and return on investment. **Kotler and Keller (2016)** explained that effective marketing creates customer value and supports organisational performance. In software companies, marketing effectiveness is especially important because competition is high and customers compare products, services, pricing, and technical support before making decisions.

Performance management is also important in software firms because marketing results must be measured accurately. **Armstrong (2017)** stated that performance management includes goal setting, performance measurement, feedback, and improvement. AI helps performance management by providing real-time dashboards, KPI tracking, automated reports, and data-based evaluation of marketing employees and campaigns.

Previous studies have shown that AI adoption improves marketing performance. **Chatterjee et al. (2021)** found that AI-based customer relationship management improves organisational performance and competitive advantage. Similarly, **Wirth (2018)** explained that AI allows companies to use data more intelligently for communication, targeting, and customer engagement.

AI also helps managers improve decision-making. Instead of depending only on experience or assumptions, managers can use AI-generated insights to evaluate campaign success, customer response, and employee contribution. This supports transparent and measurable performance management.

However, some challenges are also found in the literature. AI adoption requires quality data, skilled employees, technology investment, and organisational readiness. **Jarek and Mazurek (2019)** noted that AI creates opportunities in marketing but also requires proper strategy and knowledge. Many software firms may use AI tools but may not fully integrate them with marketing performance evaluation.

The review shows that AI has strong potential to improve marketing effectiveness and performance management. However, limited studies focus specifically on software firms in Tamil Nadu. Therefore, this study addresses the gap by examining how AI influences marketing outcomes and performance management practices in software firms.

Research Methodology

The present study adopted a **descriptive and analytical research design**. The descriptive approach was used to understand the current use of Artificial Intelligence in marketing practices, while the analytical approach was used to examine its impact on marketing effectiveness and performance management in software firms.

The study was conducted in **software firms located in Tamil Nadu**, focusing on organisations that actively use digital marketing and AI-based tools.

The population of the study consisted of **marketing professionals and employees working in software companies**. These respondents were selected because they are directly involved in marketing activities, performance evaluation, and the use of AI tools.

A **stratified random sampling technique** was used to ensure representation from different levels of employees such as executives, managers, and senior professionals. This helped in collecting balanced and reliable data. The **sample size of the study was 300 respondents**.

Primary data was collected using a **structured questionnaire**. The questionnaire included questions related to AI usage, marketing effectiveness, and performance management practices.

The collected data was analysed using **SPSS software**. Statistical tools such as **correlation analysis** were used to examine relationships between variables, **regression analysis** was used to measure the impact of AI on marketing effectiveness and performance management, and **ANOVA** was used to test differences based on demographic factors.

Analysis and Discussion

Demographic Variable	Category	Frequency	Percentage
Age	Below 25 years	45	15.0%
	25–35 years	125	41.7%
	36–45 years	90	30.0%
	Above 45 years	40	13.3%
Gender	Male	170	56.7%
	Female	130	43.3%
Education	Undergraduate	80	26.7%
	Postgraduate	180	60.0%
	Professional/Technical Qualification	40	13.3%
Experience	Less than 2 years	50	16.7%
	2–5 years	110	36.7%
	6–10 years	95	31.7%
	Above 10 years	45	15.0%
Job Position	Marketing Executive	100	33.3%
	Digital Marketing Specialist	85	28.3%
	Marketing Manager	75	25.0%

	Senior Manager	40	13.3%
--	----------------	----	-------

The percentage analysis shows that most respondents belonged to the **25–35 years age group** with 41.7%, followed by the 36–45 years group with 30.0%. This indicates that the majority of respondents were young and mid-career professionals working in software firms.

In terms of gender, male respondents represented 56.7%, while female respondents represented 43.3%. This shows a fairly balanced participation of both male and female employees.

Regarding education, most respondents were postgraduates, representing 60.0% of the sample. This indicates that the respondents had a strong educational background relevant to software and marketing roles.

With respect to experience, 36.7% of respondents had 2–5 years of experience, followed by 31.7% with 6–10 years of experience. This shows that the sample included employees with practical work experience in marketing and performance-related activities.

In terms of job position, Marketing Executives formed the largest group with 33.3%, followed by Digital Marketing Specialists with 28.3%. This indicates that the study mainly captured responses from employees directly involved in marketing activities.

Table 2 Descriptive Statistics

Statement	Mean	SD
AI tools improve customer targeting accuracy	4.20	0.65
AI helps in personalizing marketing campaigns	4.10	0.70
AI-based analytics improves decision-making	4.25	0.60
AI automation reduces marketing workload	4.00	0.75
AI improves customer engagement	4.15	0.68
AI increases conversion rates	3.95	0.80
AI helps in measuring marketing ROI effectively	4.05	0.72
AI supports performance evaluation of marketing activities	4.10	0.70
AI improves productivity of marketing employees	4.00	0.78
AI helps in tracking KPIs and performance metrics	4.20	0.65

The descriptive statistics show that the mean values for all statements are above 3.90, indicating a generally positive perception of AI among respondents. The highest mean value (4.25) is observed for the statement that AI-based analytics improves decision-making, suggesting that respondents strongly agree that AI supports better marketing decisions.

Similarly, high mean values for customer targeting (4.20) and KPI tracking (4.20) indicate that AI plays an important role in improving marketing effectiveness and performance measurement. Personalization and customer engagement also show high agreement, with mean values above 4.10.

The standard deviation values range between 0.60 and 0.80, which indicates moderate variation in responses. This suggests that most respondents have relatively similar opinions regarding the role of AI in marketing and performance management.

Overall, the results indicate that AI has a positive influence on marketing effectiveness and performance management practices in software firms.

Reliability Analysis

Table 3

Variable	No. of Items	Cronbach's Alpha
Artificial Intelligence Usage	5	0.86
Marketing Effectiveness	5	0.84
Performance Management	5	0.82
Overall Scale	15	0.88

The reliability analysis shows that all variables have Cronbach's Alpha values above **0.70**, which indicates good internal consistency. Artificial Intelligence Usage has an alpha value of **0.86**, Marketing Effectiveness has **0.84**, and Performance Management has **0.82**. The overall scale has a Cronbach's Alpha value of **0.88**, showing that the questionnaire is reliable for the study.

Therefore, the items used in the questionnaire are consistent and suitable for further statistical analysis such as correlation, regression, and ANOVA.

Correlation Analysis

Table 4

Variables	AI Usage	Marketing Effectiveness	Performance Management
AI Usage	1.000		
Marketing Effectiveness	0.68**	1.000	
Performance Management	0.61**	0.65**	1.000

Note: Correlation is significant at the 0.01 level.

The correlation analysis shows a strong positive relationship between **AI Usage and Marketing Effectiveness** with a correlation value of **0.68**. This means that when the use of AI increases, marketing effectiveness also improves.

There is also a positive relationship between **AI Usage and Performance Management** with a correlation value of **0.61**. This indicates that AI supports better performance tracking, evaluation, and decision-making.

The relationship between **Marketing Effectiveness and Performance Management** is also positive, with a correlation value of **0.65**. This means that improved marketing effectiveness is associated with better performance management practices.

Overall, the results show that AI usage is positively related to both marketing effectiveness and performance management in software firms.

Regression Analysis

Table 5 Regression Analysis: Impact of AI Usage on Marketing Effectiveness

Variable	B	Standard Error	Beta	t-value	p-value
Constant	1.25	0.32	—	3.91	0.001
AI Usage	0.72	0.08	0.68	9.00	0.000

Table 6 Model Summary

R	R ²	Adjusted R ²	Standard Error
0.68	0.46	0.45	0.62

The regression analysis shows that **AI Usage has a significant positive impact on Marketing Effectiveness**. The beta value is **0.68** and the p-value is **0.000**, which is less than 0.05. This means that AI usage significantly improves marketing effectiveness in software firms.

The R² value is **0.46**, which shows that AI usage explains **46% of the variation in marketing effectiveness**. This indicates that AI tools, automation, analytics, and personalization play an important role in improving customer targeting, engagement, conversion, and ROI.

Therefore, the hypothesis that **AI usage has a significant impact on marketing effectiveness** is accepted.

Hypothesis Testing

Table 7

Summary of Hypothesis Testing

Hypothesis	Statement	Test Used	p-value	Result
H1	AI usage has a significant positive impact on marketing effectiveness.	Regression	0.000	Accepted
H2	AI usage has a significant positive relationship with marketing effectiveness.	Correlation	0.000	Accepted
H3	AI usage has a significant positive relationship with performance management.	Correlation	0.000	Accepted
H4	Marketing effectiveness has a	Correlation	0.000	Accepted

	significant positive relationship with performance management.			
H5	AI usage significantly improves performance management practices.	Regression	0.001	Accepted

The hypothesis testing results show that all p-values are less than **0.05**, which means all hypotheses are statistically significant. Therefore, AI usage has a positive impact on marketing effectiveness and performance management in software firms.

The results confirm that AI tools, automation, analytics, and personalization help improve customer targeting, engagement, conversion, ROI, KPI tracking, employee evaluation, decision-making, and productivity.

Results and Discussion

The results show that Artificial Intelligence has a positive impact on marketing effectiveness and performance management in software firms. The descriptive statistics indicate that respondents agreed that AI improves customer targeting, personalisation, marketing automation, customer engagement, conversion, ROI measurement, and KPI tracking.

The correlation analysis shows a strong positive relationship between AI usage and marketing effectiveness. This means that when software firms use AI tools more effectively, their marketing outcomes also improve. AI helps marketing teams identify the right customers, understand customer behaviour, automate campaigns, and measure marketing performance accurately.

The regression analysis also confirms that AI usage significantly influences marketing effectiveness. The R^2 value shows that AI explains a considerable portion of variation in marketing effectiveness. This indicates that AI-based automation, analytics, and personalisation are important factors in improving marketing efficiency.

AI also improves decision-making in marketing. Through predictive analytics, dashboards, customer data analysis, and automated reports, managers can make faster and more accurate decisions. This reduces guesswork and supports data-driven marketing strategies.

The findings also show that AI has a positive influence on employee performance. AI helps employees reduce repetitive tasks, track performance indicators, improve productivity, and focus more on strategic marketing activities. It also supports fairer performance evaluation through measurable data such as leads generated, conversion rates, customer engagement, and campaign results.

These findings are consistent with previous studies. **Davenport et al. (2020)** stated that AI improves customer insights and marketing decision-making. **Huang and Rust (2021)** explained that AI supports automation, analytical thinking, and customer engagement in marketing. Similarly, **Kumar et al. (2019)** found that AI improves personalised engagement marketing, while **Chatterjee et al. (2021)** highlighted that AI-based CRM improves organisational performance and competitive advantage.

Conclusion

The study concludes that Artificial Intelligence plays a significant role in improving marketing effectiveness and performance management in software firms. The findings show that AI tools such as automation, analytics, and personalization help organisations improve customer targeting, engagement, conversion rates, and return on investment. Overall, the results indicate a positive perception of AI usage among marketing professionals.

The analysis confirms that AI significantly improves marketing effectiveness. Both correlation and regression results show a strong positive relationship between AI usage and marketing outcomes. This means that organisations that adopt AI in their marketing activities are able to achieve better performance compared to those that rely on traditional methods.

The study also highlights a strong link between marketing effectiveness and performance management. Improved marketing outcomes lead to better performance evaluation, KPI tracking, decision-making, and employee productivity. AI supports this process by providing real-time data, performance insights, and measurable outcomes.

The findings are important for software firms because they operate in a highly competitive and technology-driven environment. Adopting AI in marketing not only improves efficiency but also helps firms gain a competitive advantage. Therefore, software companies should integrate AI tools into their marketing strategies and performance management systems to achieve better organisational performance and long-term growth.

Recommendations

Software firms should **adopt AI tools in their marketing strategies** to improve customer targeting, campaign automation, personalization, and performance tracking. The use of AI-based platforms such as predictive analytics, CRM tools, and marketing automation systems can help organisations achieve better marketing outcomes.

Organisations should also focus on **training employees in AI usage**. Marketing professionals need proper knowledge and skills to use AI tools effectively. Regular training programmes, workshops, and skill development initiatives can help employees understand AI applications and use them efficiently in their daily work.

It is also important to **integrate AI with performance evaluation systems**. AI can be used to track key performance indicators, measure campaign success, evaluate employee performance, and provide real-time feedback. This helps organisations create a more transparent and objective performance management system.

Finally, software firms should focus on **improving data-driven decision-making**. AI provides accurate data insights that can support better planning, forecasting, and strategic decisions. Managers should rely on AI-generated reports and analytics to make informed marketing and performance-related decisions.

References

- Armstrong, M. (2017). *Armstrong's Handbook of Performance Management*. 6th ed. London: Kogan Page.
- Chatterjee, S., Rana, N.P., Tamilmani, K. and Sharma, A. (2021). The effect of AI-based CRM on organization performance and competitive advantage. *Technological Forecasting and Social Change*.
- Davenport, T., Guha, A., Grewal, D. and Bressgott, T. (2020). How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science*, 48, pp. 24–42.
- Huang, M.H. and Rust, R.T. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science*, 49, pp. 30–50.
- Kotler, P. and Keller, K.L. (2016). *Marketing Management*. 15th ed. Pearson.
- Kumar, V., Rajan, B., Venkatesan, R. and Lecinski, J. (2019). Understanding the role of artificial intelligence in personalized engagement marketing. *California Management Review*, 61(4), pp. 135–155.
- Jarek, K. and Mazurek, G. (2019). Marketing and artificial intelligence. *Central European Business Review*, 8(2), pp. 46–55.
- Wedel, M. and Kannan, P.K. (2016). Marketing analytics for data-rich environments. *Journal of Marketing*, 80(6), pp. 97–121.

Wirth, N. (2018). Hello marketing, what can artificial intelligence help you with? *International Journal of Market Research*, 60(5), pp. 435–438.