

ARTIFICIAL INTELLIGENCE IN MARKETING AND COMMERCE: A BIBLIOMETRIC ANALYSIS OF RESEARCH THEMES, GLOBAL CONTRIBUTIONS, AND INTELLECTUAL STRUCTURE

By

***Siva Sankar, R., & **Helen, J.**

**Guest Lecturer, Government Arts and Science College, Konam, Nagercoil, Kanyakumari District, Affiliated to Manonmaniam Sundaranar University, Abisekapatti, Tirunelveli, Tamil Nadu, India.*

***Ph.D., Research Scholar, Commerce Research Centre, Vivekananda College, Agasteeswaram, Affiliated to Manonmaniam Sundaranar University, Abisekapatti, Tirunelveli, Tamil Nadu, India.*

Abstract

Artificial Intelligence (AI) has significantly transformed marketing and commerce research over the past decade. This study conducted a bibliometric analysis to examine major research themes, their temporal evolution, leading contributing countries, collaboration patterns, and the intellectual structure of the field. Using VOSviewer, keyword co-occurrence, country co-authorship, and source co-citation analyses were performed. The findings revealed that AI was the dominant theme, strongly connected with commerce, marketing strategy, and consumer behaviour. Research evolved from operational applications toward advanced AI adoption, personalisation, and ethical concerns. India emerged as the most productive country, while the United States demonstrated the highest citation impact. The intellectual foundation was grounded in leading marketing and interdisciplinary journals. The field had become increasingly global, interdisciplinary, and strategically oriented.

Keywords: *artificial intelligence, marketing, commerce, bibliometric analysis, vosviewer, co-authorship, co-citation, and research evolution.*

Introduction

Artificial Intelligence (AI) had become a transformative force in marketing and commerce, enabling predictive analytics, automation, and personalized consumer engagement

(Labib, 2024). Organizations increasingly adopted AI technologies to improve decision-making and customer experience (Jain & Kumar, 2024). Academic research expanded rapidly, addressing strategic marketing

implications, consumer behaviour, and digital transformation (Wang, 2025). However, despite this growth, a structured understanding of thematic evolution, global contributions, and intellectual foundations remained fragmented. Therefore, this study aimed to provide a comprehensive bibliometric mapping of AI research in marketing and commerce.

Research Questions

RQ1: What were the major research themes and how had they evolved over time?

RQ2: Which countries contributed most to AI research in marketing and commerce, and how did international collaboration patterns differ across countries?

RQ3: What was the intellectual structure of AI research in marketing and commerce based on co-citation analysis?

Literature Review

Early AI research in marketing primarily focused on automation and sales forecasting (Jain & Kumar, 2024). Over time, scholars emphasized personalization and predictive analytics to enhance consumer engagement (Jain et al., 2023). Strategic AI integration in marketing decision-making gained importance (Dianti et al., 2024). Ethical concerns regarding privacy and algorithmic bias were increasingly discussed (Bharti, 2023). Bibliometric studies demonstrated that AI research expanded across interdisciplinary domains, integrating marketing, information systems, and behavioral sciences (Gokerik & Aktaş, 2024; Haque et al., 2024). These developments highlighted the need for structured mapping of thematic and intellectual trends.

Search strategy and data extraction process

The search was done through Scopus data base

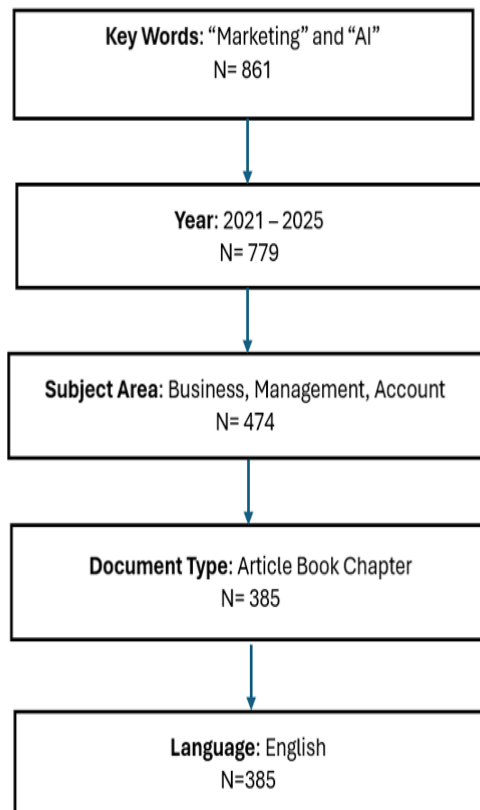


Fig 1. Search Criteria through Scopus database (Authors analysis)

Methodology

Bibliometric analysis was conducted using VOSviewer. Data were retrieved from Scopus/Web of Science. Three analyses were performed:

1. Keyword co-occurrence (for themes)

2. Country co-authorship (for collaboration patterns)

3. Source co-citation (for intellectual structure)

Threshold values were applied for clarity and reliability.

Results and Findings

Major Research Themes (RQ1)

Table 1. Major Keyword Themes in AI Marketing Research

Keyword	Occurrences	Total Link Strength
Artificial Intelligence	130	836
Commerce	74	783
Sales	62	579
Marketing	74	548
Marketing Strategy	49	475
Personalizations	39	443
Consumer Behaviour	33	320
Ethical Technology	24	275
Predictive Analytics	21	253
Machine Learning	22	252

Artificial Intelligence emerged as the dominant theme. Early research concentrated on commerce and sales. Later studies emphasised

personalization, predictive analytics, and ethical AI, reflecting technological advancement.

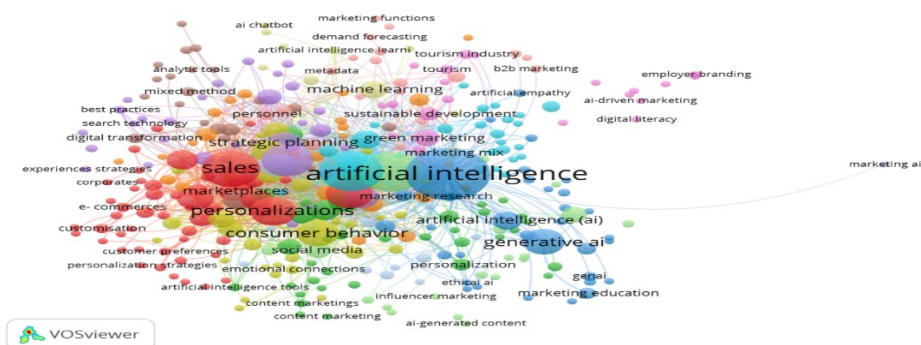


Fig 2. Keyword Co-Occurrence Network Visualization (VOSviewer)

The keyword co-occurrence analysis identifies several major research themes and demonstrates their temporal evolution.

First, Artificial intelligence emerges as the dominant and central research theme, with the highest occurrence (130) and strongest total link strength (836). This confirms that AI functions as the core conceptual foundation of the field and is highly interconnected with other themes.

The second major theme revolves around business and commercial applications, particularly commerce (74 occurrences; 783 link strength), marketing (74; 548), and sales (62; 579). The high link strength of these keywords indicates that early and foundational research primarily focused on integrating AI into commercial operations and marketing practices. Related themes such as marketing strategy (49) further

demonstrate the strategic orientation of AI research within business contexts.

A third prominent theme is customer-centric and personalization research, represented by personalisations (39) and consumer behaviour (33). The presence and growing linkage of these terms suggest that research has increasingly shifted toward understanding how AI enhances customer experience, decision-making, and targeted marketing approaches.

Additionally, emerging technological and ethical themes are evident through keywords such as predictive analytics (21), machine learning (22), and ethical technology (24). Although these show moderate occurrences, their interconnectedness signals a developing research stream that focuses on advanced AI capabilities and responsible technology implementation.

Country Contributions (RQ2)

Table 2. Leading Contributing Countries

Country	Documents	Citations
India	177	1029
United States	48	1732
United Kingdom	39	1073
China	22	381
Malaysia	18	51
Australia	10	453

India had the highest output, while the United States had the highest citation

impact. The United Kingdom served as a collaboration bridge.

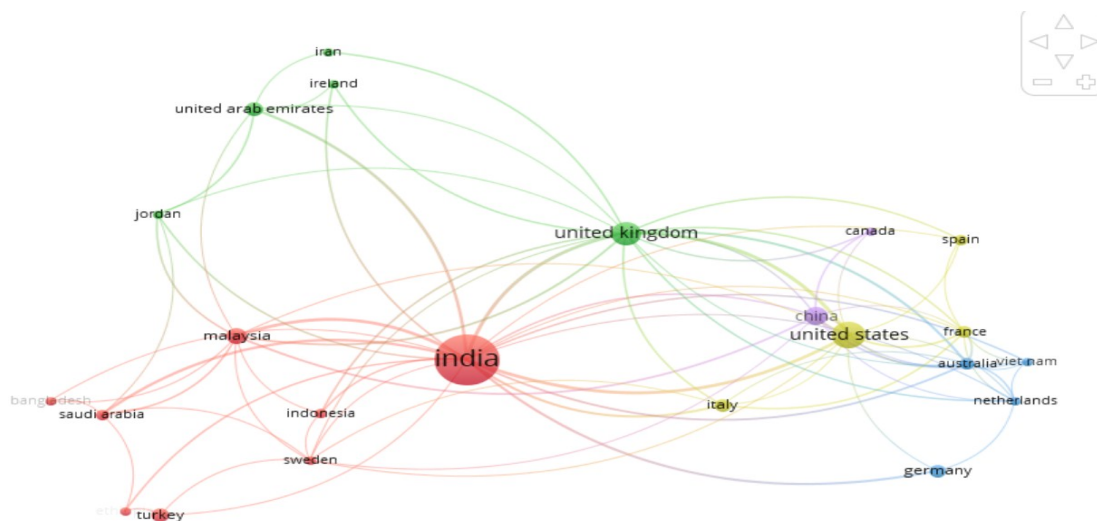


Fig 3. Country Co-Authorship Network Visualisation

The country co-authorship analysis reveals clear differences in research productivity, impact, and collaboration patterns in AI research in marketing and commerce. India emerges as the most productive contributor, with the highest number of publications (177) and the strongest total link strength (60), indicating extensive international collaboration. The United States and the United Kingdom follow in terms of output, but the United States records

the highest citation count (1732), suggesting greater research impact and global influence. The United Kingdom also plays a central bridging role in the collaboration network, connecting European, Asian, and North American countries. European nations such as France, Germany, Italy, and the Netherlands form a closely connected regional cluster, while Middle Eastern countries show stronger links with India.

Intellectual Structure (RQ3)

Table 3. Top Co-Cited Journals

Source	Citations	Total Link Strength
Journal of the Academy of Marketing Science	39	33
Computers in Human Behavior	26	21
International Journal of Information Management	23	23
Business Horizons	21	23
Psychology and Marketing	13	18

Marketing journals formed the interdisciplinary technology and intellectual core, supported by behavioral journals.

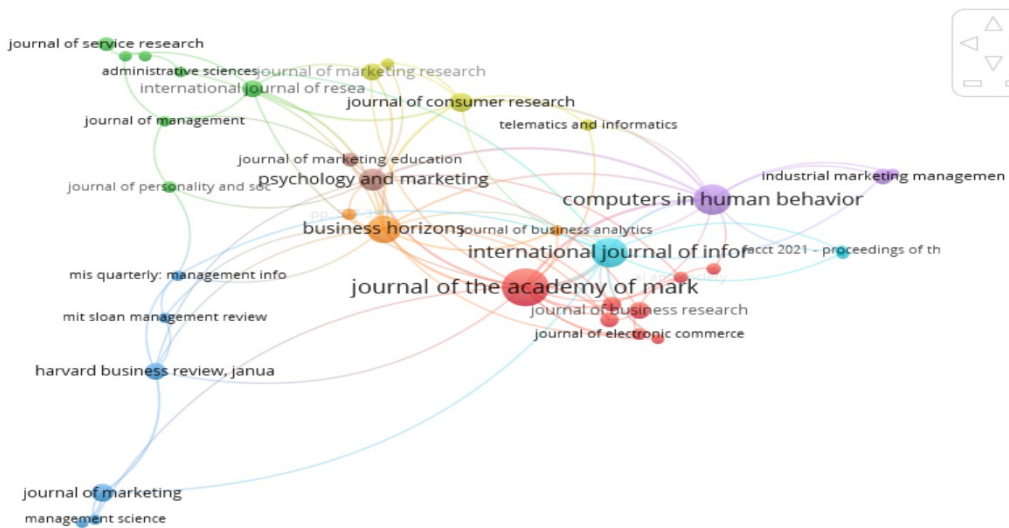


Fig 4. Source Co-Citation Network Visualisation

The co-citation analysis of cited sources reveals the intellectual foundation of AI research in marketing and commerce. The most influential journal is Journal of the Academy of Marketing Science, with the highest citation count (39) and strongest total link strength (33), indicating its central role in shaping the field. It is closely connected with leading journals such as Computers in Human Behavior and International Journal of Information Management, highlighting the interdisciplinary integration of marketing, information systems, and consumer behavior research. Additional influential sources include Business Horizons and Psychology and

Marketing, reflecting the managerial and psychological dimensions of AI applications. The network visualization shows distinct clusters representing marketing strategy, consumer behavior, information systems, and business analytics streams.

Conclusion

The study demonstrated that AI research in marketing evolved from operational automation toward advanced personalization, generative AI, and ethical governance concerns. The field became globally distributed, with emerging economies contributing significantly. Current trends indicated strong focus on AI adoption strategies,

digital literacy, and responsible AI practices. The intellectual structure reflected interdisciplinary integration across marketing, technology management, and behavioral sciences.

Future Research

Future research should explore generative AI applications in

marketing communication, sustainability marketing integration, and AI governance frameworks. Comparative cross-country studies could examine contextual adoption differences. Greater empirical validation of AI-driven marketing models is recommended.

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To cite this article

Siva Sankar, R., & Helen, J. (2026). Artificial Intelligence in Marketing and Commerce: A Bibliometric Analysis of Research Themes, Global Contributions, and Intellectual Structure. *John Foundation Journal of EduSpark*, 8(1), 14-23.

ABOUT THE AUTHORS



Dr R. Siva Sankar, serves as Guest Lecturer in Commerce, Government Arts and Science college, Nagercoil from September 3 2025 onwards . Formerly Assistant Professor of Commerce, Vivekananda College, Agasteeswaram, Kanniyakumari, Tamilnadu, India Affiliated to Manonmaniam Sundaranar University, Tirunelveli. He has double Master degree holder, one in Commerce and another one in Management. He has also qualified for NET Exam in June 2010. He was also completed PG diploma in International Business Operation. He was awarded Ph.D. in the year 2016 for his research " Investors' Behavioural Pattern of investment in Kanyakumari District ". He is a Recognised Ph.D Guide in Commerce from 2017. He is presently guiding 3 Ph.D Scholars. 4 Ph.D Scholar awarded under his guidance and one submitted. He has attended 13 state level seminars, 17 national seminars and 4 international seminars and Conferences and also attended 40 online webinars. He has published 19 articles in various publications. He is the editor in the books of marketing mantras of 21st century in India. He has participated as a Resource person in seminars and Conferences. He has 17 years of teaching experience and 10 years of research experience. He has organised various seminars and conferences. He is one of the purravallar of Government Libraries in NAINAPUTHOOR, Kanyakumari District (Tamilnadu, India) . He is area of interest is finance , income tax , Costing , Accounting , Entrepreneurship Development, tax, Quantitative Techniques and international business. He got Best teacher Icon Award 2022 for his excellent teaching work.



Mrs. J. Helen, serving as Asst. Professor (T) in Govt Arts and Science College Kanyakumari erstwhile Manonmaniam Sundaranar University Constituent College from 2012 onwards. Holds double Master's degree in Commerce and Management. Qualified NET(Commerce) in June 2011. Worked as Assistant Professor in the Department of Commerce in Kodaikanal Christian College from January 2008 to August 2011.
