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Bibliometric Analysis of Marketing Automation Research

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ABSTRACT

Marketing automation has become an increasingly important component of contemporary marketing strategies, enabling organizations to enhance customer engagement, improve operational efficiency, and support data-driven decision-making. Despite its growing adoption across industries, the intellectual structure and development trends of marketing automation research remain insufficiently explored. Therefore, this study aims to map the evolution, knowledge structure, and emerging themes of marketing automation research through a bibliometric analysis. Data were collected from the Scopus database and analyzed using VOSviewer to examine publication patterns, influential literature, keyword co-occurrence, co-authorship networks, institutional collaboration, and country collaboration. The findings indicate that marketing automation research is strongly associated with themes such as artificial intelligence, machine learning, predictive analytics, digital marketing, commerce, and big data. Automation emerged as the central concept linking technological and managerial dimensions of the field. Overlay visualization revealed a shift from industry-specific applications toward advanced technologies, particularly artificial intelligence and machine learning, which have become dominant research topics in recent years. Citation analysis identified machine learning and AI-based business transformation as the primary intellectual foundations of the field. Furthermore, collaboration analyses highlighted the significant contributions of India, the United States, and Germany, alongside a growing network of international research partnerships. The study concludes that marketing automation has evolved from an operational marketing tool into a strategic capability that supports personalization, customer relationship management, and business innovation. These findings provide valuable insights for academics and practitioners while identifying future research opportunities related to generative artificial intelligence, advanced analytics, customer experience optimization, and ethical considerations in automated marketing systems.

Keywords: *Marketing Automation, Artificial Intelligence, Machine Learning, Digital Marketing, Bibliometric Analysis*

1. INTRODUCTION

Fast development in digital technologies has been a driving force that has changed the interactions between organizations and their consumers, approaches to promotions and customer relations. Today, marketing operations are conducted with a growing amount of reliance on information systems that allow businesses to communicate personalized messages, track consumer actions, and improve the effectiveness of their campaigns [1]. The most important innovation in this respect can be described as marketing automation, which is a process of automating various marketing activities by means of using digital technologies, such as software tools. The marketing automation process combines customer relationship management, analytics, email marketing, artificial intelligence, and social media management to provide efficient solutions for businesses. As [2] argue, due to the increasing significance of digital marketing, firms are urged to implement automation practices aimed at customer-centric strategies.

Various factors in the global environment have contributed to the growth in the application of marketing automation [3], [4]. Some of the notable factors include the growth of online businesses, the rise of various social media platforms, and the growing significance of big data analytics. Today, organizations are required to provide personalized experiences for customers who engage with firms using their websites and mobile apps. With marketing automation, businesses can capture consumer data, forecast customer behavior, and send customized content to consumers. In addition

to these features, the advancement in artificial intelligence and machine learning has added predictive analytics, lead scoring, and intelligent consumer segments in automation processes. [5], [6] stated that organizations need to rely on automation technology to improve the experience of consumers and foster strong relationships with them.

The increasing relevance of marketing automation has also led to considerable academic interest in the topic. Scholars from different areas, ranging from marketing to information technology management, data science, organizational theory, and management communication, have analyzed how automation technologies affect consumers' behaviors, organizational performances, digital interactions, and marketing effectiveness. Studies published in literature have looked into numerous topics, such as personalization, email marketing optimization, application of artificial intelligence, customer journey analysis, and omnichannel marketing integration [7], [8]. Furthermore, scholars have studied not only the potential benefits but also the challenges arising from the use of automation technologies, such as privacy issues, ethical considerations, and organizational challenges. Despite the growing number of studies on marketing automation, there is considerable fragmentation within the body of literature, which spans several research fields and is scattered among many journals. Consequently, identifying the most significant trends, key scholars, emerging themes, and future research directions in marketing automation may be quite difficult [9].

In this regard, bibliometrics has become one of the significant methodology approaches for assessing the progress of science and uncovering trends in the scholarly literature. Bibliometrics includes the quantification of published articles, citation patterns, author collaborations, keyword usage, and thematic development within the specified research domain. With the help of bibliometric tools, it becomes possible to construct the intellectual map of the scientific field and measure its scientific impact. [10] pointed out that the application of bibliometric techniques is especially useful for researching rapidly developing fields since it offers insights into knowledge formation and research collaborations. Therefore, with the use of bibliometric analysis for marketing automation studies, it will be possible to learn about the progress of the field, the most researched topics, and the gaps in existing research. Furthermore, bibliometric studies foster theory development through the identification of connections between different research streams and the evolution of scholarly debate.

While the amount of literature associated with marketing automation has been growing rapidly, the scope of bibliometric reviews in this domain has remained rather narrow. Specifically, most of the existing works have concentrated either on practical aspects of applying marketing automation tools or theoretical issues concerning digital marketing techniques. Hence, there is still little knowledge about the general bibliometric structure of marketing automation studies, including patterns of co-authorship, publication trends, evolution of research topics and other characteristics of interest. Lack of systematic bibliometric review poses particular difficulties for those who would like to assess the influence of different works and the directions in which this topic develops at the moment. In addition, continuous development of artificial intelligence, customer analytics and other digital communication technologies makes it essential to evaluate the current state of marketing automation as a scientific area in a new way. That is why it is important to conduct bibliometric analysis of this topic to help researchers continue their work and practitioners make sense of recent changes in marketing innovations.

Despite the fact that marketing automation is gaining more and more attention in both theoretical and practical research, the current state of knowledge can be described as uncoordinated and not characterized by bibliometric studies of the progress in the field. Indeed, previous works are devoted mainly to particular cases of application of marketing automation, the technological aspects of marketing automation, or the effects marketing automation produces on consumers; thus, they do not provide the opportunity to assess the dynamics of publications, leading researchers, network of collaboration, thematic organization, etc. Moreover, due to this fragmentation of the marketing automation literature, both scholars and practitioners find it challenging to identify key references, understand thematic evolution, and see new possibilities for their research. Therefore, there is evidence of research gaps in this domain. This study intends to undertake a bibliometric analysis of marketing automation studies to assess its evolution and structure.

2. METHODS

The use of the bibliometric analysis technique will be used in this study for the purpose of investigating the evolution and structure of marketing automation research. Bibliometric analysis is defined as a technique of quantitative research that involves the analysis of scientific publications through statistical and mathematical approaches. The application of the technique helps researchers to detect trends in publications, leading authors, collaboration among authors, citation structure, and thematic development in the specific area of study. It is appropriate to conduct bibliometric analysis of marketing automation in this research due to the fast growth of marketing automation within several disciplines which results in fragmentation of literature on marketing automation.

The data for this study will be gathered from credible scholarly databases such as Scopus and Web of Science. These contain quality articles on marketing automation. The data gathering process involves the use of particular search words like “marketing automation,” “digital marketing automation,” “automated marketing,” and others. The chosen sources are restricted to articles written in English and those published during a specified period. Once the data have been collected, the bibliographic details, such as the author names, document titles, abstracts, keywords, references, affiliations, and years of publication, will be exported for further analysis. The inclusion and exclusion criteria are used to eliminate duplicates and irrelevant sources.

The bibliometric analysis will be performed with the use of VOSviewer, which are intended to map out the connections between publications, authors, and keywords. Several analytical methods are utilized in this study, such as citation analysis, authorship analysis, co-citation analysis, and keyword co-occurrence analysis. The citation analysis helps to reveal influential papers and authors, and the authorship analysis explores research cooperation among scholars and their institutions. Moreover, the keyword co-occurrence analysis will be used to uncover research trends and topics in marketing automation studies.

3. RESULT AND DISCUSSION

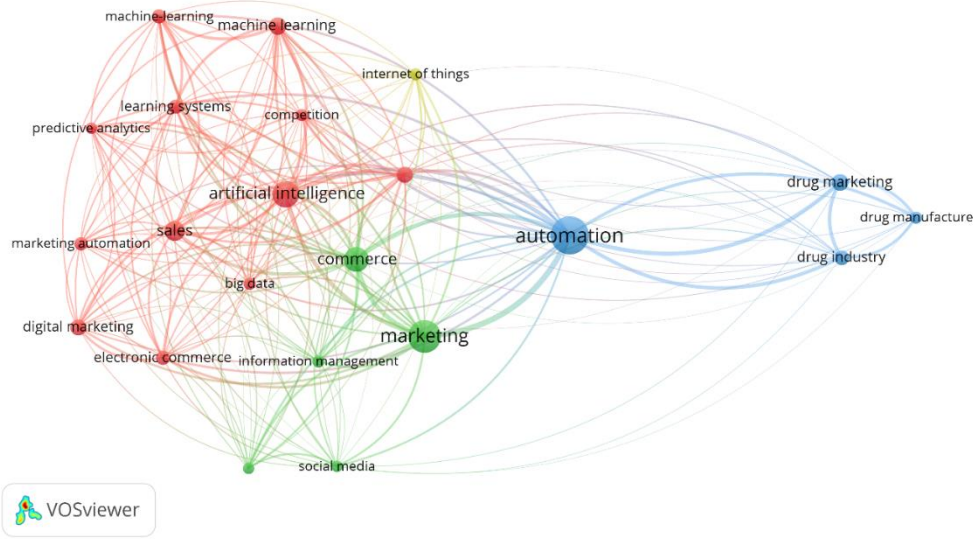

Figure 1. Network Visualization
Source: Data Analysis Result, 2026

According to the keyword co-occurrence network, automation is positioned at the center of the research domain, which shows that it plays the role of the major conceptual link connecting different domains of marketing and technological studies. In addition, the large size of the node shows high frequency of use in literature while the number of connections indicates a close relationship with other domains. The fact that automation plays such an important role demonstrates the growing importance of the use of automatic processes for achieving greater efficiency, involvement, and decision-making ability. Contrary to the isolation of this topic from others, automation is used as a link between various domains of study. The red cluster indicates the underlying technology component associated with the concept of marketing automation. This cluster has been defined by keywords including artificial intelligence, machine learning, predictive analytics, big data, digital marketing, sales, and e-commerce. These keywords are highly interconnected, which implies that contemporary researchers have come to realize that the marketing automation process can be described in terms of an advanced technology-enabled ability, which utilizes sophisticated algorithms. The presence of the two closely associated words "artificial intelligence" and "machine learning" implies that modern advancements within marketing automation have relied greatly on algorithms that predict customer behavior, personalize communication, and improve sales performance.

The green cluster encompasses wider marketing management topics such as marketing, trade, social media, and information management. The green cluster focuses on the strategic as well as operational aspects of marketing automation in organizations. Linkage between marketing and social media reflects the application of automation tools for managing customer interactions in digital platforms, whereas linkage with information management reflects the significance of capturing, processing, and using customer information effectively. It can be seen that marketing automation involves much more than technology; it is a strategic approach to manage customers' relationships and communicate digitally.

Although there is one smaller and significant blue cluster that reveals the implementation of automation technologies in the pharmaceutical industry with key words like “drug marketing,” “drug industry,” and “drug manufacture,” this blue cluster seems quite distant from the central marketing and technology clusters. Hence, the pharmaceutical marketing automation can be

regarded as a separate field of research that needs further development. However, since the blue cluster is directly connected to the central automation node, automation technologies are gaining greater acceptance to improve marketing operations, regulatory communications, and interactions with customers in highly-regulated industries.

3.1 Overlay Visualization

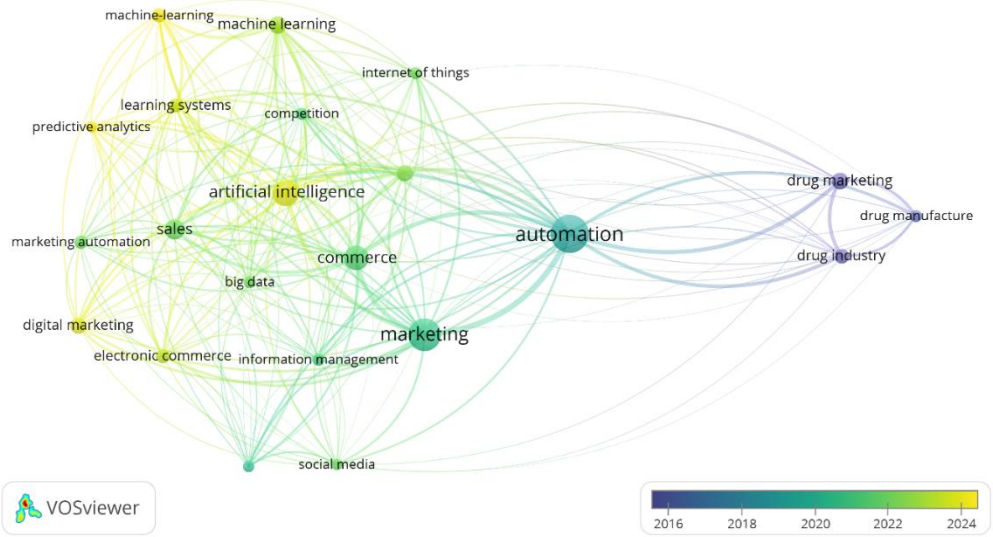

Figure 2. Overlay Visualization
Source: Data Analysis Result, 2026

In the overlay map visualization, the time evolution of research on marketing automation from 2016 to 2024 is shown. The gradient of colors symbolizes the age of publications with the older ones represented with blue and purple colors, whereas the newer publications are represented using yellow colors. Automation can be identified as the main keyword in all years as the core term around which different streams of research converge. However, through the evolution of time, there is also a transition observed in the research topic with a shift from the application of marketing automation within an industrial sector towards technological aspects. Initially, marketing automation was studied within a pharmaceutical setting, as seen from keywords such as drug marketing, drug industry, and drug manufacture.

Further, the visualization clearly illustrates that research carried out from roughly 2019 to 2022 was more focused on combining automation with other marketing activities. The terms marketing, commerce, information management, social media, and internet of things have been color-coded green and turquoise because these terms began emerging in the middle phase of the development of marketing automation. Thus, it is clear that this particular phase was more concerned with automation as a strategic marketing resource than an automation technology. Marketing automation research in the middle phase involved investigating how marketing automation could be applied to manage relationships and conduct commerce.

The latest trends are depicted by keywords highlighted in yellow color, which include artificial intelligence, machine learning, predictive analytics, electronic commerce, digital marketing, and marketing automation. The prevalence of these terms implies that intelligent and analytical technology solutions play a critical role in contemporary marketing research. The rising focus on artificial intelligence and machine learning can be interpreted as a step towards the development of personalized, adaptive, and predictive marketing solutions. Thus, one may assume that future research will cover AI-powered marketing automation, advanced customer analytics, and personalization techniques.

3.2 Citation Analysis

Table 1. The Most Impactful Literatures

Citations	Authors and year	Title
8366	[11]	Machine learning: Trends, perspectives, and prospects
958	[12]	Influence of artificial intelligence (AI) on firm performance: the business value of AI-based transformation projects
438	[13]	Benefits and risks of smart home technologies
409	[14]	From data to action: How marketers can leverage AI
368	[15]	Commercialization of microfluidic devices
345	[16]	The smart grid - State-of-the-art and future trends
344	[17]	Applications and Implications of Service Robots in Hospitality
331	[18]	A review of social media and implications for the sales process
295	[19]	Harnessing marketing automation for B2B content marketing
290	[20]	Digital Transformation Process and SMEs

Source: Scopus, 2026

According to Table 1, the influential literature in the field of marketing automation is predominantly based on research relating to machine learning, artificial intelligence, digital transformation, smart technology, and data-driven marketing. Thus, the most cited paper is [11] that provides 8,366 citations and demonstrates the importance of machine learning as one of the main intellectual pillars of this research field. Other high citation papers, [12] and [14], focus on the increasing application of AI to facilitate better company performance and allow marketers convert their data into action-oriented strategies. In turn, research papers on smart home technologies, smart grids, robots services, and microfluidic commercialization reveal the fact that research on automation is not confined solely to marketing, but is related to other technological innovations. Of special significance is [19] since it concerns marketing automation specifically in B2B content marketing. Also, it should be noted that social media and sales process-related papers as well as digital transformation studies aimed at SMEs are represented among the most cited papers.

3.3 Density Visualization

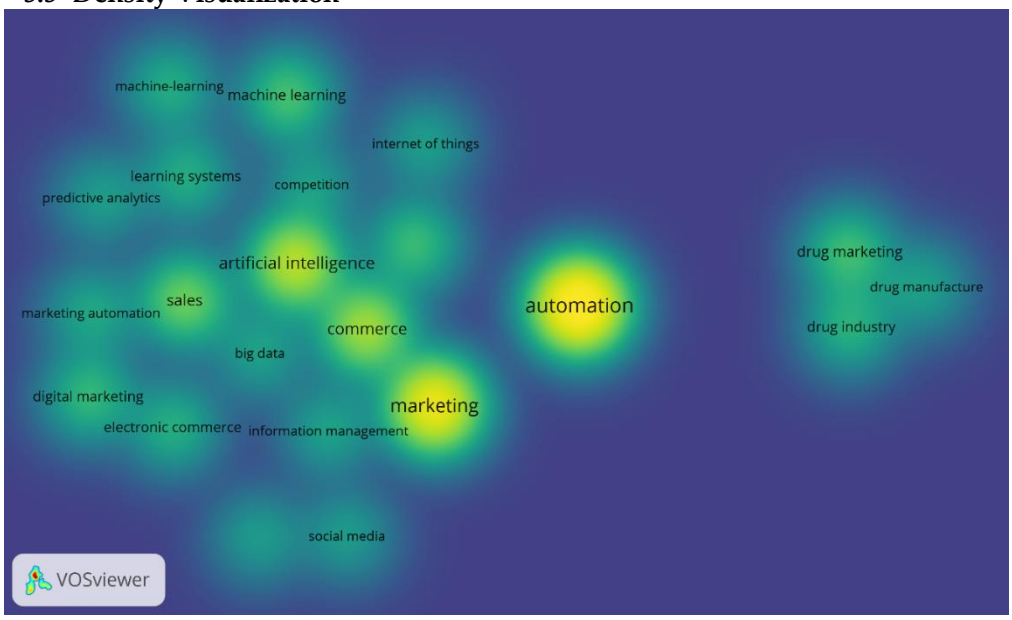

Figure 3. Density Visualization

Source: Data Analysis Result, 2026

The density chart illustrates the topics which have attracted the greatest amount of attention among those examined in the marketing automation literature. Topics which have been indicated by bright yellow color show that there is a large cluster of scholarly interest, while topics colored green and blue show medium and rising interest levels, respectively. The terms "automation", "marketing", "commerce", and "artificial intelligence" stand out as the most prominent nodes, showing that these terms comprise the intellectual foundation of the literature under review. The central position held by these nodes suggests that scholars' primary concern lies in examining how automation technologies, using the power of artificial intelligence and digital commerce, can improve marketing efforts. In addition to the main research areas, other related subjects including machine learning, sales, big data, digital marketing, electronic commerce, information management, and social media have moderate density, implying that although they are important areas of study, they have received relatively lower attention from researchers. On the other hand, the three terms in the pharmaceutical field, drug marketing, drug manufacture, and drug industry, have formed another density cluster, pointing towards the specialization of the subject matter of marketing automation research. The visualization above thus illustrates that marketing automation research has a high focus on marketing functions supported by technology, with artificial intelligence and automation being the main two areas of research.

3.4 Co-Authorship Visualization

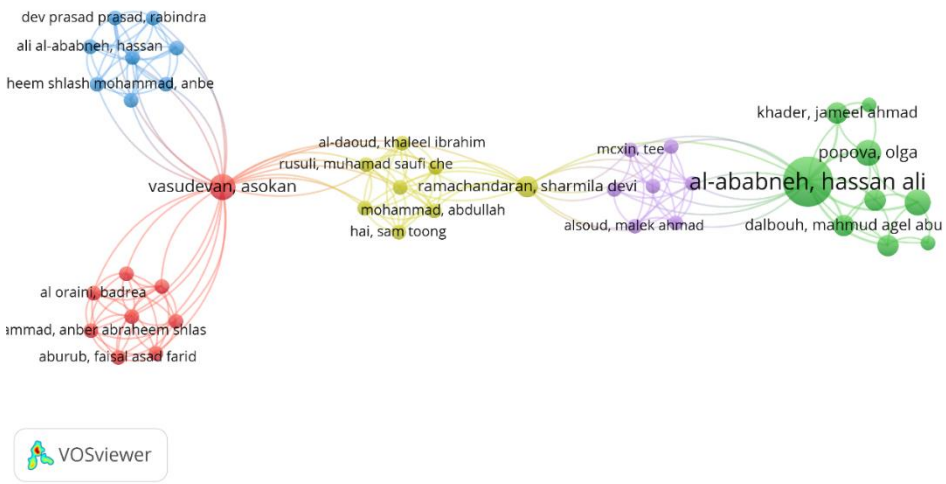

Figure 4. Author Visualization
Source: Data Analysis Result, 2026

As shown by the co-authorship network, the co-authoring process is relatively centralized for marketing automation research with only a few powerful author clusters, which are interconnected through some important bridging authors. Among those, Al-Ababneh, Hassan Ali can be considered the main and very well-connected author, marked by large node size and numerous collaboration connections with other scientists, such as Popova, Olga, Dalbouh, Mahmud, and Khader, Jameel Ahmad, which reflects his important contribution to the development of marketing automation. Another notable co-author cluster, in this regard, is the one headed by Vasudevan Asokan who bridges several author groups conducting their research on artificial intelligence, digital marketing, and marketing automation. It should be added that the presence of clusters reflects the specialization of research teams or thematic communities, while the connections between them show information exchange.

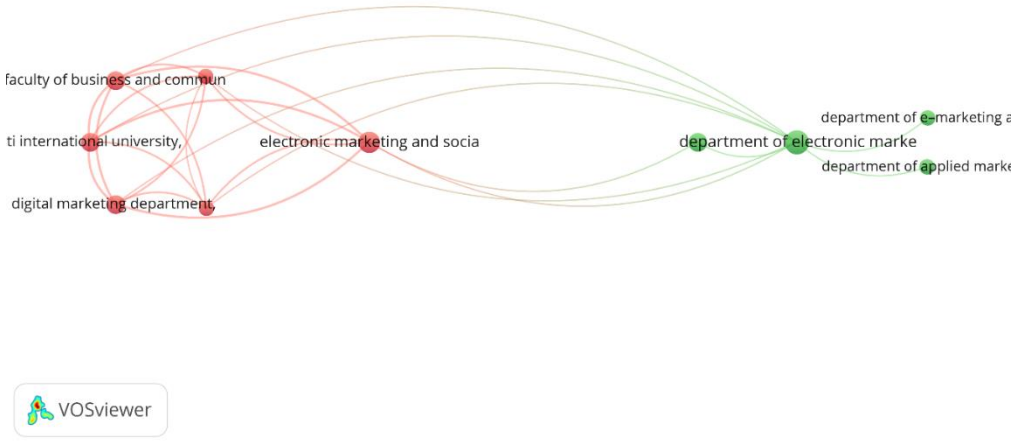

Figure 5. Institution Visualization
Source: Data Analysis Result, 2026

The institutional collaboration network shows that research on marketing automation takes place in a limited number of academic institutions that consist of two interdependent collaboration clusters. The red cluster consists of such institutions as the Digital Marketing Department, Faculty of Business and Communication, as well as Electronic Marketing and Social unit. This indicates the high level of cooperation within the department concerned with issues of digital marketing and communications. On the other hand, the green cluster is characterized by the dominance of the Department of Electronic Marketing, which acts as an institution hub cooperating with other similar departments dealing with applied marketing and e-marketing issues.

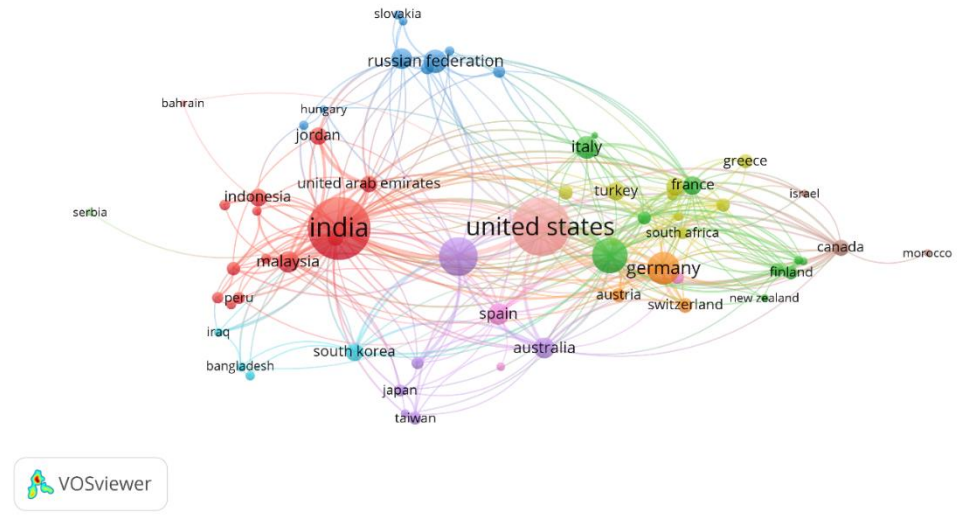

Figure 6. Country Visualization
Source: Data Analysis Result, 2026

The country collaboration network shows that there is significant international cooperation in marketing automation research, where India, the United States, and Germany become leaders of

contribution in this regard. India is represented as the largest node in the network since it has many publications and partnerships with other nations, especially Malaysia, Indonesia, Jordan, and the United Arab Emirates. The United States acts as an important connection between Asia, Europe, and Oceania countries and serves as a link between them. In turn, Germany acts as a crucial hub in the European cluster, connected with such countries as France, Italy, Switzerland, Finland, etc. There are several collaboration clusters, namely the European one, which is based on Germany and France, the Asian one, consisting of India, Malaysia, Indonesia, and South Korea, as well as another cluster headed by Russia. Thus, the dense network proves that marketing automation becomes an international field of research due to collaboration and international exchanges of knowledge, experience, and competencies, particularly in the sphere of artificial intelligence, digital marketing, automation, etc.

CONCLUSION

As seen from this bibliometric study, marketing automation has become a very dynamic and multidisciplinary field of study combining marketing, artificial intelligence, machine learning, data analysis, and digital commerce. From the findings of the analysis of keywords co-occurrence, overlay, and density, automation can be regarded as the key concept around which all other technological and management concepts revolve, with increasing importance attached to artificial intelligence, predictive analytics, machine learning, and digital marketing. Furthermore, citation analysis has shown that the intellectual base of the research domain under study is dominated by publications on machine learning, business transformation through artificial intelligence, and digital innovations. Moreover, co-authorship and institutional collaboration networks suggest that knowledge creation is done by a relatively few influential researchers working in certain academic institutions, while country collaboration networks prove the importance of India, the USA, and Germany in promoting research collaboration on an international level.

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