Bibliometric Analysis of Location-Based Marketing

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Article Info	ABSTRACT
	This study presents a comprehensive bibliometric analysis of location-based marketing (LBM), an evolving field driven by advancements in mobile technology and data-driven marketing strategies. Using data from Scopus, the study examines the intellectual structure, key trends, and emerging themes within LBM research. Findings reveal a central focus on mobile devices, location-based services, and privacy concerns. As mobile technology advances, LBM strategies have become more personalized and targeted, utilizing precise location tracking methods like indoor positioning. Additionally, the study highlights the growing importance of data privacy and ethical marketing practices as consumers become more aware of their digital footprints. The global research network also shows strong collaboration among countries such as the United States, China, and several European nations. The study provides a clear overview of the field's historical development and suggests future research directions.

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1. INTRODUCTION

The rapid advancement of digital technologies has profoundly transformed the landscape of marketing, shifting traditional approaches toward data-driven, personalized, and context-aware strategies [1]. Among these developments, location-based marketing (LBM) has emerged as a prominent marketing practice that leverages geographic data to deliver targeted messages, offers, and services to consumers based on their physical location [2], [3]. Enabled by technologies such as global positioning systems (GPS), mobile devices, wireless networks, and geofencing, LBM allows organizations to interact with consumers in real time and within relevant spatial contexts [4]. This evolution reflects a broader transition in marketing from mass communication to individualized engagement, where relevance, immediacy, and personalization are central to value creation [5].

The growing adoption of smartphones and mobile applications has significantly accelerated the implementation of location-based marketing strategies. As consumers increasingly rely on mobile

devices for information, navigation, shopping, and social interaction, marketers have gained unprecedented access to location-specific consumer data [6]. This access enables businesses to tailor promotional content according to consumer proximity to retail outlets, events, or points of interest, thereby increasing the likelihood of consumer response [7]. Previous studies suggest that location relevance enhances perceived usefulness and engagement with marketing messages, contributing to improved customer experience and conversion rates [8]–[10]. Consequently, LBM has been widely applied across sectors such as retail, tourism, hospitality, transportation, and smart city services.

In parallel with its practical growth, location-based marketing has become an important subject of academic inquiry. Researchers from diverse disciplines—including marketing, information systems, geography, and communication studies—have explored various aspects of LBM, such as consumer attitudes, privacy concerns, technological infrastructures, effectiveness of location-based advertisements, and ethical implications [11]. The interdisciplinary nature of this research has resulted in a rapidly expanding body of literature characterized by diverse theoretical frameworks, methodological approaches, and application contexts. As a result, the field has evolved dynamically, with shifting research themes and increasing collaboration among scholars from different regions and academic backgrounds [12], [13].

Despite the growing volume of research, the expansion of location-based marketing literature also presents challenges for scholars and practitioners attempting to obtain a coherent overview of the field. The proliferation of studies across journals, conferences, and disciplines makes it difficult to identify dominant research trends, influential authors, key publications, and emerging themes. Traditional narrative literature reviews, while valuable, may be limited in their ability to systematically capture large-scale patterns within extensive bodies of academic work. This limitation highlights the need for more structured and quantitative approaches to reviewing the literature, particularly in fast-evolving research domains such as location-based marketing [14].

Bibliometric analysis has emerged as a powerful methodological tool to address these challenges by quantitatively examining patterns within scientific publications. By analyzing publication outputs, citation structures, co-authorship networks, and keyword co-occurrences, bibliometric techniques provide insights into the intellectual structure and development of a research field. In marketing research, bibliometric analysis has been increasingly used to map knowledge domains, evaluate research performance, and identify future research directions. Applying bibliometric methods to location-based marketing research can therefore offer a comprehensive and objective overview of the field, revealing its historical development, conceptual foundations, and evolving research priorities [15].

Although location-based marketing has attracted substantial scholarly attention and has been widely implemented in practice, there remains a lack of systematic bibliometric studies that comprehensively analyze its intellectual structure and research evolution. Existing studies on LBM tend to focus on specific themes such as consumer behavior, privacy issues, or technological adoption, often within limited timeframes or disciplinary boundaries. As a result, the overall development patterns, influential contributions, collaborative networks, and emerging research trends in location-based marketing remain fragmented and insufficiently understood. This gap limits the ability of researchers to position their work effectively and constrains practitioners' understanding of the academic foundations that inform LBM strategies. The objective of this study is to conduct a comprehensive bibliometric analysis of location-based marketing research to map its intellectual landscape and evolution over time.

2. METHODS

This study employed a bibliometric research design to systematically examine the scientific literature on location-based marketing. Bibliometric analysis is a quantitative method used to evaluate patterns in academic publications and to explore the intellectual structure of a research field through publication and citation data. This approach is particularly suitable for analyzing large volumes of scholarly work and identifying trends, influential contributions, and research relationships over time. By adopting this method, the study provides an objective and reproducible overview of the development of location-based marketing research, minimizing subjective bias commonly associated with traditional narrative literature reviews [14].

The data for this study were collected from Scopus. Relevant publications were retrieved using carefully selected keywords related to location-based marketing, such as "location-based marketing," "proximity marketing," "geofencing," and "mobile location-based advertising." The search was limited to articles published in English to ensure consistency in analysis. After the initial retrieval, the dataset was refined by excluding irrelevant documents, duplicates, and non-scholarly materials. The final dataset comprised journal articles and conference papers that directly addressed theoretical, empirical, or methodological aspects of location-based marketing.

The bibliometric analysis was conducted using specialized bibliometric software to perform descriptive and network-based analyses. Network analyses, including citation analysis, co-authorship analysis, and keyword co-occurrence analysis, were applied to identify influential works, collaboration patterns, and major research themes within the field. Visualization techniques were employed to illustrate relationships among publications and research clusters, enabling a clearer interpretation of the intellectual structure and thematic evolution of location-based marketing research. This methodological approach ensures a comprehensive understanding of the field and provides a robust foundation for identifying future research opportunities [15].

3. RESULTS AND DISCUSSION

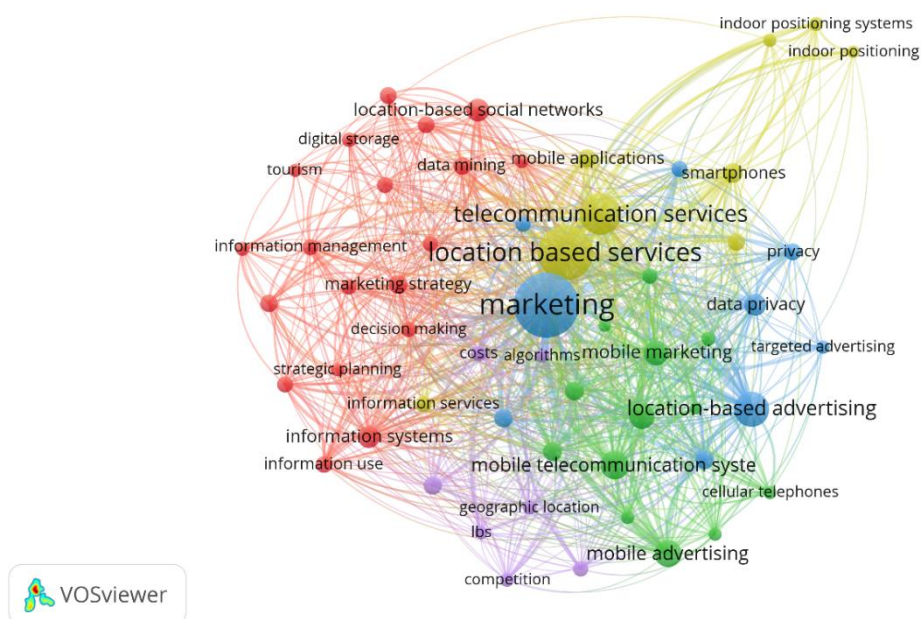### 3.1 Keyword Co-Occurrence Network

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

Figure 1 highlighting the key themes and relationships within the field of Location-Based Marketing. The map offers a visual representation of the co-occurrence of various terms and topics across multiple academic articles. Each node represents a keyword or theme, while the connections between them demonstrate the strength and frequency of their association in the academic literature.

At the center of the map, we see the dominant term "marketing," surrounded by closely related themes such as "location-based services" and "location-based advertising." This highlights the importance of location in modern marketing strategies, where businesses leverage geographic data to target consumers more effectively. The map also reveals a strong link between mobile technologies, including "smartphones," "mobile applications," and "mobile telecommunication services," which are central to the implementation of location-based marketing strategies.

The map also illustrates the intersection between data-driven marketing practices and technology. Keywords like "data mining," "mobile marketing," "privacy," and "targeted advertising" indicate a focus on leveraging consumer data for personalized advertising, while also acknowledging the growing concerns over data privacy and security. The presence of terms such as "data privacy" and "privacy" signals the importance of managing consumer data ethically in the context of location-based marketing.

Additionally, there are connections to broader concepts such as "strategic planning," "decision making," and "information management." These terms suggest that location-based marketing is not just about the technology, but also about integrating these practices into the overall business strategy. Marketers must make informed decisions based on the data they gather and ensure that their strategies align with broader organizational goals.
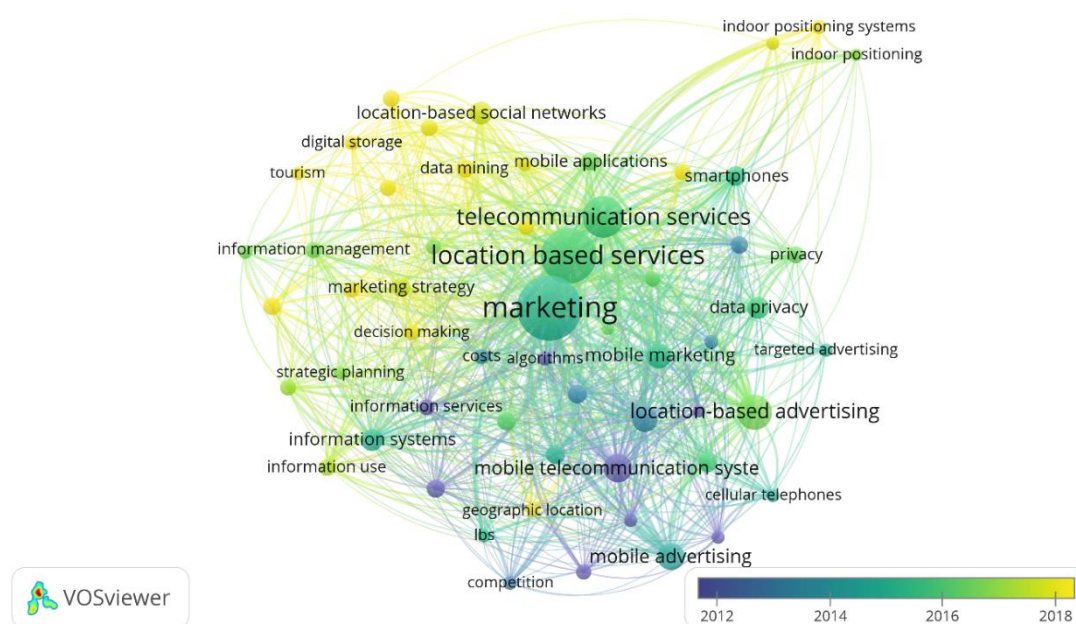

Figure 2. Overlay Visualization
Source: Data Analysis Result, 2026

Figure 2 presents the development of key themes within the field of Location-Based Marketing over time. The color gradient from blue to yellow, which represents the years from 2012 to 2018, shows the evolution of these topics in academic literature. The central node, "marketing," remains a dominant theme, closely connected with terms such as "location-based services," "location-based advertising," and "telecommunication

services." These terms have consistently been important, suggesting a stable interest in the application of location data in marketing strategies throughout the years.

As we move to the later years, represented by yellow, there is a noticeable increase in the prominence of keywords like "privacy," "data privacy," and "targeted advertising." This indicates a growing concern around data ethics and the need to safeguard consumer information, a reflection of the broader trend in digital marketing. The continued focus on "mobile applications," "smartphones," and "mobile advertising" suggests that mobile technology has been crucial in the adoption and growth of location-based marketing techniques, with

mobile devices being the primary medium for delivering targeted ads.

The map also highlights the expansion of location-based services to include terms like "indoor positioning" and "indoor positioning systems," which are gaining attention in recent years. This shift toward more precise location tracking methods reflects advancements in technology that allow marketers to target consumers more accurately, even indoors. The connections between terms like "geographic location" and "mobile telecommunications" further emphasize the integration of telecommunication networks with location-based services.

Figure 3. Density Visualization
Source: Data Analysis Result, 2026

The term "marketing" remains the focal point, with its close connections to terms like "location-based services" and "location-based advertising," which are crucial to understanding how location data is applied in marketing strategies. The heatmap highlights the significant role of "telecommunication services," "mobile marketing," and "mobile applications" in enabling location-based marketing, with these terms appearing in brighter areas, suggesting their prominence in

recent studies. The growing focus on mobile technologies such as "smartphones" and "cellular telephones" further underscores the integration of mobile devices in delivering personalized marketing experiences.

Privacy concerns are also notably prominent in this visualization, with "privacy" and "data privacy" highlighted as important areas of attention in recent literature. This indicates a rising interest in ethical considerations and consumer data

protection in location-based marketing practices. Additionally, the terms "indoor positioning" and "indoor positioning systems" are increasingly coming into focus, marking

advancements in technology that allow for more precise targeting of consumers in indoor environments.
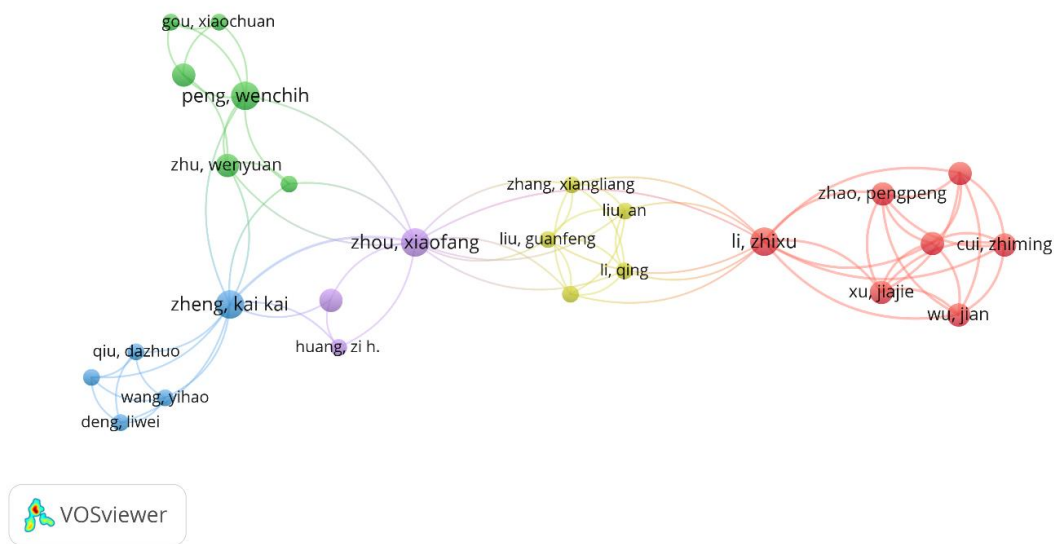
3.2 Co-Authorship Network

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

Figure 4 illustrates the co-authorship relationships among several researchers in the field of location-based marketing or a related academic area. The nodes represent individual researchers, and the edges between them indicate collaboration. The clusters of nodes suggest that certain researchers tend to collaborate more frequently within specific groups, as shown by the distinct color groupings. For example,

the group on the left, consisting of researchers like Peng Wenchih, Zhu Wenyuan, and Zheng Kai Kai, appears to have closer ties, while the right group, centered around Li Zhixu, features researchers such as Zhao Pengpeng, Cui Zhiming, and Xu Lijia. This visualization offers a clear picture of the collaborative landscape and the potential influence networks among scholars in the area of study.

Figure 5. Affiliation Collaboration Visualization
Source: Data Analysis Result, 2026

Figure 5 depicts the co-authorship or collaboration relationships between different academic institutions. The nodes represent various universities or departments, and the edges between them indicate the collaborative links. The grouping of institutions, such as Aalborg University in Denmark and Tilburg University in the Netherlands, reflects closer collaborations in the field of study. Additionally, the node labeled "School of Computer Science, WU" in Austria is connected to the other institutions, indicating some level of collaboration, though it is more distantly linked. The color gradation suggests varying degrees of connection among these institutions, with Aalborg University and Tilburg University appearing as central points in the network. This map provides insights into the institutional collaborations and research networks in the field, likely related to technology or computer science disciplines.
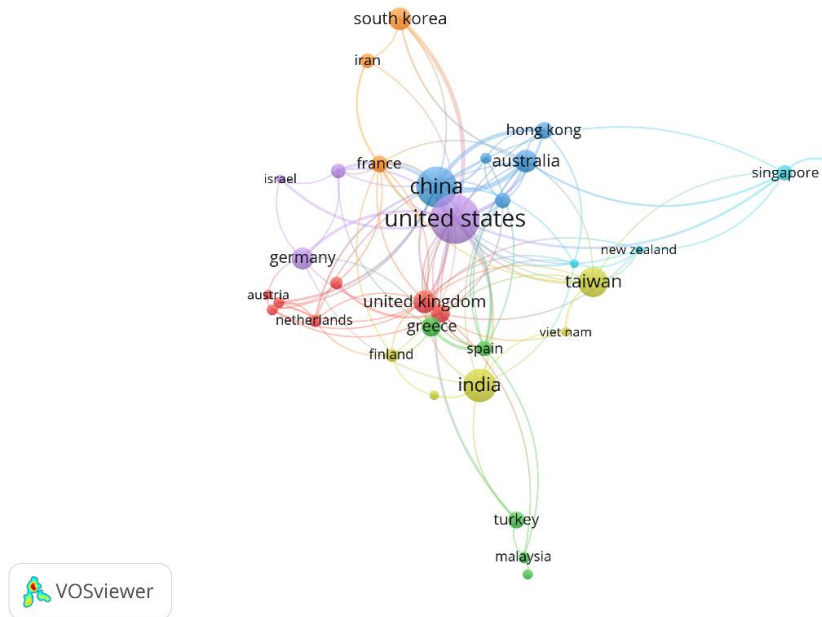
Figure 6. Country Collaboration Visualization
Source: Data Analysis Result, 2026

Figure 6 displays the international research collaboration network, where countries are represented as nodes, and the edges between them indicate the strength of their academic connections. The United States and China appear at the center of the network, highlighting their dominant roles in global research collaborations. These two countries are heavily connected to many other regions, including Europe (Germany, France, the United Kingdom), Asia (India, Taiwan, South Korea), and other parts of the world. Notably, countries like Australia, Hong Kong, and Singapore form their own clusters, with fewer direct connections to others. The map suggests that the global academic research network is highly interconnected, with strong links between major countries, while some smaller nations like Malaysia, Vietnam, and New Zealand are more isolated, indicating more localized collaboration.

3.3 Citation Analysis

Table 1. Top Cited Research

Citations	Authors and year	Title
605	[16]	Location-Based Services: Fundamentals and Operation
502	[17]	Linking perceived value and loyalty in location-based mobile services
401	[18]	Evolution of mobile location-based services
313	[19]	Personality traits and concern for privacy: An empirical study in the context of location-based services
295	[20]	The effect of social networks structure on innovation performance: A review and directions for research
277	[21]	Challenges and business models for mobile location-based services and advertising
271	[22]	Solving the crisis of immediacy: How digital technology can transform the customer experience
232	[23]	Bluetooth and WAP push based location-aware mobile advertising system

Citations	Authors and year	Title
201	[24]	RFID applications in hospitals: A case study on a demonstration RFID project in a Taiwan hospital
191	[25]	Using privacy calculus theory to explore entrepreneurial directions in mobile location-based advertising: Identifying intrusiveness as the critical risk factor

Source: Scopus, 2025

Discussion

The bibliometric analysis of location-based marketing reveals a clear evolution of the field, reflecting the growing importance of mobile technologies and data privacy concerns. Initially, the focus was primarily on the intersection of marketing strategies with technological advancements, including the role of mobile applications, telecommunication services, and mobile advertising. As the technology developed, the emphasis shifted towards more precise location tracking, as seen with the increasing relevance of indoor positioning systems. This shift in focus indicates a trend towards more sophisticated targeting techniques, where marketers aim to deliver personalized content based on the user's exact location, whether indoors or outdoors. The growing reliance on mobile devices as the medium for location-based marketing is evident from the prominent keywords such as smartphones and mobile marketing, reinforcing the idea that mobile technology is at the core of modern marketing efforts.

Moreover, the increased presence of terms related to privacy, such as "data privacy" and "targeted advertising," highlights a growing awareness and concern about consumer data protection. As location-based marketing relies heavily on user data, particularly geographic location, there is a pressing need for marketers to address ethical considerations around data collection and usage. This is particularly relevant as consumers become more informed about their digital footprints, leading to heightened scrutiny over privacy practices. The evolution of privacy concerns in the field of location-based marketing reflects a broader societal shift towards greater emphasis on data protection, which is likely to influence future regulatory frameworks and shape the development of ethical marketing practices.

The academic collaboration map also underscores the global nature of the research in this area, with strong links between countries such as the United States, China, and several European nations. These countries have emerged as major contributors to the development and dissemination of location-based marketing research, reflecting their advanced technological infrastructures and active research communities. While countries like India, South Korea, and Taiwan are also well-connected in the network, indicating significant contributions from these regions, smaller nations such as Malaysia and Vietnam show fewer direct links. This indicates that while the field is highly collaborative, the level of involvement varies across countries, possibly due to differences in technological capabilities, research funding, and academic interest in the field.

4. CONCLUSION

This study highlights the rapid evolution and growing complexity of location-based marketing, driven by advances in mobile technology, precise location tracking, and increasing privacy concerns. The bibliometric analysis reveals the centrality of mobile devices in shaping modern marketing strategies, with a clear trend towards more personalized and targeted advertising based on geographic location. The rising importance of data privacy indicates the need for marketers to adopt ethical practices in handling consumer information. Additionally, the global collaboration map underscores the interconnectedness of research across major countries, reflecting the worldwide relevance and significance of this field. As location-

based marketing continues to evolve, further research will be essential to address emerging challenges in data protection, technological advancements, and the ethical implications of personalized marketing.

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