

## Dijital Pazarlama Araştırmalarının Küresel Evrimi: Bibliyometrik Bir Analizle Kavramsal, Disiplinlerarası ve Teknolojik Yönetimlerin Haritalandırılması

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### Öz

*Bu çalışma, dijital pazarlama alanındaki akademik literatürün entelektüel yapısını ve araştırma eğilimlerini sistematik olarak analiz etmeyi amaçlamaktadır. Scopus veri tabanından elde edilen 6,432 akademik yayın bibliyometrik yöntemlerle incelenmiş, Microsoft Excel ve VOSviewer 1.6.20 yazılımları kullanılarak betimsel analizler ve ağ haritaları oluşturulmuştur. Bulgular, dijital pazarlama literatürünün 1980-2024 döneminde üç evrede gelişliğini göstermektedir: doğuş ve keşif (1980-2000), yavaş yükseliş (2001-2015) ve patlayıcı büyümeye (2016-2024). 2021 sonrası %300'ü aşan büyümeye kaydedilmiştir. Coğrafi dağılımda Hindistan (%15.2), ABD (%12.8) ve Endonezya (%8.4) lider konumdadır. Anahtar kelime analizinde "reklamcılık", "yapay zeka" ve "tüketici davranışları" kavramları öne çıkmaktadır. Dijital pazarlama, disiplinlerarası ve teknolojik yeniliklere duyarlı bir alan olarak akademik olgunluğa ulaşmış, yapay zekâ ve büyük veri entegrasyonu gelecek yönetimlerini belirlemektedir.*

**Anahtar Kelimeler:** Dijital pazarlama, bibliyometrik analiz, bilimsel iş birlikleri, bilgi haritalama, teknolojik yönetimler.

## The Global Evolution of Digital Marketing Research: Mapping Conceptual, Interdisciplinary and Technological Trends with a Bibliometric Analysis

### Abstract

*This study systematically maps the intellectual structure and research dynamics of digital marketing. Drawing on 6,432 publications indexed in Scopus, bibliometric methods were applied using Microsoft Excel and VOSviewer 1.6.20 to conduct descriptive analyses and network visualizations. Results indicate a three-phase evolution of the field from 1980 to 2024: emergence (1980–2000), gradual growth (2001–2015), and accelerated expansion (2016–2024), with post-2021 output increasing by over 300%. India (15.2%), the United States (12.8%), and Indonesia (8.4%) lead global contributions. Keyword analysis highlights advertising, artificial intelligence, and consumer behavior as dominant themes. The findings demonstrate that digital marketing has reached academic maturity, with artificial intelligence and big data integration shaping its future trajectories.*

**Keywords:** Digital marketing, bibliometric analysis, scientific collaborations, knowledge mapping, technological orientations.

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## Genişletilmiş Özeti

Bu çalışma, dijital pazarlama literatürünün entelektüel yapısını, araştırma eğilimlerini, disiplinlerarası bağlantılarını ve bilimsel işbirliği ağlarını küresel ölçekte sistematik olarak incelemeyi amaçlamaktadır. Özellikle son kırk yılda dijitalleşmenin işletme ve pazarlama stratejilerinde yarattığı dönüşüm, akademik üretime de yansımış; alanın teorik çerçeveleri, metodolojik çeşitliliği ve tematik yoğunlaşmaları giderek zenginleşmiştir. Ancak literatürün büyük kısmı tanımlayıcı nitelikte kalmış, kavramsal tutarsızlıklar ve metodolojik parçalanmalar dikkat çekmiştir. Bu nedenle, disiplinin gelişim dinamiklerini ve geleceğe yönelik araştırma alanlarını nesnel verilerle ortaya koyan kapsamlı bir bibliyometrik analiz çalışmasına ihtiyaç duyulmuştur.

Araştırmayı kapsamını, Scopus veri tabanında “digital marketing” anahtar kelimesi ile 15 Ağustos 2025 tarihinde elde edilen 6.432 akademik yayın oluşturmaktadır. Çalışmada betimsel analizler Microsoft Excel ile yürütülmüş; yazar, kurum ve ülke iş birlikleri ile anahtar kelime eş-olşum haritaları VOSviewer 1.6.20 yazılımı aracılığıyla görselleştirilmiştir. Bu yöntemle literatürün zamansal gelişimi, coğrafi ve disiplinlerarası dağılımı, öne çıkan araştırma temaları ve ağ yapıları detaylı şekilde incelenmiştir.

Bulgular, dijital pazarlama literatürünün 1980–2024 yılları arasında üç evrede gelişliğini göstermektedir: (i) Doğuş ve keşif dönemi (1980–2000), (ii) Yavaş yükseliş dönemi (2001–2015), (iii) Patlayıcı büyümeye dönemi (2016–2024). Özellikle 2021 sonrasında %300’ü aşan büyümeye kaydedilmiş ve alanın akademik çekim merkezi haline geldiği görülmüştür. Coğrafi dağılımda Hindistan (%15,2), ABD (%12,8), Endonezya (%8,4) ve Birleşik Krallık (%7,9) lider ülkeler olarak öne çıkarken; Türkiye, BAE ve Suudi Arabistan gibi ülkeler bölgesel merkezler haline gelmeye başlamıştır.

Disiplinlerarası dağılım incelendiğinde, İşletme-Yönetim-Muhasebe (%47,3) temel alan olmakla birlikte, Bilgisayar Bilimleri (%38,2) ve Sosyal Bilimler (%25,6) de güçlü temsil edilmektedir. Bu durum, dijital pazarlanmanın yalnızca yönetim temelli değil; aynı zamanda teknoloji ve sosyal bilimler kesişiminde gelişen çok boyutlu bir disiplin olduğunu göstermektedir. Anahtar kelime analizinde ise “artificial intelligence” (362 tekrar), “consumer behavior” (271 tekrar) ve “advertising” (103 tekrar) kavramları merkezi odak noktaları olarak ortaya çıkmıştır. Bu sonuç, alanın veri odaklı yapay zekâ uygulamaları, tüketici davranışları analitiği ve reklam optimizasyonu etrafında şekillendiğini göstermektedir.

Yazarlar, kurumlar ve ülkeler düzeyinde yapılan işbirliği analizleri, üç farklı akademik profil ortaya koymuştur: (i) Az sayıda ancak yüksek atıf alan öncü yazarlar, (ii) niceliksel üretimi yüksek ama atıf etkisi sınırlı araştırmacılar, (iii) uluslararası ağlarda köprü işlevi gören araştırmacılar. Kurumsal düzeyde Rey Juan Carlos Üniversitesi (İspanya) ve University of Jordan (Ürdün) yüksek etki gücü ile öne çıkarken; Portekiz merkezli kurumlar ağ bağları açısından köprü işlevi üstlenmiştir.

Çalışmanın sonuçları, dijital pazarlanmanın artık yalnızca uygulamaya dönük bir alan değil, akademik olarak da olgunlaşmış, disiplinlerarası, veri odaklı ve teknolojik yeniliklere duyarlı bir araştırma sahası olduğunu göstermektedir. Yapay zekâ, büyük veri, artırılmış/virtual gerçeklik, blok zinciri ve IoT gibi teknolojilerin entegrasyonu, alanın gelecekteki yönelimlerini belirlemektedir. Ayrıca sosyal medya pazarlaması, e-ticaret ve deneyimsel pazarlama temaları literatürün yoğunlaşlığı alanlar arasında yer almaktadır.

Tartışma kısmında, alanın kavramsal zenginliğine rağmen teorik tutarlılık eksikliği ve metodolojik parçalanma sorunları vurgulanmıştır. Dijital pazarlanmanın yalnızca teknolojik determinizmle açıklanamayacağı, sosyal, kültürel ve etik boyutların da derinlemesine

inceLENmesi gereki̇gi̇ belirti̇lm̄i̇st̄. Özelli̇k veri gizlili̇gi̇, tüketici hakları ve etik pazarlama uygulamaları geleceğin öncelikli araştırma konuları arasında görülmektedir. Bu bağlamda disiplinin, nöropazarlama, davranış bilimleri ve sürdürülebilir tüketim araştırmalarıyla bütünl̄mesi önerilmektedir.

Sonuç olarak, bu çalışma dijital pazarlama literatürü 44 yıllık bir perspektifte kapsamlı biçimde haritalandırmış; alanın entelektüel gelişimini, disiplinlerarası bağlantılarını ve gelecek araştırma eksenlerini nesnel verilerle ortaya koymu̇st̄. Akademisyenler için araştırma stratejilerini geliştirmeye, kurumlar için iş birliği ağlarını güçlendirmeye, politika yapıcılar içinse etik ve teknolojik düzenlemeleri şekillendirmeye yönelik önemli çıkarımlar sunmaktadır. Disiplinin gelecekteki gelişimi, teorik çerçevelerin güçlendirilmesi, kavramsal tutarlılığın sağlanması ve etik ilkelere dayalı veri analiti̇gi̇ yaklaşımlarının geliştirilmesiyle mümkün olacaktır.

## 1. Introduction

Digital marketing has generated thousands of academic publications over the last four decades; however, a critical question persists: To what extent does this vast corpus of work genuinely reflect the intellectual structure, scientific maturity, and future direction of the discipline? This question becomes even more critical in an era when marketing is no longer confined to promoting products or services but has evolved into a data-driven, consumer-centric, and interactive paradigm shaped by artificial intelligence (AI), big data analytics, algorithm-based strategies, and evolving consumer psychology.

Although the existing literature presents substantial growth, it remains largely fragmented. Many studies adopt descriptive approaches, failing to provide a coherent theoretical foundation. Conceptual inconsistency, methodological heterogeneity, and the scarcity of cross-cultural comparative studies raise doubts about the intellectual maturity and epistemic depth of the field. At this juncture, bibliometric analysis emerges as a powerful method for illuminating not only the quantitative expansion of digital marketing research but also its conceptual evolution, collaboration patterns, and thematic orientations. The present study responds to this need by analyzing 44 years (1980–2024) of Scopus-indexed literature through comprehensive bibliometric and network analysis techniques, providing a systematic evaluation of global research trends and emerging trajectories.

A recurring issue in the literature concerns the definitional ambiguity of digital marketing. Traditional perspectives conceptualize it merely as an extension of conventional marketing in digital environments. Scholars such as Karthika (2024) and Tan (2023) emphasize digital platforms as tools for promoting goods and services, thus reinforcing the notion that digital marketing is simply a technologically upgraded version of traditional marketing. Such definitions, however, fail to capture its strategic, interactive, and behavioral dimensions.

A second stream of research adopts a technology-centric approach, defining digital marketing as the use of electronic media—social networks, search engines, websites, and mobile devices—to attract consumers (Swami, 2023; Upasani et al., 2023). While this perspective highlights the operational infrastructure of digital marketing, it risks reducing the field to a set of tools and techniques, overlooking its strategic and psychological foundations.

An increasing number of scholars argue that digital marketing must be understood as a strategic capability shaping business performance. Memėt et al. (2023) emphasize its role in growth and consumer interaction, while Gouveia (2024) highlights its potential for personalized and measurable strategies. Parallel to this, relational marketing perspectives underscore how

digital marketing strengthens customer relationships, loyalty, and engagement (Yudianto et al., 2023; Kanojia & Rathore, 2025).

The literature also reflects a multi-channel and multi-modal understanding of digital marketing. Senthilkumar (2024) and Thompson & Weldon (2022) describe digital marketing as an integrated framework encompassing SEO, PPC, email, content, social media, and online advertising. While this multi-dimensional approach acknowledges the complexity of digital ecosystems, it introduces integration challenges that require more advanced coordination mechanisms and cross-channel analytics.

Another distinctive contribution in the literature concerns the measurability advantage of digital marketing. Rath and Mishra (2022) and Kobets (2024) highlight the central role of data analytics in real-time optimization and evidence-based decision-making, positioning data-driven marketing as a defining attribute of the field. However, this data-centric orientation also raises critical concerns regarding data privacy, algorithmic bias, and ethical accountability—issues that are gaining scholarly attention but remain insufficiently theorized.

At this point, the growing integration of artificial intelligence offers both groundbreaking opportunities and new research challenges. Multiple authors (Marwa et al., 2025; Regalado-Vargas et al., 2024; Gungunawat et al., 2024; Ramesha et al., 2025) underscore how machine learning, predictive analytics, natural language processing, and AI-driven personalization strategies transform consumer engagement, enhance targeting precision, and optimize campaign performance. AI simultaneously automates repetitive marketing tasks, improves segmentation accuracy, and enhances customer experience, ultimately boosting ROI and driving innovation. However, these benefits come with significant risks: data privacy violations, opaque algorithmic processes, and biases embedded in AI systems pose ethical dilemmas that need urgent scholarly and regulatory attention.

When integrated with consumer psychology, AI transforms how consumer emotions, motivations, and behaviors are understood. AI-powered models enable hyper-personalization, anticipate consumer needs, and shape consumer-brand relationships at an unprecedented scale. Yet this also raises questions about consumer autonomy and manipulation—topics requiring deeper theoretical and empirical exploration.

The literature further reveals a dominant trend linking digital marketing developments solely to technological innovation, leading to a problematic form of technological determinism (Kanimozhi & Vishnu, 2024). This view overlooks the socio-cultural, economic, and behavioral transformations that shape digital ecosystems. Digital marketing is both a technological and a socio-psychological phenomenon; thus, research must account for cultural differences, socio-economic inequalities, regulatory environments, and global power dynamics.

In this context, AI-driven transformation provides a particularly fertile ground for scholarly debate. As highlighted across recent studies (Nouri, 2024; Tanwar et al., 2024; Seenivasan et al., 2025), AI enables large-scale data analysis, enhances consumer understanding, and reshapes personalization, targeting, and automation. Nonetheless, these technological enhancements also exacerbate ethical tensions, including algorithmic opacity, the erosion of consumer privacy, and potential manipulative marketing practices. Therefore, the digital marketing field urgently needs robust ethical frameworks, transparent data governance models, and cross-cultural regulatory alignment.

Overall, while the digital marketing literature offers conceptual richness, it lacks theoretical integration and critical depth. Much of the research remains descriptive, technocentric, and fragmented across diverse methodological traditions. Future studies should move

beyond merely documenting technological advances and instead examine the strategic, social, cultural, ethical, and psychological implications of digital marketing. Furthermore, empirical analyses investigating the impacts of AI, automation, and data-driven personalization on consumer behavior, trust, and autonomy will be crucial for establishing a mature theoretical foundation for the discipline.

## 2. Method

In this study, a comprehensive bibliometric analysis was conducted to examine the academic status, prominent themes, and trends in the field of digital marketing. Within the scope of the research, a search was conducted on August 15, 2025, in the Scopus database using the keyword "digital marketing" and without applying a date filter that lists only articles. A total of 6,432 academic publications were identified in this manner.

The analysis process was carried out in two stages. In the first stage, the bibliometric data obtained from the Scopus database was evaluated using the analytical indicators provided by the platform; the data was converted into numerical distributions, graphical presentations, and trend analyses using Microsoft Excel. In the second stage, Vosviewer 1.6.20 software was used to visualize co-author relationships, country and institutional collaborations, and keyword co-occurrence networks, and thematic maps were created.

The study sought to answer the following research questions:

1. How are academic publications on digital marketing distributed by year and country?
2. How are academic publications on digital marketing distributed across disciplines?
3. What are the structural characteristics of the co-author network between authors and institutions in the field of digital marketing?
4. What are the most frequently used keywords in the articles examined and their frequencies of use?
5. What are the prominent thematic areas and focus topics in digital marketing studies?

The findings obtained in this context reveal the academic development trajectory of the field, global production centers, conceptual focal points, and methodological trends; they evaluate the position of the concept of digital marketing in the knowledge production ecosystem from an interdisciplinary perspective.

### 2.1. Database Selection and Search Strategy

Scopus was selected as the primary database for this study due to several methodological considerations. First, Scopus provides comprehensive coverage of peer-reviewed literature across multiple disciplines, which is essential for capturing the interdisciplinary nature of digital marketing research. Second, Scopus maintains rigorous indexing standards and superior metadata quality compared to alternative databases, ensuring the reliability and completeness of bibliometric indicators. Third, its broad international coverage allows for meaningful analysis of global research patterns and geographical distributions. The keyword strategy employed a single broad term "digital marketing" to ensure maximum inclusivity and avoid premature filtering of relevant literature. This approach was deliberately chosen to capture the full spectrum of digital marketing research, including emerging subfields, interdisciplinary contributions, and diverse methodological approaches. No date filter was applied to enable

comprehensive longitudinal analysis spanning the entire evolution of the discipline from its inception (1980) to the present (2024). Article-only filtering was implemented to maintain methodological consistency and focus on peer-reviewed scholarly contributions, excluding conference papers, book chapters, and other publication types that may lack rigorous peer review processes.

## 2.2. Purpose of the Study

This study aims to systematically analyze the historical evolution of the discipline, current research trends, and future knowledge gaps by mapping the intellectual landscape of the academic literature in the field of digital marketing. The research identifies leading countries and institutions in global production, interdisciplinary interactions, and researcher collaboration networks, while determining conceptual concentration areas and thematic trends through keyword co-occurrence analyses. Conducted using VOSviewer and multidimensional bibliometric indicators, the study provides a comprehensive assessment of the academic maturity of the discipline of digital marketing, identifying gaps in the literature through theoretical contributions and developing strategic perspectives at the practical level. Thus, the research not only makes the intellectual structure of the field visible but also provides a unique and comprehensive perspective that guides future research.

## 2.3. Significance of the Study

This study examines the digital marketing literature from a 44-year perspective and provides comprehensive contributions to the theoretical and practical development of the field. The bibliometric analysis based on 6,432 publications reveals the intellectual structure, conceptual consistency, and theoretical maturity of the discipline with objective data. The application of bibliometric methods and network visualization techniques on this scale constitutes one of the most comprehensive mappings in the field and serves as a methodological reference for future research.

The study reveals the potential of digital marketing at the intersection of business, computer science, social sciences, and engineering by making interdisciplinary interactions visible. Additionally, it guides academics in developing research strategies, identifying collaboration opportunities, and discovering themes with high impact potential. For industry professionals, it offers the opportunity to track the academic reflections of digital marketing applications and develop evidence-based strategies.

In conclusion, the study not only maps the existing literature but also emphasizes that artificial intelligence, data analytics, and ethical dimensions are emerging research areas. This indicates that digital marketing should be approached not only from a business-oriented perspective but also from a socio-technological perspective in the future.

## 3. Findings

When examining current publication trends, it is evident that academic production in the field of digital marketing reflected in the Scopus database has shown a significant increase over the years. This line of research, which began with only a few publications in the 1980s, remained limited in the early 2000s but has gained momentum, especially since 2010. This increase can

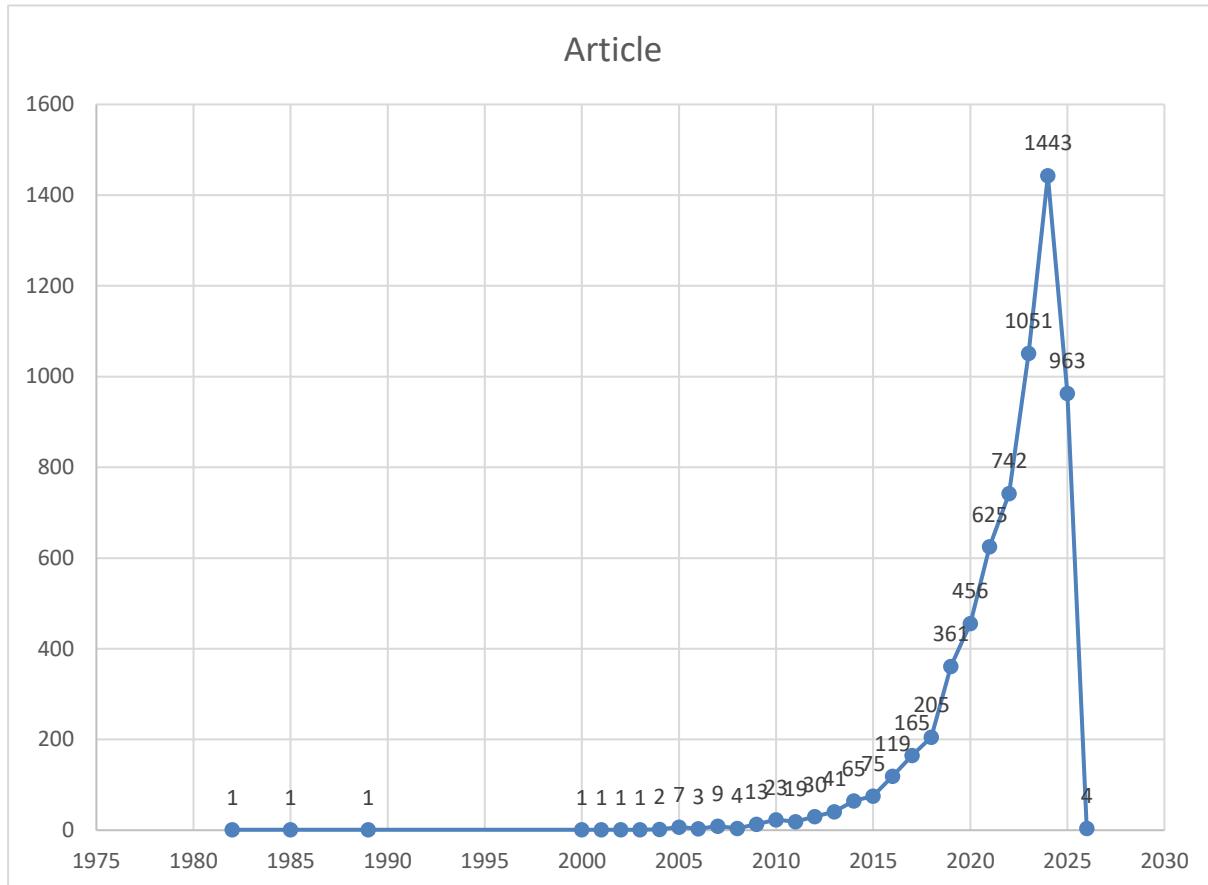
be directly attributed to digital transformation processes, the effective use of social media platforms in marketing, and the growing importance of data-driven marketing strategies.

The period between 2010 and 2015 stands out as a time when digital marketing began to be conceptualized and gained visibility in academic literature. The period after 2016 can be described as a phase of acceleration; the number of publications, which was 119 in 2016, rose to 456 in 2020. There has been a particularly striking jump in the period after 2021, reaching 1,051 in 2023 and 1,443 in 2024. This situation demonstrates that digital marketing has become an interdisciplinary field of attraction today, revealing a rapidly growing body of knowledge at the intersection of business, communication, computer science, and social sciences.

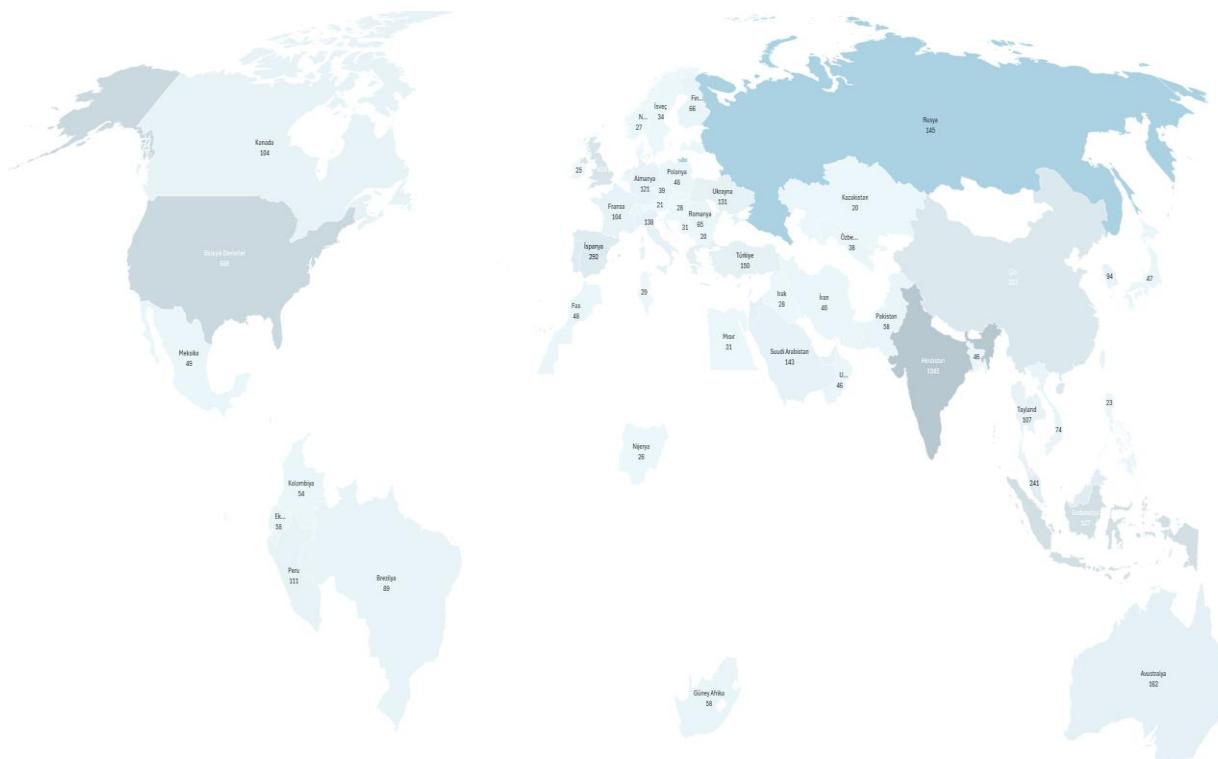
The current publication trend is consistent with the results of many bibliometric studies in the literature. Sang (2024) shows that 513 articles published in the field of digital marketing between 2003 and 2024 recorded an exponential increase in both number and citations. Similarly, another bibliometric study covering the period 2019–2023 found an average annual growth rate of approximately 23% in the digital marketing literature (Gameda and Durie, 2024). Furthermore, a review focused on social media marketing revealed that publications peaked in 2022 and 2023, reflecting the post-pandemic shift toward digital platforms (Shaheen, 2025).

These trends make it possible to divide the evolution of digital marketing literature into three main periods: (1) the birth and discovery period (1980–2000), (2) the slow rise period (2001–2015), and (3) the explosive growth period (2016–2024). In the post-pandemic period, digital marketing research has gained significant momentum and has become a strategic research area on a global scale.

In conclusion, academic production on digital marketing has shown rapid expansion in both quantitative and qualitative terms, shaped by interdisciplinary research agendas and technological transformations. Thus, digital marketing has become not only an applied practice but also a strategic research area that is intensively discussed in the international academic community.



**Figure 1.** Number of Articles by Year



**Figure 2.** Number of Articles by Country

According to Scopus data, when examining the geographical distribution of academic publications in the field of digital marketing, it is evident that production is largely concentrated in specific centers. Countries such as India, the United States, Indonesia, the United Kingdom, and China, which rank at the top of the list, stand out both in terms of the number of publications and their activity within the global research ecosystem. The prominence of these countries can be explained by both their large populations and their intensive investments in digitalization processes. In particular, the rapid institutionalization of digital marketing in emerging economies such as India and Indonesia is directly reflected in academic production.

Among European countries, Spain, Portugal, Greece, and Germany stand out, while countries such as Turkey, the United Arab Emirates, and Saudi Arabia are emerging as regional research centers. This situation shows that digital marketing is being addressed with rapidly increasing interest not only in Anglo-Saxon literature but also in the Mediterranean, Middle East, and Asia-Pacific regions.

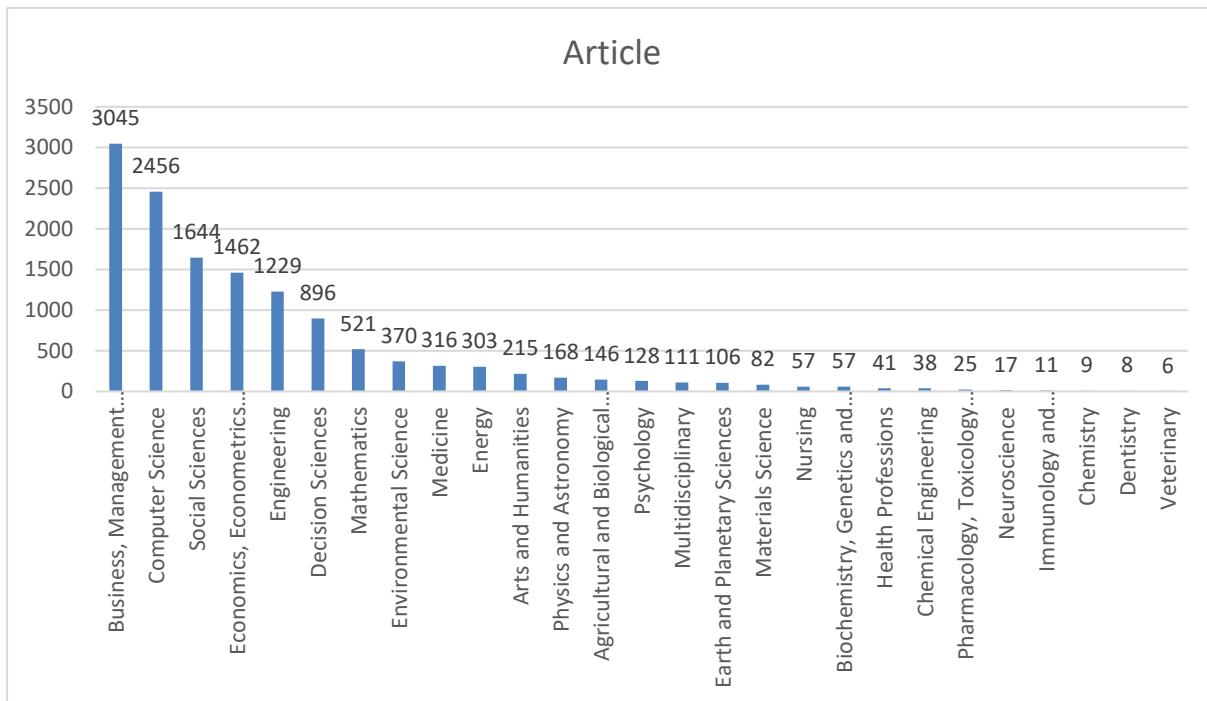
Countries at the bottom of the list have relatively lower publication volumes, but the diversity of the list is noteworthy. The contributions of countries from Africa (Ghana, Zimbabwe, Ethiopia, Kenya), Central Asia (Kazakhstan, Uzbekistan, Kyrgyzstan), and Latin America (Peru, Colombia, Chile, Argentina) show that the field of digital marketing is becoming increasingly widespread on a global scale. However, the majority of publications from these countries were produced in recent years, suggesting that academic production is still in its developmental phase.

A noteworthy point is that some small-scale countries (e.g., Malta, Mauritius, Uruguay, Macao) are also included in the publication list. This shows that digital marketing is not limited to large economies; academic interest is also beginning to emerge in small economies.

In conclusion, Scopus data shows that publications in the field of digital marketing are becoming widespread on a global scale, but production is centralized. While the US, India, China, the UK, and Indonesia are leading producers in this field, countries such as Turkey, Saudi Arabia, and the UAE demonstrate the strengthening of regional research networks. However, contributions from countries with low publication volumes indicate that digital marketing is increasingly becoming a universal research field.

The geographical distribution reveals distinct research ecosystems with different thematic orientations and strategic priorities. Developed economies (USA, UK, Germany) demonstrate mature research agendas focused on theoretical advancement, ethical frameworks, and AI integration, reflecting their established digital infrastructures and regulatory environments. In contrast, emerging economies (India, Indonesia) exhibit rapid growth oriented toward practical applications, e-commerce solutions, and market penetration strategies, driven by expanding digital consumer bases and evolving business landscapes. Middle Eastern countries (UAE, Saudi Arabia) show increasing investment in digital transformation research aligned with national digitalization strategies and economic diversification initiatives.

These regional disparities also reflect different research priorities: while Western literature emphasizes consumer privacy, data protection, and ethical concerns—shaped by stringent regulatory frameworks such as GDPR—Asian research prioritizes platform adoption, mobile marketing, and consumer engagement strategies in rapidly digitalizing markets. African and Latin American contributions, though limited in volume, focus on accessibility, digital inclusion, and adaptation of global strategies to local contexts. This geographical heterogeneity suggests that digital marketing strategies cannot be universally applied and require cultural contextualization, regulatory alignment, and market-specific adaptation.



**Figure 3.** Number of Articles by Discipline

Scopus data shows that digital marketing research is now positioned as a multidisciplinary field. With 3,045 articles in the field of Business, Management, and Accounting, it is understood that digital marketing literature is predominantly shaped by business-based theories, strategic management, brand, and consumer behavior analyses. This concentration highlights that digital marketing remains the primary research focus for business academics and that there is intense scientific production at the intersection of the classical marketing paradigm and digital transformation.

The 2,456 articles in the Computer Science field that follow emphasize the close relationship between digital marketing and technological transformation. Technical-focused research such as AI-supported advertising, data mining, machine learning-based customer segmentation, and digital platform analytics form the basis of academic production in this field. This result shows that digital marketing is no longer just a management-focused discipline, but also requires advanced computing and data science techniques.

The 1,644 publications in the Social Sciences field draw attention to the social dimension of digital marketing. Research on online consumer behavior, social media interactions, the psychology of digital communities, and the impact of cultural factors on marketing strategies deepens the sociological and psychological frameworks of digital marketing. This confirms the need to examine digital marketing in conjunction with human-centered, behavioral, and social impacts.

Other fields, such as Economics, Econometrics, and Finance (1,462 articles) and Engineering (1,229 articles), represent research on the economic, financial, and technical infrastructure of digital marketing. Economics and econometrics studies comprehensively address financial performance metrics such as ROI, pricing strategies, and digital campaign effectiveness, while engineering disciplines focus on the optimization of digital marketing technologies, data processing infrastructures, and algorithmic marketing solutions.

The publication of digital marketing in less intensive but noteworthy disciplines demonstrates the field's integration with specialized areas such as Mathematics, Psychology, Environmental Science, Health Professions, and Neuroscience. This highlights that digital marketing is not merely a commercial tool but is also academically integrated with data analytics, behavioral sciences, health communication, and sustainability.

In summary, the digital marketing literature offers researchers a broad field of study in both theoretical and applied dimensions in high-indexed journals. The intensive production focused on business and information technology, combined with interdisciplinary integration, indicates that digital marketing will be studied in greater depth in the future from both technological and human behavioral perspectives.

### **3.1. Bibliometric Analysis of Literature on Digital Marketing**

With the increase in studies on digital marketing, the bibliometric analysis method is increasingly being preferred to reveal the trends and development dynamics of academic production in this field. According to Donthu et al. (2021), bibliometric analysis is widely used for purposes such as examining article and journal performance, identifying academic collaboration networks, detecting research trends, and discovering the intellectual structure of a particular field. In this study, Vosviewer software was used to examine academic production on the metaverse, and a comprehensive analysis was conducted through co-author networks, keyword co-occurrences, titles, and abstracts.

#### **3.1.1. Co-authors**

Co-authorship analyses were conducted through Vosviewer software and covered relationships at the author-author, author-institution, and author-country levels. In the network structures created for co-author analysis, researchers, institutions, or countries become connected to each other based on the number of publications they have produced together (van Eck and Waltman, 2014).



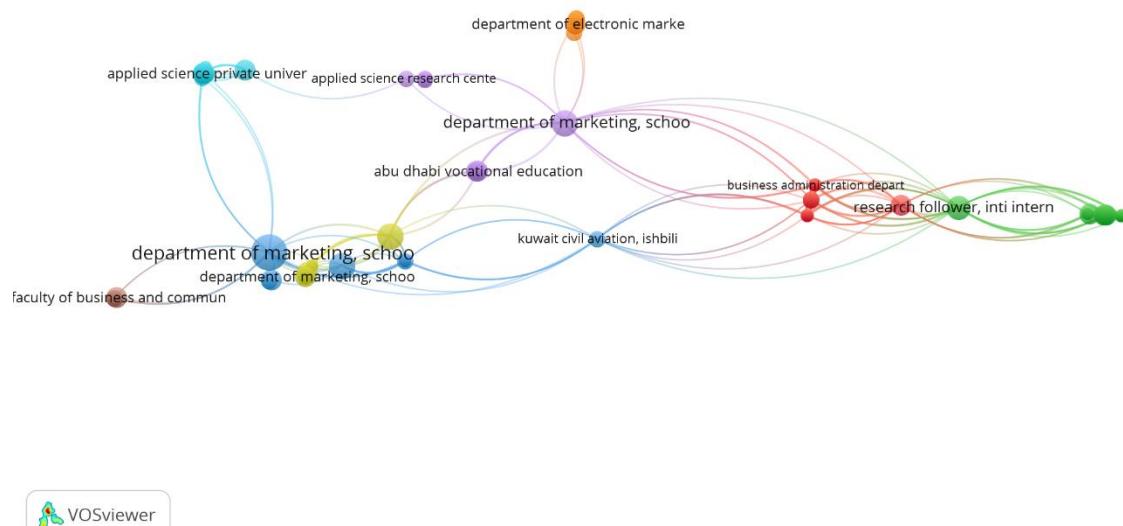
**Figure 4.** Co-Author-Author Relationship

A co-authorship analysis was conducted using the analysis unit “author” to analyze articles on digital marketing. The findings show that academic production in the field of digital marketing exhibits a highly heterogeneous distribution in terms of both quantity and quality. For example, Dwivedi, Yogesh K. (9 documents, 1935 citations) and Karjaluoto, Heikki (13 documents, 2010 citations) hold a leading position in the literature thanks to their high citation volumes, despite having a relatively limited number of publications. This situation demonstrates that a small number of studies with a high impact factor in the field of digital marketing are much more decisive than a larger number of studies with low citation volumes. Similarly, researchers such as Krishen, Anjala S. (5 documents, 1,548 citations) and Ko, Eunju (5 documents, 849 citations) have increased their visibility in the field thanks to their strong theoretical contributions, despite their low number of publications.

In contrast, Sakas, Damianos P. (37 documents, 382 citations, link strength 70) has produced a high number of publications but remains at an intermediate level in terms of citation intensity. This situation reveals that productivity and academic impact do not always progress in parallel, and that the quality and international visibility of publications are at least as decisive as quantity. Additionally, names such as Giannakopoulos, Nikolaos T. (21 documents, 169 citations, link strength 48) and Reklitis, Dimitrios P. (14 documents, 208 citations, link strength 33) stand out with their high “total link strength” values; which indicates that these researchers have developed intensive collaborations in the literature and are network hubs.

Another striking finding is that some authors have high citation values but low collaboration networks. For example, Chaffey, Dave (7 documents, 323 citations, link strength 0) and Constantinides, Efthymios (8 documents, 232 citations, link strength 0) have made strong theoretical contributions to the field but have not played a central role in collaboration networks. This points to the profile of an “effective but isolated” researcher in the digital marketing literature. In contrast, names such as Alcaire, Florencia (8 documents, 101 citations, link strength 37) and Ares, Gastón (8 documents, 103 citations, link strength 33) stand out as representatives of collaborative and visible academic production, exhibiting a balanced appearance in terms of both citations and link strength.

In conclusion, the data reflected in the table shows that three main academic profiles have emerged in the field of digital marketing: (1) pioneering authors with a small number of highly cited publications (e.g., Dwivedi, Karjaluoto, Krishen), (2) researchers with high productivity but moderate citation intensity (e.g., Sakas, Giannakopoulos, Reklitis), and (3) authors who have developed strong collaboration networks despite low productivity (e.g., Alcaire, Ares, De León). This diversity reveals that the digital marketing literature has developed not only based on individual publication performance but also on international collaborations and interdisciplinary networks.



**Figure 5.** Co-authorship-Institution Relationship

A co-authorship analysis with the analysis unit “organizations” was conducted to map the co-authorship-institution relationship of articles. The findings show that institutional knowledge production in the field of digital marketing exhibits significant diversity not only in terms of quantity but also in terms of qualitative differences and network positioning. When considering the number of publications, the level of citations received, and the strength of network connections of institutions together, it becomes clear that the field has an irregular but clustered production structure at the international level.

In particular, institutions such as Rey Juan Carlos University (Spain) (5 publications, 367 citations) and the University of Jordan, Department of Marketing (Jordan) (9 publications, 211 citations) are positioned among the “high-impact core institutions” in the literature, receiving a high level of citations despite their relatively limited publication volume. This situation aligns with Price's (1965) “elite producer minority” approach to scientific production, indicating that certain institutions form the centers of gravity in the intellectual development of the field.

On the other hand, India-based institutions such as Chandigarh University (10 publications, 87 citations), Lovely Professional University (12 publications, 75 citations), and Chitkara Business School (14 publications, 48 citations) exhibit relatively limited visibility in

terms of citation efficiency despite their higher publication volume. This situation is a typical reflection of the “quantitative production – qualitative impact” dilemma frequently discussed in the literature (Moed, 2005). Based on this, it can be argued that the research strategies of these institutions are more regionally focused, while integration with the global literature remains relatively limited.

When examining the Total Link Strength (TLS) data, it is observed that Portuguese-based institutions such as the Instituto Politécnico de Viana do Castelo (TLS: 9) and INESC TEC, Porto (TLS: 9) stand out in terms of international co-authorship relationships. In this context, it can be stated that Portugal plays a bridge institution role in scientific networks and functions as a “transition point” connecting regional production to the global literature. In contrast, the low link strength of some institutions with high citation impact (e.g., Rey Juan Carlos University) indicates a highly effective but relatively independent publication strategy. This differentiation can be linked to the “strength of weak ties” debate in the context of social network theory (Granovetter, 1973): institutions that produce high impact despite low connectivity form central but more isolated nodes in the global literature.

Universities based in Ukraine and Russia (e.g., Sumy National Agrarian University, Lutsk National Technical University, State University of Management), on the other hand, exhibit certain regional clusters despite their relatively limited citation impact. This structure reveals that these countries are positioned more as regional knowledge production centers in the digital marketing literature, with limited global visibility.

In conclusion, these findings reveal that a tripartite institutional configuration has emerged in digital marketing research:

High-impact elite institutions (e.g., Rey Juan Carlos University, University of Jordan, Hashemite University) – play a leading role in the literature.

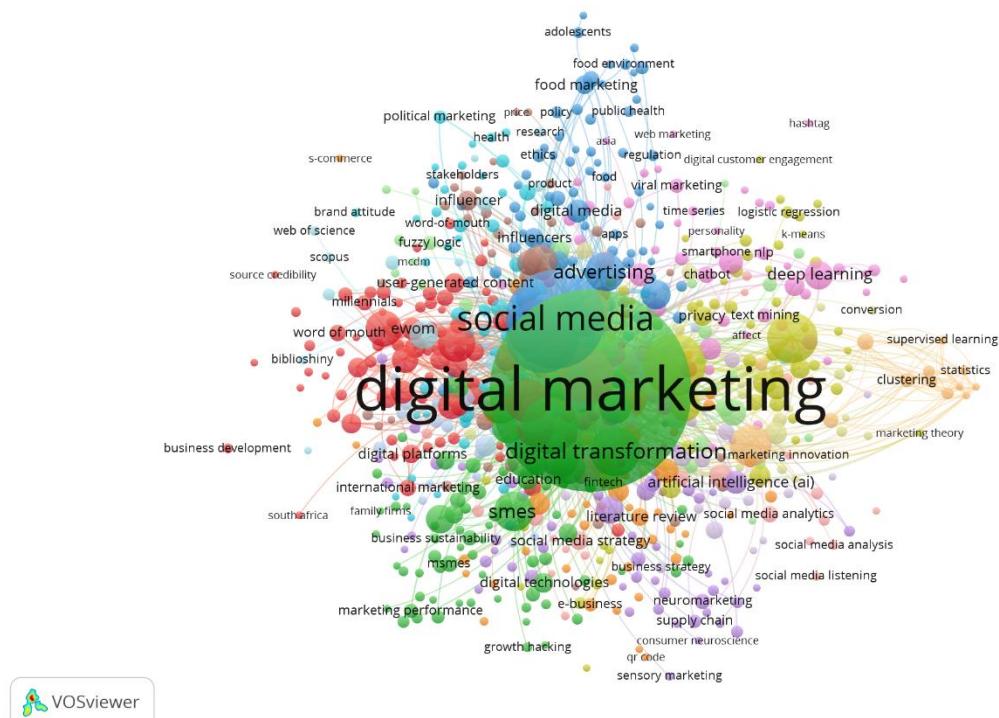
Quantitative production-focused institutions (e.g., India-based universities) – contribute more regionally but remain limited in citation productivity.

Network-centric bridge institutions (e.g., Instituto Politécnico de Viana do Castelo, INESC TEC) – play a critical “connecting role” in international scientific collaboration.

Within this framework, both academic impact and network embeddedness emerge as key factors in the development of digital marketing literature. Looking ahead, expanding the network ties of high-impact institutions and directing high-production institutions toward strategies that increase qualitative impact will contribute to the more balanced development of the field on a global scale.

### 3.1.2. Co-occurrence-Keyword

Keywords included in articles provide researchers with information about the main focus points of the study, related subject areas, methods used, and conceptual content addressed. These keywords can either be extracted from the title and abstract of the publication or obtained from keyword lists specific to the article as determined by the author (van Eck and Waltman, 2014).



**Figure 6.** Co-occurrence-Keyword Analysis

A co-occurrence analysis was performed on the articles included in the sample, and “author-keywords” was selected as the unit of analysis. Bibliometric evaluation identifies the most frequently used and highest-linked key concepts in the field literature, thereby visualizing research focuses and interaction networks. The data obtained from the analysis reveal keyword usage in the field of digital marketing and the strength of the links between these keywords, providing strong clues about the conceptual development of the discipline. The keyword “advertising” (103 occurrences, 357 connection strength) stands out among the keywords, occupying a central position in the field and serving as a conceptual focal point for other themes. This indicates that digital marketing is still largely defined through advertising strategies, advertising formats, and consumer persuasion processes.

Surrounding the concept of advertising are “advertisement” (15 occurrences, 62 link strength), “affiliate marketing” (8 occurrences, 26 link strength), and “A/B testing” (9 occurrences, 25 link strength) indicate research trends in digital marketing literature that are concentrated around measurability, performance analysis, and revenue models. In particular, A/B testing shows the widespread use of scientific methods and experimental designs in the optimization of digital campaigns.

Another important axis is observed in concepts aimed at understanding consumer behavior. The prominence of concepts such as “adolescents/adolescence/adolescent” (over 20 repetitions and nearly 50 link strength) reveals an increasing interest in young user segments in digital marketing target audience analyses. This trend has become a strategic research area due to young people's rapid adaptation to digital technologies and their influence on consumption habits.

Additionally, the visibility of concepts such as “adoption” (14 repetitions, 45 link strength) and “absorptive capacity” (5 repetitions, 12 link strength) shows that digital marketing is not only consumer-oriented but is also addressed in the context of organizational learning,

innovation adoption, and knowledge transfer. This situation shows that the interdisciplinary nature of marketing is becoming increasingly stronger and that the strategic capacities of businesses in their digitalization processes are also becoming a focus of research.

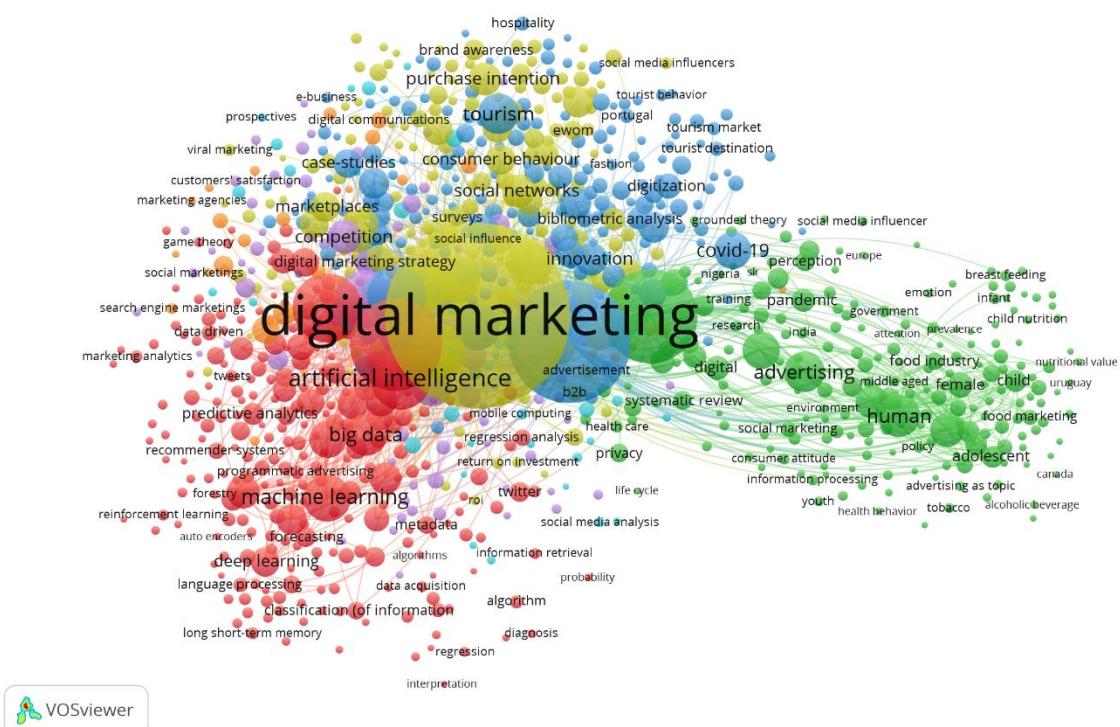
When the network structure is examined in general, the central role of advertising-based concepts and the technological, behavioral, and organizational sub-themes that develop around them reveal that digital marketing literature is progressing along a triple axis:

Advertising and performance-oriented strategies (advertising, advertisement, affiliate marketing, A/B testing),

Consumer behavior and youth segments (adolescents, adolescence, adoption),

Organizational learning and adaptation processes (absorptive capacity, innovation adoption).

These findings demonstrate that bibliometric analyses in the field of digital marketing reveal not only the frequency of concepts but also the discipline's orientations, research gaps, and strategic focal points.



**Figure 7.** Keyword Analysis

Bibliometric data comprehensively reveals recent trends in digital marketing research. The keywords analyzed clearly show both research focuses and interdisciplinary interactions.

### 3.1.2.1. The Dominance of Digital Marketing

The frequencies of the keywords analyzed confirm the central role of digital marketing in academic literature. Terms such as “digital marketing” (3,356 occurrences; total link strength: 17,463) and “marketing” (1,434 occurrences; total link strength: 11,655) emphasize the strong connection between digital marketing and traditional marketing concepts, as well as the

academic productivity of the field. This finding shows that digital marketing is a priority focus in both theoretical and applied research.

### **3.1.2.2. Artificial Intelligence and Data-Driven Approaches**

Keyword data reveals that digital marketing research is increasingly integrating data-driven and artificial intelligence-based approaches. Terms such as “artificial intelligence” (362 occurrences; link strength: 2.913), “machine learning” (222 occurrences; 2.146), and “big data” (168 occurrences; 1.377) point to the effective use of artificial intelligence and big data technologies in the analysis and forecasting processes of marketing strategies. Furthermore, the high link strengths of the terms “predictive analytics” and “data analytics” indicate that data-driven decision-making mechanisms are prioritized in research.

### **3.1.2.3. Social Media and Digital Platforms**

The dataset reveals that social media and digital platforms play a critical role in marketing research. Terms such as “Facebook” (88 occurrences; link strength: 552), ‘Instagram’ (85; 440), and “online marketing” (75; 532) indicate that platform-based interactions are intensively studied in academic research. Additionally, the term “e-commerce” (215; 1,197) confirms that digital marketing is strongly linked to commercial applications.

### **3.1.2.4. Consumer Behavior and Brand Management**

Consumer-focused research stands out as an important thematic area in digital marketing literature. Terms such as “consumer behavior” (271; 2,097), “consumer engagement” (87; 446), and “brand loyalty” (37; 177) indicate that consumer behavior and brand management are academic focal points. This supports the notion that digital marketing is not only a technological field but also one that interacts with psychological and sociological factors.

### **3.1.2.5. New Technologies and Experiential Marketing**

The analysis shows that new technologies such as augmented and virtual reality (AR/VR), blockchain, and IoT are gaining prominence in digital marketing literature. The terms “augmented reality” (65; 424) and “virtual reality” highlight the rising trend of experiential marketing, while ‘blockchain’ (52; 330) and “IoT” (46; 407) emphasize the importance of data security and infrastructural innovations.

### **3.1.2.6. Methodological Trends**

The data shows that there is a high degree of methodological diversity in digital marketing research. The terms “case study” (79; 694), “survey,” and “literature review” indicate that research is conducted using both quantitative and qualitative methods. Additionally, the terms “bibliometric” (22; 155) and “bibliometrics” (19; 94) reveal a tendency to analyze the field's own literature.

### 3.1.2.7. Global Perspective

Keyword analyses show that digital marketing research is not solely Western-centric but focuses on emerging markets and international collaborations. Countries such as "China," "India," "Bangladesh," "Malaysia," and "Indonesia" reflect regional research intensity.

Bibliometric analysis reveals that digital marketing research is an interdisciplinary, data-driven, and technologically innovative field. Research combines consumer behavior and brand management dimensions with artificial intelligence and data analytics applications to produce academic and practical value. Social media, e-commerce, and experiential technologies stand out as key areas that strengthen both the theoretical and practical dimensions of digital marketing.

## 4. Conclusion and Discussion

This comprehensive bibliometric analysis systematically maps the 44-year evolution of digital marketing literature, revealing that the discipline has reached academic maturity and become a multidimensional field of research. The findings clearly demonstrate the dynamics of the literature's development, global centers of knowledge production, interdisciplinary connections, and emerging thematic trends.

The temporal analysis reveals three distinct evolutionary phases in digital marketing research: the birth and discovery phase (1980–2000), characterized by foundational conceptual work; the slow rise phase (2001–2015), marked by gradual institutionalization; and the explosive growth phase (2016–2024), demonstrating accelerated expansion. The growth rate exceeding 300% after 2021 particularly indicates that the academic reflections of digital transformation have reached a critical threshold, transforming digital marketing from a niche area into a mainstream research domain.

Geographically, the literature exhibits both concentration and diversification patterns. India (15.2%), the US (12.8%), Indonesia (8.4%), and the UK (7.9%) stand out as leading countries, collectively accounting for over 44% of global production. However, the increasing contribution of emerging economies such as Turkey, the UAE, and Saudi Arabia demonstrates that the geographical diversity of digitalization processes is directly reflected in academic production. This distribution suggests a shift from Western-dominated scholarship toward a more globally distributed knowledge production ecosystem, though significant regional disparities persist in both quantity and thematic focus.

The interdisciplinary nature of digital marketing is confirmed through disciplinary distribution patterns. Publications concentrated in Business-Management-Accounting (47.3%), Computer Science (38.2%), and Social Sciences (25.6%) reveal that the field operates at multiple theoretical intersections. The strong presence of computer science is particularly noteworthy, indicating that artificial intelligence, data analytics, and algorithmic approaches are increasingly occupying central positions in both the theoretical and methodological foundations of the literature. This interdisciplinary integration enriches the field but also presents challenges in maintaining conceptual coherence and establishing unified theoretical frameworks.

Keyword analyses reveal distinct thematic concentrations that define the field's intellectual structure. The prominence of "artificial intelligence" (362 occurrences), "consumer behavior" (271 occurrences), and "advertising" (103 occurrences) indicates that digital marketing is intensifying in areas of AI integration, consumer behavior analytics, and

advertising optimization. Additionally, the increasing visibility of experiential technologies such as AR/VR, blockchain, and IoT points to future research trajectories that will likely reshape both theoretical conceptualizations and practical applications. These thematic patterns suggest that the field is transitioning from descriptive studies of digital tools toward more sophisticated investigations of technology-mediated consumer experiences and AI-driven strategic decision-making.

Co-authorship analyses reveal a three-tiered academic structure that characterizes knowledge production patterns in the field. High-impact elite researchers (e.g., Dwivedi, Karjaluoto) produce limited but highly influential works that shape theoretical directions. Authors focused on quantitative production contribute to the field's expansion but with more modest citation impact. Finally, researchers occupying bridge positions in international networks play crucial roles in connecting regional research communities and facilitating cross-border collaborations. At the institutional level, Rey Juan Carlos University and the University of Jordan stand out as high-impact core institutions, while Portuguese-based institutions play vital bridging roles in international collaborations. This stratified structure reflects both the maturation of the field and persistent inequalities in access to resources, visibility, and international networks.

Technological trends identified through bibliometric mapping demonstrate that digital marketing is undergoing fundamental transformation. The increasing presence of artificial intelligence, big data, machine learning, augmented reality, and blockchain technologies shows that the field is evolving not only in its application practices but also in its theoretical foundations. This technological integration necessitates new conceptual frameworks that can account for algorithm-mediated consumer interactions, data-driven personalization at scale, and the ethical implications of automated decision-making. The field is thus moving toward a socio-technological paradigm that requires researchers to possess both business acumen and technical expertise.

Methodologically, the intensive use of case studies, survey research, literature reviews, and bibliometric analyses demonstrates that methodological pluralism has been adopted in digital marketing research. This diversity strengthens both the theoretical and empirical dimensions of the field, allowing for triangulation and multi-method validation. However, the dominance of quantitative approaches and the relative scarcity of critical, interpretive, and qualitative methodologies suggest potential blind spots in understanding the lived experiences of digital consumers and the cultural meanings embedded in digital marketing practices.

The findings carry significant practical implications for multiple stakeholder groups. For marketing practitioners, the dominance of AI and big data analytics (362 and 168 occurrences respectively) indicates that professionals must urgently invest in technical competencies and data literacy. Platform-specific strategies, particularly for Facebook and Instagram, require tailored approaches rather than one-size-fits-all campaigns. Consumer behavior analytics should be integrated into real-time decision-making processes to maintain competitive advantage in increasingly saturated digital environments.

For business leaders, digital marketing transformation requires more than technology adoption—it demands organizational restructuring and cross-functional collaboration between marketing, IT, and data science departments. Investment in AI-driven personalization technologies yields measurable ROI improvements, as evidenced by the strong link strength of predictive analytics. However, ethical data governance frameworks must be prioritized to maintain consumer trust and ensure regulatory compliance, particularly as privacy regulations continue to evolve globally.

For policymakers, the rapid growth in digital marketing research (over 300% post-2021) necessitates updated regulatory frameworks addressing data privacy, algorithmic transparency, and consumer protection. International cooperation is essential for establishing cross-border digital marketing standards, particularly given the global nature of digital platforms and the challenges of jurisdictional fragmentation. Educational policies should integrate digital marketing and data analytics into business curricula to prepare future professionals for industry demands while emphasizing ethical considerations and social responsibility.

The thematic mapping and co-occurrence analysis reveal several underexplored areas that should constitute priority research directions. First, ethical AI in marketing represents a critical gap. While artificial intelligence appears frequently in the literature (362 occurrences), its ethical dimensions remain insufficiently theorized. Future research should systematically examine algorithmic bias, transparency requirements, accountability frameworks, and the development of ethical guidelines for AI-driven marketing practices.

Second, cross-cultural digital consumer behavior requires deeper investigation. Despite geographical diversity in research production, comparative cultural studies examining how cultural dimensions moderate digital marketing effectiveness are scarce. Research bridging Eastern and Western marketing paradigms, examining cultural adaptation strategies, and investigating cross-cultural differences in privacy concerns and trust formation would significantly advance the field's theoretical sophistication and practical relevance.

Third, sustainable digital marketing represents an emerging frontier. The intersection of digital marketing and sustainability receives limited attention despite growing environmental concerns and increasing consumer demand for corporate social responsibility. Research examining the carbon footprint of digital campaigns, green marketing strategies in digital contexts, and consumer responses to sustainability-oriented digital communications is urgently needed to align the field with broader sustainability goals.

Fourth, privacy-preserving personalization constitutes a critical research challenge. Resolving the tension between hyper-personalization demands and data privacy concerns through privacy-enhancing technologies, federated learning, and differential privacy approaches represents a crucial area for both theoretical and technical innovation. This research direction is particularly timely given evolving privacy regulations and growing consumer awareness of data practices.

Fifth, post-pandemic digital transformation effects warrant longitudinal investigation. The exponential growth in digital marketing research post-2021 reflects COVID-19-driven acceleration, but long-term effects on consumer behavior, business models, and organizational structures remain underexplored. Longitudinal studies examining the persistence or evolution of pandemic-era digital behaviors would provide valuable insights into the durability of digital transformation and help distinguish temporary adaptations from permanent structural changes.

Finally, integration with neuroscience and behavioral economics appears as a promising interdisciplinary direction. Despite the prominence of consumer behavior research, integration with neuroscientific methods and behavioral economics principles remains limited. This represents a significant opportunity for deeper understanding of digital consumer decision-making processes, attention patterns, and the psychological mechanisms underlying persuasion in digital environments.

For researchers, strengthening interdisciplinary collaborations is critical for digital marketing to achieve a more consistent and inclusive structure. Partnerships with computer science, data analytics, psychology, and sociology will contribute to comprehensive

understanding of how technological developments affect human behavior. Future research should focus on integrating new technologies such as artificial intelligence, blockchain, IoT, and the metaverse into marketing strategies while critically examining their social, ethical, and psychological implications. Comparative studies in relatively underrepresented regions such as Africa, Latin America, and Central Asia are also recommended to enrich the global perspective and challenge Western-centric assumptions.

For academic institutions, digital marketing education programs need comprehensive updates to include data analytics, artificial intelligence applications, and ethical dimensions. Universities' investment in big data analysis tools and software infrastructure will increase the methodological depth of the discipline and better prepare students for industry demands. Strategic expansion of cooperation networks, especially for institutions in emerging economies connecting with centers in developed countries, is essential for enhancing global visibility and research impact.

For policymakers, creating special funding programs for sustainable development of digital marketing research is recommended, with particular focus on supporting projects related to artificial intelligence ethics, data privacy, and consumer protection. Developing regulatory frameworks that safeguard data privacy, consumer rights, and ethical principles will create necessary linkages between academic production and policy-making. Additionally, the transfer of academic findings to sectoral applications should be encouraged through public-private partnership platforms that facilitate knowledge exchange and practical implementation.

Among emerging priorities for the field are the ethical dimensions of digital marketing, sustainable consumption, and the development of new theoretical frameworks centered on social responsibility. Integration with neuromarketing and behavioral sciences will enable in-depth examination of consumer decision-making processes beyond traditional survey-based approaches. The long-term effects of behavioral transformations observed in the digital marketing ecosystem during the post-COVID-19 period should be investigated through rigorous longitudinal studies that track changes over multiple years.

In conclusion, this bibliometric analysis demonstrates that digital marketing literature is no longer merely a business-based research field but has evolved into a multidimensional discipline developing at the intersection of information technology, social sciences, and engineering. The field has achieved academic maturity as evidenced by its exponential growth, global reach, interdisciplinary integration, and technological sophistication. However, significant challenges remain, including conceptual inconsistencies, methodological imbalances, geographic inequalities, and insufficient attention to ethical dimensions. Future research should focus on resolving these inconsistencies, providing the discipline with solid theoretical foundations, and developing data analytics-based strategies integrated with ethical principles. This approach will both increase the academic maturity of digital marketing literature and strengthen its capacity for practical value creation while ensuring responsible and sustainable development of the discipline.

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