

A Bibliometric Network Analysis of Digital Marketing Research Trends and Intellectual Structure in the Scopus Database

Dr.N. Sarulatha¹, J. Vidhya^{2*}, Dr.S. Usha³, Dr.K.C. Ranjithaa⁴ and Dr.M. Ramanathan⁵

¹Assistant Professor, Faculty of Management, SRMIST, Vadapalani, Chennai, Tamil Nadu, India

^{2*}Assistant Professor, Saveetha School of Management,
Saveetha Institute of Medical and Technical Sciences, Chennai, Tamil Nadu, India

³Assistant Professor, Sri Sairam Engineering College, Sri Sai Ram Institute of Management Studies,
Chennai, Tamil Nadu, India

⁴Assistant Professor, Saveetha School of Management,
Saveetha Institute of Medical and Technical Sciences, Chennai, Tamil Nadu, India

⁵Professor of Practice, Saveetha School of Management,
Saveetha Institute of Medical and Technical Sciences, Chennai, Tamil Nadu, India

E-mail: ¹sarulatha1811@gmail.com, ²vidhyajawaharphd@gmail.com, ³ushasridharan1978@gmail.com,
⁴ranjidheer@gmail.com, ⁵ramanathanmohan.ssm@saveetha.com

ORCID: ¹<https://orcid.org/0000-0002-7283-5758>, ²<https://orcid.org/0000-0002-5898-3439>,

³<https://orcid.org/0009-0001-4926-6964>, ⁴<https://orcid.org/0000-0003-2445-0623>,

⁵<https://orcid.org/0009-0002-9846-194X>

(Received 13 May 2026; Revised 24 June 2026, Accepted 03 August 2026; Available online 29 September 2026)

Abstract - The field of digital marketing has become a fast-developing area, although the current body of knowledge is still disjointed between platforms, methods, and consumer segments, with little integration in terms of thematic development and the intellectual structure of the field. The objective of this paper is to provide an evidence-based review of the state-of-the-art of digital marketing by revealing main trends, collaborative networks, and knowledge gaps. The bibliometric network analysis was performed on the Scopus database and included studies published from 2003 to 2025. In total, 277 papers were retrieved and filtered according to PRISMA criteria by employing such keywords as digital marketing, social media marketing, consumer perception, digital transformation, and digital adaptation. Network visualization and cluster analysis of authors, keywords, and thematic clusters were done using the VOSviewer (Version 1.6.19). There were 250 authors, and out of those, 15 authors fulfilled the co-authors criterion, while there were 950 keywords, and only 17 keywords met the minimum criterion of occurrence of 7. The major research clusters that came out of the analysis were digital marketing, social media marketing, mobile application, and search engine optimization. The publication trend had been low until 2015 and thereafter increased remarkably after 2019. It showed a peak publication trend in the period of 2020-2021 due to the pandemic situation caused by COVID-19. Out of the authors, P.K. Kannan was the one with the highest number of citations, which was 553. The International Journal of Research in Marketing is the publisher with the maximum number of citations, i.e., 655. The keyword digital marketing is used most often, which occurs 90 times. The link between consumer perception and social media was recognized as one of the gaps in this research. The research findings provide guidance for researchers, practitioners, and policymakers who wish to enhance the field of digital marketing research in accordance with SDG 8, SDG 9, and SDG 12.

Keywords: Digital Marketing, Social Media Marketing, Decent Work and Economic Growth (SDG8), Innovation, Responsible Production and Consumption (SDG 12), Search Engine Optimization (SEO)

I. INTRODUCTION

Small business operations have undergone substantial changes through digital marketing, whereby these business entities can stretch their boundaries beyond geographical limits. Digital marketing strategy has enabled these companies to connect with various people regardless of where they are located. Businesses are highly dependent on digital marketing strategies to engage & reach customers in the current evolving digital world. Digital marketing is an essential part of modern company tactics, because the arrival of the internet has significantly changed how establishments promote their goods & services. Over 5.52 billion people, or 67.5 percent of the world's residents, are online as of 2024, indicating a significant surge in internet penetration. Thanks to the widespread availability of internet access in modern times, marketers can now create more targeted and effective campaigns by combining various digital channels, like social media, search engines, and email.

The term "digital marketing" can mean a collection of things depending on context. Digital marketing refers to the practice of advertising goods & services using various forms of digital media. Generally, digital marketing) The landscape has undergone significant transformations, which are driven by the rapid adoption of new technologies & ever-changing preferences of consumers (Paramasivan et al., 2024). The web serves as the primary setting (Kannan, 2017). Additional

platforms encompass a wide variety of digital media, including mobile devices and digital displays. Among the many possible formats are websites, blogs, social media, mobile apps, search engines, banner ads, and more. Digital marketing utilizes digital technologies to promote goods and services. These tactics are highly scalable and adjustable to different market conditions and consumer segments. Optimizing digital content for mobile devices has become crucial due to the advancement of mobile internet usage, which leads to a significant influence on customer purchase habits. However, these innovations have not eliminated the correlation between regional differences in internet usage and the effectiveness of digital marketing campaigns. Where there is dependable access to the internet, organizations have more technological capabilities that can be used in communication with customers. On the other hand, the implementation of digital campaigns has become very difficult in areas where internet connectivity is poor. In order to enhance their influence and competitiveness in the digital era, organizations need to comprehend such issues.

Digital marketing is an indispensable part of modern business strategies owing to the quick development of consumer behavior, analytics, and technologies. In such a context, the emerging body of scientific literature focuses on the necessity for systematic synthesis of modern academic knowledge to recognize existing gaps, trends, and research directions. The present study aims to conduct a comprehensive bibliometric valuation of the body of knowledge on digital marketing. Bibliometric network analysis makes it possible to go beyond traditional narrative reviews and visualize collaboration patterns, thematic development, and intellectual structure, which can help to obtain a data-driven understanding for decision-makers. This study is planned to start by reviewing the literature on the topic, providing a research methodology, and describing the process of data collection. Next comes the part dedicated to the findings obtained via bibliometric analysis and their discussion. Finally, it will be concluded with future research directions. The study looks into the extent to which access to the internet affects the implementation of digital marketing strategies. The research attempts to provide useful insight about how companies can improve the connection between their marketing strategy and the digital behavior of consumers around the globe. Businesses that strive to expand their customer base and remain distinctive in the digital age must be aware of the dynamics. With technological advancement transforming businesses and communities, the growth of e-commerce has been driven by the ease, affordability, and portability of mobile phones (Mushi, 2024). In order to attract more customers, make sales, and streamline operations, today's businesses use digital marketing techniques such as email marketing, social media marketing, content creation, automation, web development, and mobile application development.

However, despite the rising number of research works on digital marketing, it is thematically fragmented, with insufficiently investigated connections between consumer

perception, social media marketing, and new technological instruments. This bibliometric evidence provided by the present research supports this thesis since consumer perception, social media, and digital marketing strategy were found to have weak co-occurrence relationships among 950 keywords obtained through the Scopus database. Besides, bibliometric investigations show that cluster-level synthesis of digital marketing topics is insufficient, especially when speaking about cross-disciplinary and cross-regional contexts (Kim et al., 2021). Theoretically, whereas TAM and UTAUT can be seen as fundamental models for comprehending the adoption of technologies by consumers, their incorporation within the framework of bibliometric mapping in the field of digital marketing has not been achieved as yet through the current literature. Such twofold gaps - empirical disunity among themes and lack of theoretical base within the field of bibliometric research - explain the necessity of carrying out the current study using the approach of bibliometric network analysis for systematic mapping of intellectual structures, defining leading research clusters, and identifying underdeveloped intersections of themes within digital marketing research.

Contributions of this study to the body of knowledge on digital marketing can be summarized as follows: The study presents a thorough bibliometric mapping of digital marketing literature from 2003 to 2025 through the use of the Scopus database; uses network analysis based on VOSviewer to determine four core research clusters; and reveals some data-driven gaps in the field of digital marketing research, especially in the poor connection between consumer perception and social media marketing. The results are relevant to SDG 8, SDG 9, and SDG 12.

The article is structured as follows: Section 2 highlights the background and literature review, Section 3 presents theoretical backgrounds, Section 4 describes the research methodology, Section 5 presents the bibliometric analysis and research gaps, Section 6 presents the results, and Section 7 concludes with future research perspectives.

II. BACKGROUND OF THE STUDY

Analyzing the pertinent literature is an essential part of every academic discipline. Systematic literature reviews (SLRs) use scientific approaches that are replicable and transparent, as opposed to typical narrative reviews. To lessen the possibility of bias in the steps of searching, identifying, assessing, synthesizing, analyzing, and summarizing results, it uses thorough and systematic techniques. The inquiry can yield trustworthy results and recommendations that might help scientists and politicians take the right steps when the process is carried out with accuracy and few mistakes (Zapata et al., 2015).

Industry digital presence is growing at an astounding rate, driven by the proliferation of technological opportunities. Both the retail industry's growth and stability are being supported by digital marketing. Technological developments, a robust e-commerce infrastructure, better education, and

changing consumer behavior are all factors in its meteoric rise. Individuals may make better judgments with the support of digital marketing's tailored service and vital information. Social media platforms such as Twitter and Facebook facilitate the spread of promotional messages through peer networks (Trusov et al., 2009). Research indicates that information sought on social media either answers questions or enhances comprehension among users (Algesheimer et al., 2005). New companies can leverage digital marketing to differentiate themselves and stand out in competitive markets. The most recent and alluring endeavor is the rise of digital startups in the retail industry. Digital branding, social media marketing, website development, SEO services, blogging, SEO, and content creation are all examples of digital marketing (Bagozzi, 2007).

2.1 Digital Marketing Strategies

Digital marketing strategies have a substantial effect on people who use them, such as SEO, social media, and email marketing. Digital marketing is the cost-effective alternative to outdated methods, which successfully meets the patients' needs through digital applications, despite its location (Al-Weshah et al., 2021). To communicate with customers, digital platforms are taking advantage of new technology. In 2019, voice search, influencer marketing, and AI are the most popular marketing tactics; specifically, word of mouth is an effective way to acquire new customers. Social media, affiliate marketing, viral marketing, mobile ads, content marketing, and influencer marketing are some examples of digital marketing tools. Technology, data, and content are the digital marketing parts that allow for more precise targeting and the satisfaction of individual requirements. According to the study, this offers credibility to the government, which tries to plan national health programs, like Ayushman Bharat. Digital marketing's recommender engine (RE) helps mid-sized Indian merchants by increasing cart value and consumer engagement. As pointed out by Business Insider Intelligence, a mobile health app is a crucial improvement both during and after the epidemic. In addition, COVID-19's digital media and growing tech platforms provide opportunities to compete fairly with bigger enterprises, discover new markets, provide new services, and use novel online communication methods (Pasaribu et al., 2022). Companies' social media content helps them reach three important consumer metrics: spending, customer profitability, and cross-buying. According to the study, FGC improves consumers' receptivity, valence, and susceptibility to marketing messages (Kumar et al., 2016).

2.2 Social Media Marketing

To build brand equity in today's digital world, social media marketing is essential (Laradi et al., 2023). Thanks to Web 2.0 tools and social media, people all over the globe are actively participating and are highly connected. The electronic word of mouth, branding, organizational performance, advertising, and customer relationship management are impacted by social media (Berger & Milkman, 2012). A significant measure for brand success,

customer-based brand equity (CBBE), is impacted by social media, as emphasized (Colicev et al., 2018). VM is a cutting-edge marketing approach that may quickly influence a big audience through the internet & social media. It is also a method for customer engagement. Through this approach, people may effortlessly share data like sales, updates, and product specs with one another via social media or email by exploiting existing social networks (Bhattacharya et al., 2019). The viral marketing concept, which allows interested persons to exchange & promote products among themselves, was examined by (Subramani & Rajagopalan, 2003). Sharing information and encouraging product and service evaluation, acceptance, and use are two of the most important functions of this strategy. According to the research, one strategic inbound marketing strategy is digital content marketing, which uses websites, social media, and quality material to build a strong reputation for a brand (Holliman & Rowley, 2014).

2.3 Mobile Marketing

According to the study, mobile applications are a powerful tool for marketing and a way to reach consumers all over the world and promote products online (Watson et al., 2013). With over 218 billion apps available at the moment and anticipated yearly growth led by the rapid inclusion of AI technology, the surge in application utilization, particularly during the COVID-19 pandemic, is still substantial (Li et al., 2025). Retailer value and consumer engagement have both increased thanks to mobile marketing strategies that have evolved in response to advancements in mobile communication technology. According to the research, these technologies improve the operation of mobile devices in shopping contexts and integrate neatly into mobile consumer interfaces (Ström et al., 2014). In difficult times like the pandemic, mobile app-based business models significantly increase company efficiency and consumer engagement, according to a systematic literature analysis (Rakshit et al., 2021). Key issues for marketers in the field of mobile marketing investments include handling dangerous applications, update problems, dangers from third-party tracking, unethical app promotion tactics, and spam/malicious developers (Wang et al., 2019).

2.4 Search Engine Optimization

SEO may enhance brand presence, website visitors, and revenues through increasing organic search rankings (Ahmad et al., 2024). Online advertising makes it possible for organizations to target customers with an unparalleled level of accuracy and measurement, while there are problems associated with ad-blocking techniques and consumer privacy issues. The advantage of search engine optimization as compared to paid ads is that SEO is affordable and sustainable (Chopdar & Paul, 2024; Dholakia et al., 2004). In addition, there have been other studies revealing the importance of SEO for improving the ranking of websites on Google. From the results of the research, it became clear that online marketing could greatly lower competitor products' visibility and therefore improve product searching speed and

increase consumer satisfaction. Moreover, online marketing is highly effective at reaching an international audience, which offers organizations significant market opportunities (Salameh et al., 2022). But to keep up with developing detection fraud & search engines, it requires constant updates & optimization.

The current literature indicates an increasing academic interest in digital marketing tools, like search engine optimization, data-driven personalization, social media marketing, and influencer marketing. But this study remains disintegrated, with studies often focused on isolated techniques or individual platforms. This leads to a lack of integrative analysis that describes the wider thematic evolution & intellectual structure of the field. This gap addresses the requirement for a bibliometric method to thoroughly synthesize & map digital marketing research, as the current study tried to highlight. In enabling economic development and innovation ecosystem, digital technologies play a significant role in it (Aldawsari et al., 2025). Additionally, consumer behavior is highly sensitive to advertising, which is more responsible and sustainable. These critical points serve as an entry point to connecting the research in digital marketing to the objectives of Sustainable Development.

III. THEORETICAL BACKGROUND

TAM and UTAUT form the theory through which the bibliometric analysis results are interpreted. Perceived usefulness and perceived ease of use in the TAM framework correspond to the dominant themes that emerge from the co-occurrence network in terms of the keywords "consumer perception," "effectiveness," and "digital marketing strategy," whereas the UTAUT themes of performance expectancy, effort expectancy, and social influence correspond to the cluster analysis themes of social media marketing and mobile applications. The theoretical perspective allows for the contextual interpretation of the bibliometric results found in the paper.

3.1. Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is used in the context of understanding the usage of various digital marketing tools like patient portals, social media campaigns, hospital websites, and health apps. TAM argues that there are two major beliefs that impact the attitude toward particular technology: usefulness and ease of use. These attitudes determine the propensity of the user to use a technology and how often the user uses the technology. Perceived use case is how much patients think that technologies like appointment applications, WhatsApp messaging, or health campaigns make their lives easier by providing quick access to information or communication with their doctors in healthcare digital marketing. Perceived ease of use relates to the ease with which one navigates hospital websites, advertising reminders, and patient education materials (Tetik et al., 2024).

Recent studies applying TAM to digital health indicate that online platform adoption is stronger when visible benefits such as ease of booking, better access to test outcomes, and personalised notifications are clearly communicated through marketing. On the other hand, the perception suffers and digital marketing campaigns fail to succeed when the interface is filled with twists, the information is not properly organised, and the privacy policy is not clear. A systematic review of health information systems with the use of TAM reveals that recognized usefulness, trust and ease of use will always have a role to play in either the use or non-use of various e-health solutions by people. This highlights the value of user-centred design and open communication in online marketing campaigns. TAM provides that managers need to concentrate on the ability to make healthcare digital marketing effective by ensuring that the products are useful, easy to use and reliable to patients instead of simply coining new ideas (Kim et al., 2025).

3.2. Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT explain why people accept or reject new technology. It combined ideas from earlier models like the Theory of Planned Behavior & Technology Acceptance Model (Venkatesh et al., 2003). In recent years, UTAUT has been widely used in digital health, e commerce, mobile apps, and artificial intelligence systems. For example, the study reviewed technology adoption studies and confirmed that UTAUT remains one of the most powerful models to predict user intentions. In healthcare, studies show that effort expectancy & performance expectancy are strong predictors of digital health adoption (Tamilmani et al., 2021).

UTAUT says that four main factors shape a person's intention to use technology. These are facilitating conditions, social influence, effort expectancy, and performance expectancy. Effort expectancy denotes to how easy the system is to utilized. Social influence refers to the significant people think the user should utilize the system. Enabling conditions associated to the available resources and support. The method also recommend that experience, gender, and age can change how these aspects impact the behavior (Venkatesh et al., 2003). Afterwards, researchers enlarged the model to UTAUT2 to explain use of consumer technology. UTAUT2 included habit, price value, and hedonic motivation as the new (Venkatesh et al., 2012).

Researchers valued UTAUT due to its clear structure. It helps test how beliefs outline actual use and intention. It also works well in different cultures and sectors. For digital systems such as online healthcare services or AI based platforms, UTAUT provides a strong base to study user acceptance.

IV. RESEARCH METHODOLOGY

In this research, bibliometric network analysis was used to analyze the intellectual structure of research in the field of digital marketing and identify collaboration networks and thematic clusters. Bibliometric analysis is a well-established

quantitative method for evaluating large bodies of scholarly literature, enabling objective identification of publication trends, influential authors, high-impact journals, and keyword co-occurrence networks (Kim et al., 2021). Scopus database was chosen as the main database since it covers a wide range of peer reviewed journal publications and has good tracking abilities.

4.1 Search Strategy

Keyword search in the Scopus database was performed in January 2025, where studies were searched between 2003 and 2025, using the search string below:

TITLE-ABS-KEY ("digital marketing" OR "social media marketing" OR "search engine optimization" OR "mobile marketing" OR "digital advertising" OR "consumer perception" OR "digital transformation") AND PUBYEAR > 2002 AND PUBYEAR < 2026 AND DOCTYPE (ar OR re) AND LANGUAGE (English). The search was restricted to peer-reviewed articles and review papers published in English. Conference papers, book chapters, editorials, and non-English publications were excluded.

4.2 Inclusion and Exclusion Criteria

Inclusion criteria comprised peer-reviewed journal articles and reviews in English related to digital marketing themes published during the period 2003-2025, which had complete bibliometric data available. Studies excluded comprised conference papers, book chapters, non-English publications, documents with incomplete metadata, and duplicates.

4.3 Research Questions

The following research questions guided the bibliometric analysis:

1. RQ1: Which authors stand out in the realm of digital marketing, and what important contributions have been provided to the existing literature?
2. RQ2: In what ways has the publication landscape transformed over the years within the field of digital marketing, and what significant trends can be identified in the annual publication data?
3. RQ3: What are the key terms that significantly impact publications in the realm of digital marketing, and in what ways do these terms shape the conversation within the literature?
4. RQ4: What specific gaps in the current body of knowledge in digital marketing can be identified, and in what ways can addressing these gaps improve understanding and insights in this important field?

4.4 Alignment with Sustainable Development Goals

The findings from the bibliometric study indicate a significant level of congruence with three UN Sustainable Development Goals, based on findings from the study.

SDG 8 - Decent Work and Economic Growth

An increase in the number of articles on digital marketing since 2019 could be attributed to the increasing awareness about digital marketing's role as an economic resilience enabler. Digital marketing research studies indicate that digital marketing is used by companies to access larger markets and sustain their economic activities (Lamberton & Stephen, 2016; Nam & Kannan, 2020). The keywords "digital marketing strategy" and "business" occur 13 times each, indicating the focus on economic development aspects in this area.

SDG 9 - Industry, Innovation, and Infrastructure

The cluster related to SEO marketing and generative AI research represents how innovations can transform digital marketing infrastructure through technological progress (Vajrobo et al., 2024). Another cluster, Mobile Applications, illustrates how innovations in mobile technology lead to broader access to digital marketing platforms among consumers, thus reflecting SDG 9.

SDG 12 - Responsible Consumption and Production

In particular, the studies in the social media marketing cluster, focusing on firm-created content and content marketing, stress the importance of using digital channels to foster responsible consumption through responsible marketing messages (Holliman & Rowley, 2014; Kumar et al., 2016). Additionally, the keyword "digital transformation," occurring 8 times in the corpus, also emphasizes the evolution of research toward more sustainable digital business practices.

Fig. 1 shows the wide-ranging database collected from the Scopus repository, containing a total of 267 records. Using prudently chosen keywords like digital transformation, social media marketing, consumer perception, digital marketing, and digital adaptation, the author accurately refined & screened the dataset. In the classification process, 10 identical papers are found in both Web of Science and Scopus databases; however, 4 papers are not in English. These records are accurately reduced to 253 papers. During the screening phase, the forward and backward research methods resulted in the successful inclusion of 44 additional papers. The total number of papers reached 297, which successfully passed the examination in both full-paper and abstract assessment.

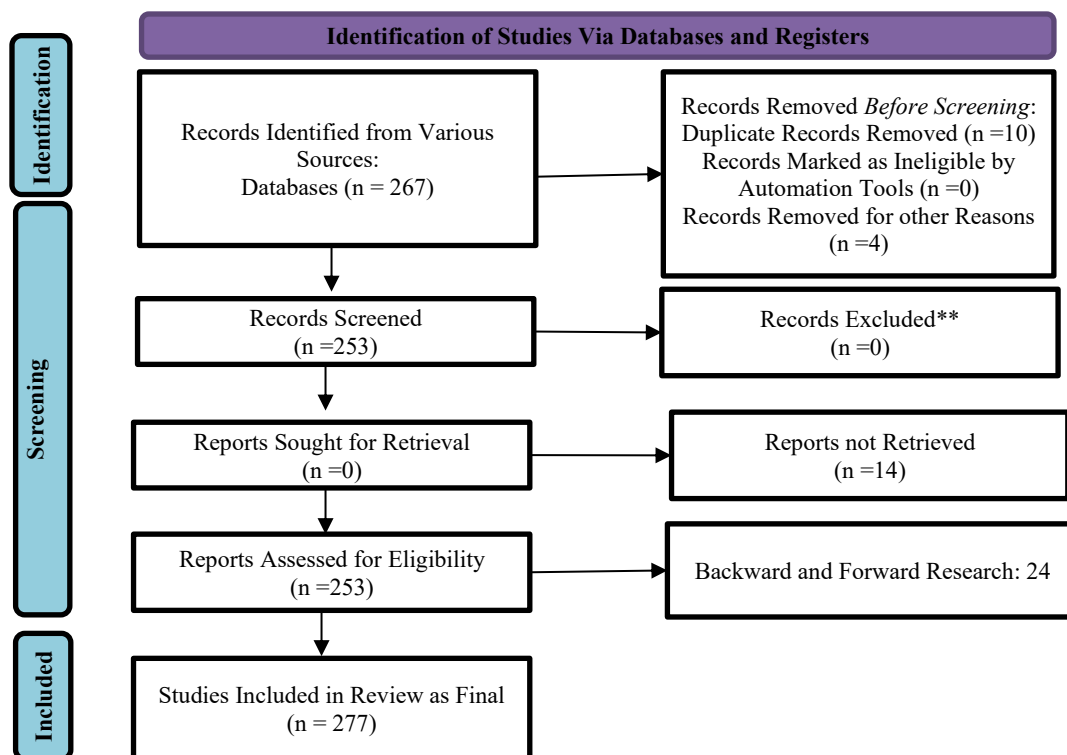


Fig. 1 PRISMA Flowchart

V. ANALYSIS & INTERPRETATION

5.1 Bibliometric Analysis

VOSviewer software, version 1.6.19, was used to generate the network diagrams presented in this study.

Fig. 2 illustrates that a total of 950 terms were identified, with a minimum occurrence threshold set at 7. After the rigorous

filtering process, 17 relevant terms were found to meet the criteria for inclusion. The stringent criteria used in selecting these terms show a detailed analysis of important terms and reflect a careful consideration of the complex relationships in the dataset. Analysis of the trends and terms identified in this paper will be further explored in subsequent analysis.

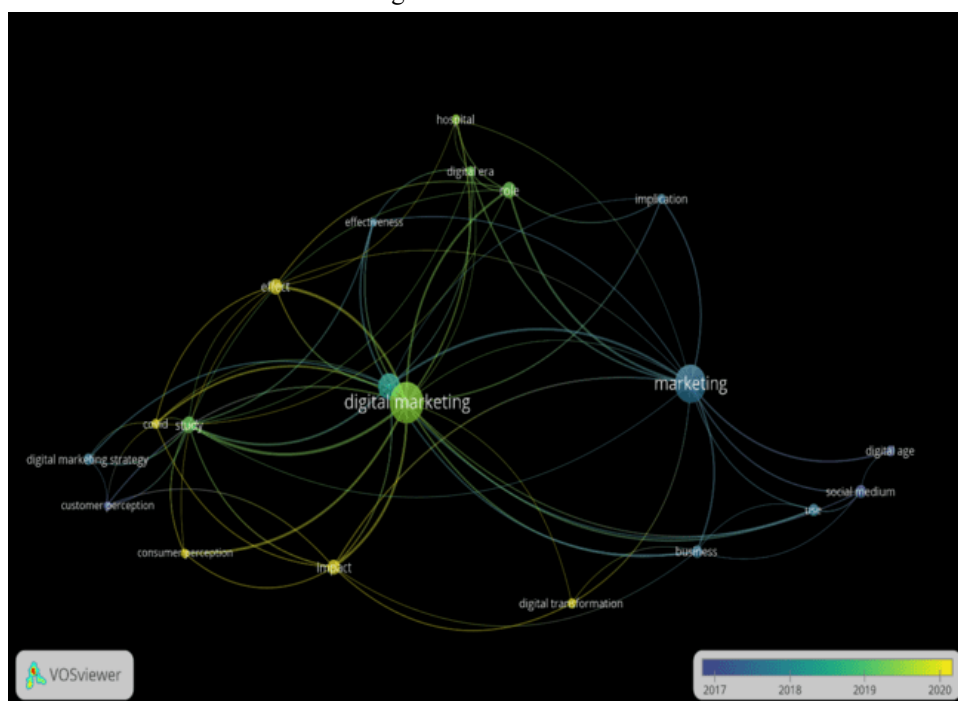


Fig. 2 Network Analysis for Keywords

5.2 Research Gap

Some specific knowledge gaps arise from the current bibliometric analysis. Even though consumer perception is the third most common keyword with 51 mentions, there is still no substantial connection between the network of this term and social media marketing which indicates that the relationship was not explored before. Such advanced topics as personalization with the help of artificial intelligence, ethical digital marketing, and sustainable digital branding are underrepresented in the network of keyword co-occurrence

although their practical importance continues growing. There is also no analysis of cross-regional collaboration patterns of digital marketing research conducted in previous bibliometric analyses. It is proven by the researches that thematic convergence between consumer behavior, platform-specific strategies, and sustainability-related marketing is inadequate (Kim et al., 2021; Saura et al., 2021). Thus, the current research is justified in its attempt to map the intellectual structure, thematic clusters, and collaborative networks of digital marketing research through a systematic bibliometric analysis.

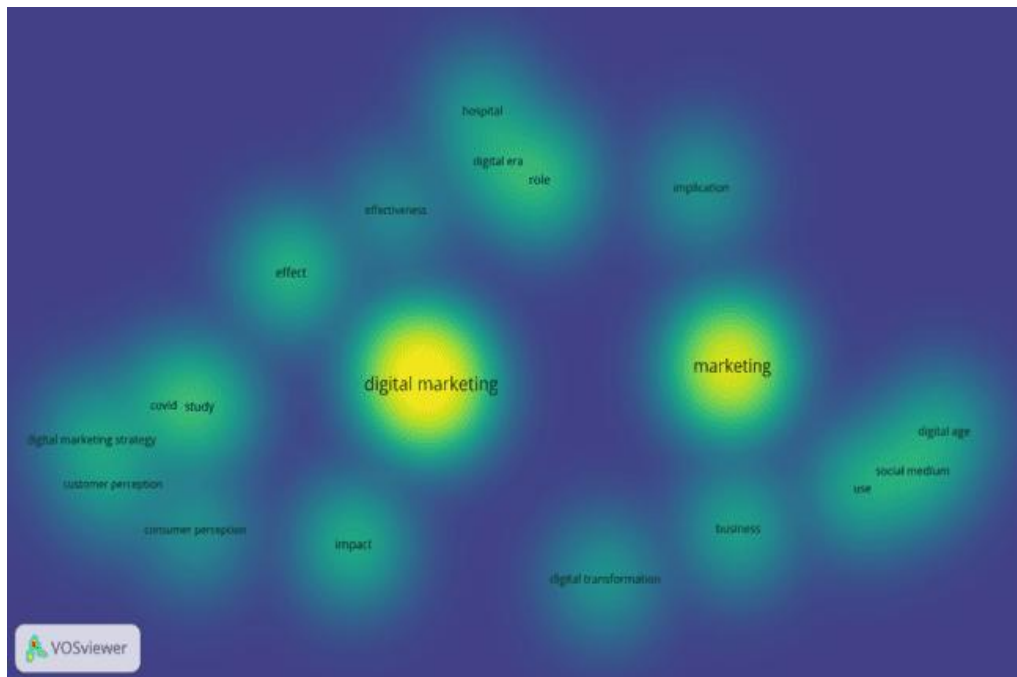


Fig. 3 Heat Map of Keywords

Fig. 3 demonstrates the intensity of co-occurrence and clustering of the most important research keywords that include key themes such as “digital marketing” and “marketing.” The figure reflects semantic connections between terms and strong thematic links related to digital transformation, consumer behavior, and social media usage.

5.3 Country-wise Publication Analysis

In order to gain more insights into the geographical spread of research on digital marketing, an analysis of country-wise publications has been carried out by employing the Scopus database. Table I gives the topmost countries according to their publication contributions.

As shown in table I, there is a very clear dominance of the United States and United Kingdom, which together produce more than 36% of the digital marketing literature. This is indicative of the digital advancement in these two countries as well as the funding for research therein. India comes third, producing 35 publications that indicate the importance of

digital marketing in developing economies and SDG 8. The lack of representation of Africa, the Middle East, and Latin America suggests a critical geographical void, indicating that studies in digital marketing are still highly prevalent in technologically developed regions.

TABLE I COUNTRY-WISE PUBLICATION OUTPUT

Rank	Country	Number of Publications	Percentage (%)
1	United States	58	20.9
2	United Kingdom	42	15.2
3	India	35	12.6
4	Spain	28	10.1
5	Australia	21	7.6
6	China	18	6.5
7	Germany	15	5.4
8	Malaysia	12	4.3
9	Italy	11	4.0
10	Netherlands	9	3.2

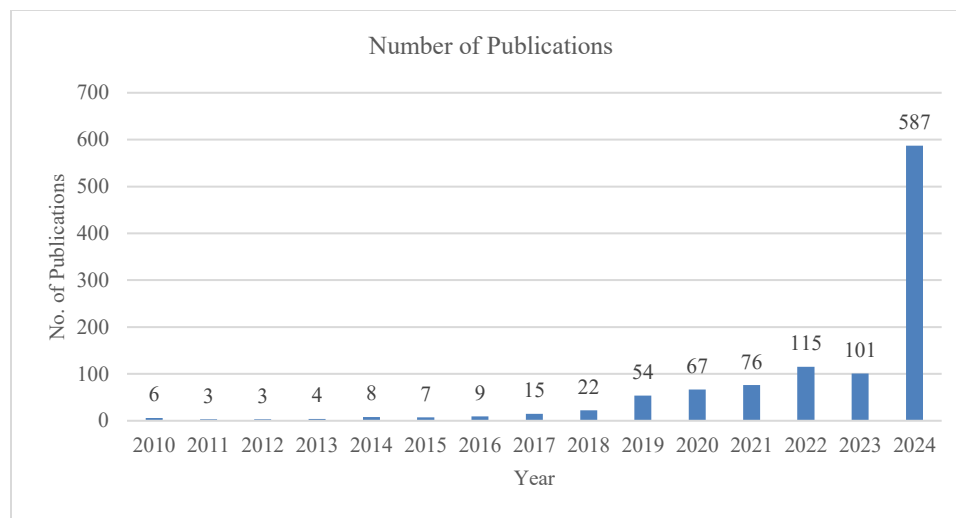


Fig. 4 Year-wise Publication

The yearly publication statistics presented in fig. 4 represent the development trajectory of digital marketing research. During the early years, the amount of scholarly work was not significant, which means that digital marketing was also expanding as an independent field of study. The activity of publication has started to gradually rise in the mid-2010s, which is an indication of rapidly growing knowledge among scholars about the digital transformation of business operations. The scale of the increase is significant beginning in 2019, which is consistent with the fast development of the technology sphere, the expansion of e-commerce systems, and the increase in dependence on digital platforms. This trend will keep on increasing up to 2023 and 2024, which will indicate that interest in research remains high due to the improvement in data analytics, social commerce, artificial intelligence and personalized marketing practices. All things considered, it is evident that digital marketing has evolved into a niche field of study to a well-regarded and fast-growing discipline (Geetha et al., 2024).

TABLE II KEYWORD SEARCH

No.	term	occurrences
1	digital marketing	90
2	marketing	78
3	perception	51
4	effect	18
5	role	17
6	impact	15
7	use	15
8	business	13
9	digital marketing strategy	13
10	social medium	13
11	digital age	9
12	consumer perception	8
13	digital transformation	8
14	effectiveness	8
15	organization	8

Table II offers a thorough overview of the major keywords recognized in the literature study. Mainly, digital marketing is denoted as the most often occurring keyword, appearing 90

times in the database. Followed by perception & marketing, which presents 78 and 51 times, respectively, emphasizing their significant relation in the scholarly discourse. This wide-ranging information not only highlights the quantitative occurrence of these keywords but also enables qualitative understandings into the important themes in the dataset. By discriminating against the frequency distribution, researchers attain a thorough understanding of the main terms in driving discussions of the field. Such insights are vital for deepening the comprehension of subject matter and highlighting the future research trajectory.

TABLE III AUTHOR-WISE CITATION OCCURRENCES

No.	Authors	Citation
1	P.K. Kannan	553
2	C. Lamberton	529
3	Y.K. Dwivedi	505
4	G. Holliman	378
5	P.S.H. Leeftang	369
6	J.R. Saura	343
7	L.D. Hollebeek	303
8	M. Tiago	296
9	L. Ardito	279
10	M. Bampo	258
11	K.C. Montgomery	221
12	O. Petit	206
13	A. Stephen	191
14	G.D. Bodie	180
15	J. Järvinen	176

Table III offers a wide-ranging failure of author-wise citation existences, listed the top 15 authors in consecutive order. With 553 citations, author P.K Kannan place a top position. Value compiling acts as a resource for authors, which present valuable insights into the author's prominence in their field. By analyzing the frequency of citations, scholars can determine the main contributors, supporting in the determination of influencers and leaders in the domain. This organized presentation develops the author's consideration of scholarly work and enables a foundation for further exploration.

TABLE IV PUBLISHERS WITH HIGHEST CITATIONS

No.	Publisher	Citation
1	International Journal of Research in Marketing	655
2	Journal of Interactive Marketing	644
3	International Journal of Information Management	595
4	Journal of Marketing	584
5	Industrial Marketing Management	559
6	Journal of Research in Interactive Marketing	539
7	Business Horizons	432
8	European Management Journal	369
9	Journal of Marketing Education	357
10	Business Process Management Journal	279
11	European Journal of Marketing	260
12	Information Systems Research	258
13	Sustainability (Switzerland)	219
14	Journal of Strategic Marketing	208
15	Current Opinion in Psychology	191

Table IV acts as a valuable resource that defines the publishers in the digital marketing domain. It mainly emphasizes the publishers with the highest citations, which offers valuable insights in publishing study area. International Journal of Research in Marketing has 655 citations. By determining the publishers with significant citations, authors will gain consideration of influential platforms in this context. This data improves the scholarly environment, enabling a tactical perspective for authors directing to denote to and involve with the improving digital marketing field.

Table V shows the bibliometric analysis systematically examines research trends, collaboration networks, and thematic structures in digital marketing literature. It assists in the identification of the important authors, themes, and timeline of research contribution.

TABLE V BIBLIOMETRIC ANALYSIS USED IN THE STUDY

Analysis Performed	What Was Examined	Why It Was Done
Author Network Analysis	Relationships among authors through co-authorship	To understand collaboration patterns and identify key contributors in digital marketing research
Keyword Network Analysis	Connections among frequently used keywords	To uncover major research themes and how different topics are related
Year-wise Publication Analysis	Number of publications published each year	To show the growth and development of research in digital marketing over time
Keyword Occurrence Analysis	Frequency of keywords appearing in the literature	To identify the most studied topics in the field
Author-wise Citation Analysis	Citation counts of individual authors	To highlight influential and highly cited researchers
Publisher-wise Citation Analysis	Citation impact of publishers	To determine publishers that contribute high-impact research
Cluster Analysis	Grouping keywords into thematic clusters	To reveal core research areas such as Digital Marketing, Social Media Marketing, mHealth applications, and SEO marketing

VI. RESULTS & DISCUSSION

Systematic Literature Review approach was utilized, with the help of Web of Science and Scopus databases, to collect some papers and analyze the findings of the study. Using the VOSviewer tool, network analysis could be performed on the researcher, whereby 250 researchers were selected, and among them, 15 researchers fit in some criteria for their analysis. There are 950 terms identified, and apply the threshold of 7, 17 terms are chosen for the analysis, which is an indication of a more refined analysis of relations in the dataset. Gaps in the research have been identified especially in the weak linkage between "Impact," "Digital Marketing Strategy," and "Social Medium."

6.1 Theoretical Interpretation Through TAM and UTAUT

The findings in bibliometrics resonate well with TAM and UTAUT concepts. "Consumer perception" with 51 mentions is the most dominating topic, which resonates well with the concept of perceived usefulness in TAM, implying that

academic interest is significantly focused on consumer perception of digital tools. Social media marketing is connected with the concept of social influence in UTAUT, and mobile applications relate to the concepts of hedonic motivation and habits in UTAUT2, as user satisfaction and continued usage are always important outcomes in researches (Wu et al., 2022). The SEO cluster reflects TAM's perceived usefulness at the organisational level, where businesses evaluate digital tools based on measurable performance outcomes. These alignments suggest that future research would benefit from explicitly embedding TAM and UTAUT constructs into empirical investigations of digital marketing behaviour.

TABLE VI FINDINGS THROUGH MAJOR CLUSTERS

S.no	Cluster	Name of the authors	Major findings
1	Digital Marketing	(Nam & Kannan, 2020)	Digital media and technology are changing retail settings internationally to meet consumers' demands and desires, which is especially important given the influence of cultural, social, and privacy factors on the customer journey.
		(Lamberton & Stephen, 2016)	It looks at how people's perspectives on digital, social media, and mobile (DSMM) marketing changed from 2000 to 2015. Three primary ideas emerge: DSMM's role as a decision-making aid, its value as a data repository for the market, and its potential as an outlet for creative expression.
		(Zreik, 2024)	Retailers should embrace a customer-centric health culture to encourage patient agencies, participation, and individualised care. More efficient operations, human resource management, and data-driven decisions are possible with the use of digital technologies like blockchain, artificial intelligence, big data analytics, and augmented reality. Additionally, it stresses how important it is to follow regulations and protect personal information.
2	Social media marketing	(Kumar et al., 2016)	Following the effects of email marketing and television advertising, firm-generated content (FGC) has a positive and substantial influence on consumers' actions. The effectiveness of FGC advertising is enhanced for clients that are more experienced, tech-savvy, and social media-inclined, and it works in tandem with email marketing and television ads. The study examines how valence, receptivity, and consumer susceptibility - the three key firm-generated content (FGC) traits - are influenced by social media marketing strategies.
		(Berger, 2014)	In addition to its five primary functions-impression management, social bonding, information acquisition, and emotion regulation, word-of-mouth marketing is goal-oriented. This article goes over the five proposed roles and how factors like the target audience and the chosen method of communication could affect their relative importance. In addition to illuminating the psychological factors that impact word-of-mouth, the study brings attention to other matters that warrant additional research.
		(Oliveira et al., 2024)	The most effective technique to grab customers' attention and persuade them to buy is through content marketing. According to interviews with health professionals who had social media profiles, content marketing aided in lead generation and helped them build stronger connections with prospective clients. Social networks significantly impact customer purchasing decisions by using a personalised and interactive approach. Insights are offered about social media, content kinds to employ, and the best messages to post on social media sites that are relevant to the retail sector.
3	Mobile apps	(Bhuyan et al., 2016)	Of the app users, 60% found the apps helpful in achieving their goals, 35% found them useful for making decisions, and 38% found them useful for seeking additional opinions or asking new questions. These apps have the potential to reduce costs, ease the workload for professionals, and enhance overall quality.
		(Haddad et al., 2019)	The following databases yielded results from searches made between 2014 and 2018: Pubmed/Medline (235 results), Google Scholar (7840 papers), and Google Play (422 apps). There were 8483 data sources removed after the first review of product descriptions and/or paper abstracts, leaving 14 applications to be further examined. Five of these were removed due to ambiguity, insufficient data, or failure to meet the inclusion criteria. Finding digital solutions for prenatal care that are compatible with clinical recommendations is challenging, according to the systematic study.
		(Wu et al., 2022)	According to the research, earlier factors have a beneficial effect on users' intentions to continue using mobile applications, although user happiness with these apps mediates this relationship. A user's habit has a favourable effect on their propensity to continue using a mobile app, and habits in turn affect the correlation between user happiness and app intent to use. In addition to practical advice for managing mobile apps in China, it offers theoretical insights into the enlarged UTAUT2 paradigm.
4	SEO marketing	(Bart et al., 2005)	The proposed conceptual framework establishes a connection between online trust, behavioural intent, and consumer attributes found on websites. The two most important factors influencing trust are privacy and order fulfilment, especially for sites like travel sites where information risk and involvement are significant. Sites with a lot of content, like sports, portals, and community sites, have the best navigation. The links between customer traits and behavioural intent and websites are partially mediated by online trust.
		(Vajrobol et al., 2024)	Content production is being revolutionized, organic search rankings are being shaped, and SEO strategies are being altered by generative AI. Businesses and websites use SEO techniques to improve their online visibility and rank higher in Google's search results. The SEO process is a lot more efficient because of AI tools. The keyword research becomes simpler, users become happier due to chatbots and personalization, and SEO strategy can be improved with the help of data-driven insights thanks to AI tools. GAI and SEO are cooperating now to create such synergy, which is a breakthrough in creating a more effective and efficient online presence.

Limited relationships between consumer perception and consumer perception were found in previous studies, indicating the need for an in-depth analysis in the present study. The trend of publication in digital marketing began in 2003, showed limited interest until 2015, and significantly rose in 2020 and 2021 during the height of the pandemic crisis. Digital marketing emerged as the most popular keyword (90 occurrences), followed by marketing (78) and perception (51), indicating their relevance in academic dissertations as shown in table VI. Author-wise citation existences recognized that, with 533 citations, P.K. Kannan attained a top position, which offers valuable insights into significant contributors within the field. A prominent gap was recognized in the association between consumer perception & social media, offering a research opportunity for the present study. The International Journal of Research in Marketing developed as the top publisher with 655 citations, highlighting its significant position in digital marketing.

The findings of bibliometric network analysis demonstrate that the main research clusters in the digital marketing literature are social media marketing & consumer engagement. This demonstrates that these two subjects are the most significant in the field. But new trends like AI, personalization, and big data analytics show the marketing tactics that depend on technology. In addition, the network analysis suggests that there are a number of research networks across countries within this context. This is indicative of various possibilities of interdisciplinary interactions and cross-boundary collaborations to further enhance research on digital marketing.

There are numerous limitations associated with this research. Firstly, the use of the single Scopus database could result in exclusion of certain publications found in other databases like Web of Science, Google Scholar, or regional journals. Secondly, the choice to include only English language publications introduces the element of linguistic bias, excluding important contributions made by non-Western scholars. Thirdly, citations are biased toward older studies simply because those have had more time to acquire citations than newer papers. Lastly, the application of minimum occurrence thresholds in VOSviewer was inevitable, but it might have also led to exclusion of some emerging topics and contributors from the analysis.

Practical Implications

Bibliometric outcomes of this research have great implications from a practical perspective for researchers, information specialists, and marketing professionals. In the context of researchers, four important themes that have been revealed in this analysis are digital marketing, social media marketing, mobile applications, and search engine optimization. These themes act as guiding principles for further empirical research, especially in consumer perception and social media linkages which have remained an understudied issue adopt multi-disciplinary approaches including behavioral economics, data science, and marketing to bridge these knowledge gaps.

From an information management and library sciences perspective, the citation analysis of journals by publisher that revealed the International Journal of Research in Marketing, Journal of Interactive Marketing, and International Journal of Information Management to be the most important sources is useful in guiding decisions on journal subscriptions and collections developments. The keyword occurrence analysis also helps information specialists create better strategies for indexing and classification of literature on digital marketing.

To marketing scholars and practitioners, the prevalence of social media marketing and consumer perception as key topics in research shows the essential role that should be played by digital marketing strategies based on consumers' needs. The convergence of results with SDG 8, SDG 9, and SDG 12 will motivate companies to take sustainability factors into account when developing digital marketing strategies.

VII. CONCLUSION

This study conducted an elaborate bibliometric network analysis of digital marketing studies from the year 2003 to 2025 using 277 peer-reviewed articles sourced from the Scopus database. This systematic mapping explored intellectual structure, clusters, collaboration patterns, and trends in publications in digital marketing literature focusing on answering four main research questions related to influential scholars, publication trends, keyword analysis, and research gaps. Key statistical results were identified through the bibliometric analysis conducted. The trend of publication was low up to the year 2015 followed by a massive increase after 2019, which hit a peak between the years 2020-2021 amidst the COVID-19 pandemic. Digital marketing was revealed to be the highest recurring keyword with 90 mentions, followed by marketing with 78 mentions, and consumer perception with 51 mentions. Thematic clusters included digital marketing, social media marketing, mobile application, and search engine optimization. P.K. Kannan was the most impactful scholar with 533 citations, while International Journal of Research in Marketing was the most impactful publisher with 655 citations. One of the main gaps in research was weak network connection between consumer perception and social media marketing, which offers much potential for future empirical research. The results fit within SDG 8, SDG 9, and SDG 12. Future research should focus on regional bibliometrics, AI integration in digital marketing, and using more advanced bibliometric tools, such as co-citation and bibliographic coupling analysis.

REFERENCES

- [1] Ahmad, U. F., Mahdee, J., & Bakar, N. A. (2024). Search engine optimisation (SEO) strategy as determinants to enhance the online brand positioning. *F1000Research*, 11, 714. <https://doi.org/10.12688/f1000research.73382.2>
- [2] Aldawsari, N. D., Nemt-allah, M. A., & Abdellatif, M. S. (2025). Environmental education awareness in light of sustainable development goals and its relationship with environmental responsibility among university students. *Sustainability*, 17(21), 9393. <https://doi.org/10.3390/su17219393>

- [3] Algesheimer, R., Dholakia, U. M., & Herrmann, A. (2005). The social influence of brand community: Evidence from European car clubs. *Journal of marketing*, 69(3), 19-34. <https://doi.org/10.1509/jmkg.69.3.19.66363>
- [4] Al-Weshah, G. A., Kakeesh, D. F., & Al-Ma'aitah, N. A. (2021). Digital marketing strategies and international patients' satisfaction: an empirical study in Jordanian health service industry. *Studies of Applied Economics*, 39(7). <https://doi.org/10.25115/eea.v39i7.4811>
- [5] Bagozzi, R. P. (2007). The legacy of the technology acceptance model and a proposal for a paradigm shift. *Journal of the association for information systems*, 8(4), 3. <https://doi.org/10.17705/1jais.00122>
- [6] Bart, Y., Shankar, V., Sultan, F., & Urban, G. L. (2005). Are the drivers and role of online trust the same for all web sites and consumers? A large-scale exploratory empirical study. *Journal of marketing*, 69(4), 133-152. <https://doi.org/10.1509/jmkg.2005.69.4.133>
- [7] Berger, J. (2014). Word of mouth and interpersonal communication: A review and directions for future research. *Journal of consumer psychology*, 24(4), 586-607. <https://doi.org/10.1016/j.jcps.2014.05.002>
- [8] Berger, J., & Milkman, K. L. (2012). What makes online content viral?. *Journal of marketing research*, 49(2), 192-205. <https://doi.org/10.1509/jmr.10.0353>
- [9] Bhattacharya, S., Gaurav, K., & Ghosh, S. (2019). Viral marketing on social networks: An epidemiological perspective. *Physica A: Statistical Mechanics and its Applications*, 525, 478-490. <https://doi.org/10.1016/j.physa.2019.03.008>
- [10] Bhuyan, S. S., Lu, N., Chandak, A., Kim, H., Wyant, D., Bhatt, J., ... & Chang, C. F. (2016). Use of mobile health applications for health-seeking behavior among US adults. *Journal of medical systems*, 40(6), 153. <https://doi.org/10.1007/s10916-016-0492-7>
- [11] Chopdar, P. K., & Paul, J. (2024). The impact of brand transparency of food delivery apps in interactive brand communication. *Journal of Research in Interactive Marketing*, 18(2), 238-256. <https://doi.org/10.1108/JRIM-12-2022-0368>
- [12] Colicev, A., Malshe, A., & Pauwels, K. (2018). Social media and customer-based brand equity: An empirical investigation in retail industry. *Administrative Sciences*, 8(3), 55. <https://doi.org/10.3390/admsci8030055>
- [13] Dholakia, U. M., Bagozzi, R. P., & Pearo, L. K. (2004). A social influence model of consumer participation in network-and small-group-based virtual communities. *International journal of research in marketing*, 21(3), 241-263. <https://doi.org/10.1016/j.ijresmar.2003.12.004>
- [14] Geetha, B. T., Yenugula, M., Randhawa, N., Purohit, P., Maney, K. L., & Venkateshwar, A. (2024, March). Advancement improving the acquisition of customer insights in digital marketing by utilising advanced artificial intelligence algorithms. In *2024 International Conference on Trends in Quantum Computing and Emerging Business Technologies* (pp. 1-7). IEEE. <https://doi.org/10.1109/TQCEBT59414.2024.10545055>
- [15] Haddad, S. M., Souza, R. T., & Cecatti, J. G. (2019). Mobile technology in health (mHealth) and antenatal care—searching for apps and available solutions: a systematic review. *International journal of medical informatics*, 127, 1-8. <https://doi.org/10.1016/j.ijmedinf.2019.04.008>
- [16] Holliman, G., & Rowley, J. (2014). Business to business digital content marketing: marketers' perceptions of best practice. *Journal of research in interactive marketing*, 8(4), 269-293. <https://doi.org/10.1108/JRIM-02-2014-0013>
- [17] Kannan, P. K. (2017). Digital marketing: A framework, review and research agenda. *International journal of research in marketing*, 34(1), 22-45. <https://doi.org/10.1016/j.ijresmar.2016.11.006>
- [18] Kim, J. H., Kim, J., & Youn, B. Y. (2025). Using a technology acceptance model to explore the intention to use digital health technologies among people with disabilities: cross-sectional survey study. *Journal of Medical Internet Research*, 27, e79595. <https://doi.org/10.2196/79595>
- [19] Kim, J., Kang, S., & Lee, K. H. (2021). Evolution of digital marketing communication: Bibliometric analysis and network visualization from key articles. *Journal of Business Research*, 130, 552-563. <https://doi.org/10.1016/j.jbusres.2019.09.043>
- [20] Kumar, A., Bezawada, R., Rishika, R., Janakiraman, R., & Kannan, P. K. (2016). From social to sale: The effects of firm-generated content in social media on customer behavior. *Journal of marketing*, 80(1), 7-25. <https://doi.org/10.1509/jm.14.0249>
- [21] Lamberton, C., & Stephen, A. T. (2016). A thematic exploration of digital, social media, and mobile marketing: Research evolution from 2000 to 2015 and an agenda for future inquiry. *Journal of marketing*, 80(6), 146-172. <https://doi.org/10.1509/jm.15.0415>
- [22] Laradi, S., Berber, N., Rehman, H. M., Hossain, M. B., Hiew, L. C., & Illés, C. B. (2023). Unlocking the power of social media marketing: Investigating the role of posting, interaction, and monitoring capabilities in building brand equity. *Cogent business & management*, 10(3), 2273601. <https://doi.org/10.1080/23311975.2023.2273601>
- [23] Li, Y., Dang, X., Tian, H., Sun, T., Wang, Z., Ma, L., ... & Bissyandé, T. F. (2025). An empirical study of AI techniques in mobile applications. *Journal of Systems and Software*, 219, 112233. <https://doi.org/10.1016/j.jss.2024.112233>
- [24] Mushi, H. M. (2024). Digital marketing strategies and SMEs performance in Tanzania: insights, impact, and implications. *Cogent Business & Management*, 11(1), 2415533. <https://doi.org/10.1080/23311975.2024.2415533>
- [25] Nam, H., & Kannan, P. K. (2020). Digital environment in global markets: Cross-cultural implications for evolving customer journeys. *Journal of International Marketing*, 28(1), 28-47. <https://doi.org/10.1177/1069031X19898767>
- [26] Oliveira, Z., Teixeira, S., Teixeira, S., & Pratas, J. M. (2024). The Use of Social Media: Influence of Content Marketing for Brazilian Health Industry SMEs. In *Connecting with Consumers Through Effective Personalization and Programmatic Advertising* (pp. 243-267). IGI Global Scientific Publishing. <https://doi.org/10.4018/978-1-6684-9146-1.ch013>
- [27] Paramasivan, C., Dhinakaran, D. P., Selvam, S. S. P., Mukherjee, S., Juliet, A. P., & Devi, S. R. (2024, April). Comparing supervised and unsupervised learning technologies for customer segmentation in marketing. In *2024 Ninth International Conference on Science Technology Engineering and Mathematics (ICONSTEM)* (pp. 1-6). IEEE. <https://doi.org/10.1109/ICONSTEM60960.2024.10568702>
- [28] Pasaribu, S. B., Novitasari, D., Goestjahjanti, F. S., & Hendratono, T. (2022). The impact and challenges of digital marketing in the health care industry during the digital era and the COVID-19 pandemic. *Frontiers in public health*, 10, 969523. <https://doi.org/10.3389/fpubh.2022.969523>
- [29] Rakshit, S., Islam, N., Mondal, S., & Paul, T. (2021). Mobile apps for SME business sustainability during COVID-19 and onwards. *Journal of Business Research*, 135, 28-39. <https://doi.org/10.1016/j.jbusres.2021.06.005>
- [30] Salameh, A. A., Ijaz, M., Omar, A. B., & Zia ul Haq, H. M. (2022). Impact of online advertisement on customer satisfaction with the mediating effect of brand knowledge. *Frontiers in psychology*, 13, 919656. <https://doi.org/10.3389/fpsyg.2022.919656>
- [31] Saura, J. R., Ribeiro-Soriano, D., & Palacios-Marqués, D. (2021). Setting B2B digital marketing in artificial intelligence-based CRMs: A review and directions for future research. *Industrial Marketing Management*, 98, 161-178. <https://doi.org/10.1016/j.indmarman.2021.08.006>
- [32] Ström, R., Vendel, M., & Bredican, J. (2014). Mobile marketing: A literature review on its value for consumers and retailers. *Journal of Retailing and Consumer Services*, 21(6), 1001-1012. <https://doi.org/10.1016/j.jretconser.2013.12.003>
- [33] Subramani, M. R., & Rajagopalan, B. (2003). Knowledge-sharing and influence in online social networks via viral marketing. *Communications of the ACM*, 46(12), 300-307. <https://doi.org/10.1145/953460.953514>

- [34] Tamilmani, K., Rana, N. P., Wamba, S. F., & Dwivedi, R. (2021). The extended Unified Theory of Acceptance and Use of Technology (UTAUT2): A systematic literature review and theory evaluation. *International journal of information management*, 57, 102269. <https://doi.org/10.1016/j.ijinfomgt.2020.102269>
- [35] Tetik, G., Türkeli, S., Pinar, S., & Tarim, M. (2024). Health information systems with technology acceptance model approach: A systematic review. *International Journal of Medical Informatics*, 190, 105556. <https://doi.org/10.1016/j.ijmedinf.2024.105556>
- [36] Trusov, M., Bucklin, R. E., & Pauwels, K. (2009). Effects of word-of-mouth versus traditional marketing: findings from an internet social networking site. *Journal of marketing*, 73(5), 90-102. <https://doi.org/10.1509/jmkg.73.5.90>
- [37] Vajrobal, V., Aggarwal, N., Saxena, G. J., Singh, S., & Pundir, A. (2024). Transforming SEO in the era of generative AI: Challenges, opportunities, and future prospects. *Revolutionizing the AI-Digital Landscape*, 7, 86-100. <https://doi.org/10.4324/9781032688305-6>
- [38] Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view1. *MIS quarterly*, 27(3), 425-478. <https://doi.org/10.2307/30036540>
- [39] Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the Unified Theory of Acceptance and Use of Technology1. *MIS quarterly*, 36(1), 157-178. <https://doi.org/10.2307/41410412>
- [40] Wang, H., Li, H., & Guo, Y. (2019, May). Understanding the evolution of mobile app ecosystems: A longitudinal measurement study of google play. In *The World Wide Web Conference* (pp. 1988-1999). <https://doi.org/10.1145/3308558.3313611>
- [41] Watson, C., McCarthy, J., & Rowley, J. (2013). Consumer attitudes towards mobile marketing in the smart phone era. *International Journal of Information Management*, 33(5), 840-849. <https://doi.org/10.1016/j.ijinfomgt.2013.06.004>
- [42] Wu, P., Zhang, R., Zhu, X., & Liu, M. (2022, January). Factors influencing continued usage behavior on mobile health applications. In *Healthcare* (Vol. 10, No. 2, p. 208). MDPI. <https://doi.org/10.3390/healthcare10020208>
- [43] Zapata, B. C., Fernández-Alemán, J. L., Idri, A., & Toval, A. (2015). Empirical studies on usability of mHealth apps: a systematic literature review. *Journal of medical systems*, 39(2), 1. <https://doi.org/10.1007/s10916-014-0182-2>
- [44] Zreik, M. (2024). The Transformation of Healthcare Marketing in the New Digital Era: A Comprehensive Analysis with Reference to China. In *Modern Healthcare Marketing in the Digital Era* (pp. 42-60). IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-3693-0679-6.ch003>