

Charting the Intellectual Structure of Digital Marketing Research: A Scientometric Analysis

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Abstract. This scientometric study maps intellectual structures and research trends in digital marketing literature using a bibliometric analysis of 6306 publications over 1990-2023. Visualization and clustering reveal three predominant research focus on digital methods, marketing foundations and consumer behavior. However, data analytics, algorithms and chatbots manifest as relatively under-investigated niches despite their relevance. By identifying these knowledge gaps and areas of growth, the study offers practical implications for digital marketing research and practice regarding promising yet overlooked domains for future inquiry.

Keywords: Digital Marketing, Digital Strategy, Bibliometric Analysis, VOS Viewer

1. Introduction

Marketing as an academic discipline and management activity has been the subject of substantial transformations during the last twenty years. Based on Constantinides (2014) research, many scholars and practitioners agree that some of the old marketing tenets seem to lose ground and ineffective for present while the method was popular in the 60s and 70's. As it goes from time to time, technology arises and creates a massive change in most things, especially in education and business.

Digital marketing evolved in 1990 when the internet started to collaborate with business line stream. As advanced technology, digital marketing is becoming a pivotal aspect of business strategies. Technology creates a massive transformation of marketing along with the growth of digitalization. Digitization blurs the lines between technology and management, creating new business models built efficiently (Sestino et al., 2020). Over the last decade, there has been an increasing focus on service rather than products with transformational developments in information and communication technologies (Barrett et al., 2015). Every industry is going through digital transformation, which brings about complete networking of business process through IIoT or usually known as Industrial Internet of Things (Meyendorf et al., 2021).

Technologies begins with digitalization and digital transformation, then continues with meaningful data collection which not only stores data but also have value to be analyzed, new ways of data transfer, blockchain, until artificial intelligence and visualization (Meyendorf et al., 2021; 6). Across the business landscape, companies with big scale have embraced service as an engine of their firms' growth (Barrett et al., 2015). Technologies growth in line with service-focused and not only product focused, could potentially growth company value and lead to a great success. Service innovation has an impact through company value and drives economic development into the better version. With the accessibility of new tools, marketing managers can collect, identify gaps, and figure trends on large-scale consumption data related with consumer behavior (Sestino et al., 2020). Although accurate personality judgments acquired from social-cognitive skills, sometimes computer models can make valid judgments more accurately (Youyou et al., 2015). For example on digital transformation, research from Donovan (2012) explore about the power of M-PESA network on human development. M-PESA as the most successful mobile money service in Africa with largest fintech platform, could make payments across the continent both for the banked and unbanked. This development has significantly improved the lives of millions of people across Africa who had no access to financial services before.

Nowadays, there are various and unique methods for digital marketing that had not even been thought in 1990's. Consumer behavior has significantly changed due to technological innovation, directly contributing to how we interact and use social commerce to make decisions and shop online (Dwivedi et al., 2021). Companies can use various method such as social media marketing, content marketing, Search Engine Optimization that commonly used with Google, marketing through influencer content or movies, pay-per-click ads, demographic marketing, and other various method. Dwivedi et al. (2021) mentioned how social and digital marketing offers significant opportunities to organizations through improved brand awareness and increased sales. It can be happened because people spend a lot of time online searching for any kind of information and doing communication activities. Internet and any part of it have become part of daily activities life around the world. Ajina (2019) also states how digital and social media marketing could achieve marketing objectives at relatively lower cost.

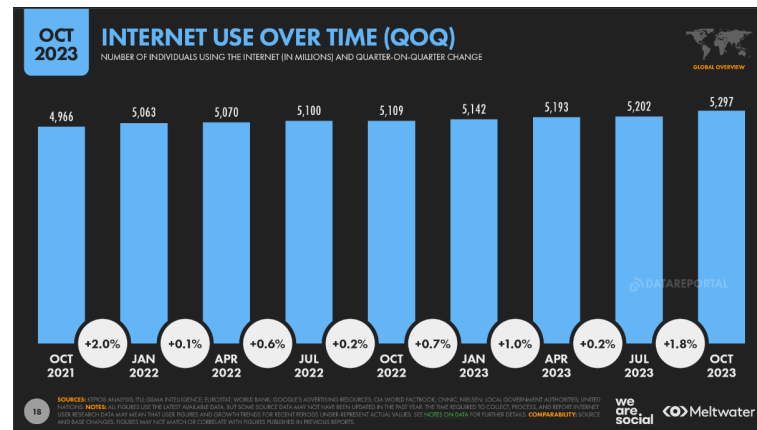


Fig.1: Internet Use Over Time (QOQ)
Source: We Are Social & Meltwater (2023)

Above figure 1 was statistic report from We Are Social & Meltwater (2023) about active internet users till October 2023. As can be seen, the number of individuals using the internet per-quarter from 2021 to 2023 increased 6.6%. A total of 331 million new internet users shows a significant increase in just two years.

Digital growth in 2023 was also show significant increase. Statistic report from We Are Social & Meltwater (2023) shows with total population of 8.06 billion, individuals that use internet was 5.3 billion in total. Compared to We Are Social & Meltwater (2014) statistic data, total population was 7.272 billion with total active internet users in 2014 was 3.001 billion.

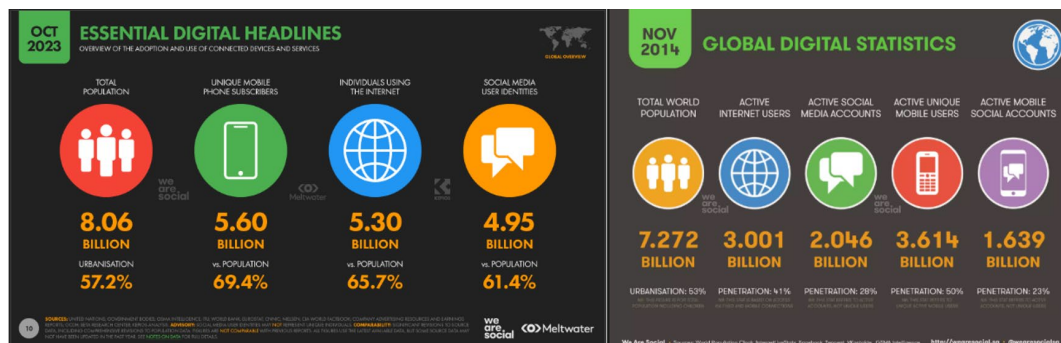


Fig.2: Statistic Report of Individual Active Internet Users Comparison
Source: We Are Social & Meltwater (2023); We Are Social & Meltwater (2014)

This study is a bibliometric analysis on digital marketing development. Analytical tools used, such as VOS Viewer for mapping and visualization purposes. Information gathered using Scopus with related content of analysis. Info gathered can be analyzed to identify journal and authors to counsel, with growth dominant directions visualization that can lead to most influential contributors and knowledge at digital marketing development. The impact of digital advancements poses a significant research gap in the field of marketing. This gap was crucial, considering how fast technology growth. Traditional marketing practices may not adequately address the challenges by digital advancements. Research need to explore and understand the implication of digital advancements to lead into updated marketing practices and business effectivity. Understanding research gaps could gain insights into marketing paradigms and perform effective marketing strategies. This study wants to investigate the digital marketing evolution broadly, especially related to internet marketing.

The research objective was to map knowledge structure and emerging directions of digital marketing. Research aims to identify trends about digital marketing developments in Scopus journal published between 1990 till 2023. It includes the most elements on digital marketing and hot research

keywords in digital marketing field with evolution progress overtime.

2. Literature Review

Digital marketing defined as traditional marketing development, where all communication media such as distributing brochures, advertising on television and radio, or any other method, slowly switched online after the rise of internet (Chaffey et al., 2015). Digital marketing was one of the marketing tools that developed from conventional marketing model. Digital marketing transform communications and transactions become a real-time and any-time transaction globally (Gumilang, 2019). Based on Syukri & Sunrawali (2022) research, digital marketing works with market research and content promoting through online with social media tools, such as Facebook, Instagram, Twitter, Google search engine, e-commerce platform, and any other sources.

Based on (Ayesha et al., 2022) research, there are five main advantages from using digital marketing tools rather than the conventional method:

1. Product information deployment speed is much faster, real-time measurements, and market targeted accurately than conventional method.
2. Evaluation process become easier with real-time accurate react data result.
3. Digital marketing could reach a wider market segment demographically with internet tools.
4. Lower cost and more efficient than conventional method. Cost can be reduced up to 40% than before.
5. Company efforts to do branding were lesser because customers tend to collect information digitally before purchasing products.

Previous research related to the development of digital marketing has evolved significantly over time. Research by Lai et al. (2003) discuss about early stages of internet proliferation, which have effect on industries nature transformation through marketing and strategic planning. Lai et al. (2003) research indicated that recommendation systems utilizing technology could deliver greater outcomes compared to the traditional methods, in terms of accuracy, relevance, and customer satisfaction.

Research by Van Belleghem (2015) discuss about rise of technology devices. Van Belleghem (2015) illustrates the gradual shift of customers and companies' relationship due to digitalization era. During this period, automation process, smart data usage, and self-service began to flourish. Van Belleghem (2015) also stated that those who fail to adapt to digital advancements will have a hard time to survive on challenges.

Related to digital marketing development through education field, Faridi & Ebad (2018) research highlighted the trend of MOOCs (Massive Open Online Courses) in 2018 era. Faridi & Ebad (2018) found that hybrid approaches in education was recommended, with combining blended learning methods. With internet technology, Faridi & Ebad (2018) concluded that students now have access to an up-to-date courses that foster digital skills, participation, engagement, and self-paced learning., This positive impacts allows for a lifelong learning with a low cost.

In contrast, research by Zarubina et al. (2024) with recent era, discussed the hot trend of AI (Artificial Intelligence) in education and digital transformation. Communication through images and visuals is a crucial item nowadays, and digital promotion approaches are feasible due to high digital consumption habits. Therefore, Zarubina et al. (2024) research found a direct correlation between educational promotional programs and the preferences of recent generations. In recent years industry has also witnessed a trend towards AI and chatbots, which have enhanced customer interaction productivity. Both AI and chatbots can handle a large volume of simple requests and provide an instant answer.

Contemporary research delves into topics far more advanced from time to time. Research by Chouaki et al. (2023) examines privacy risk in search engine advertising systems, with findings of

privacy-focused search engine failed to protect user privacy when clicking on ads. When user clicked the ads, user activity can be tracked by advertisers with the activity recorded upon redirection. This creates new issues, where technology should also focus on privacy risk.

Related to new technology nowadays, Hocutt (2024) and Nixon et al. (2024) explores about AI (Artificial Intelligence). Hocutt (2024) explores about integration of AI into advertising platforms, encompassing various facets such as social media, content analysis, landing pages, generative AI, ad copywriting, and privilege and efficacy of utilizing AI. Nixon et al. (2024) investigates AI in the context of optimized digital content marketing, demonstrating that AI that applied to TV content workflows significantly enhances efficiency. Xia et al. (2024) research also found significant impact of digital economy on various economic sectors. This could reshaping the work dynamics and fostering a greater flexibility. Xia et al. (2024) also classifies emerging technologies into four main areas such as IoT (Internet of Things), AI (Artificial Intelligence), AR (Augmented Reality), and electronic payment systems.

Beyond AI-focused research, Liu, (2024) discuss about how digital publishing can enhance product quality using combinations of IoT and algorithms. Similarly, Udayana et al., (2024) investigates e-commerce, with highlighting importance of improving marketing performance and ensuring business sustainability, in order to enhance financial performance. Kuzyk et al. (2023) focused on influencer-digital marketing, which research examines trends and perspectives on the impact of digital technologies on marketing communication. Kuzyk et al. (2023) found high frequency of trends in influencer marketing and social media integration with e-commerce.

From all previous research above, can be illustrated how digital marketing development varies between each generation. From how the internet begin to show in 2003 era, until how in 2024 era, AI and chatbots could have an impact on digital marketing. This anticipates how AI, and other recent technologies will shape future global marketing development. Consumer behavior shifts also significantly happened by technological advancements such as increased connectivity, more informed customers and higher expectations from customers, brand engagement, shifting customer into mobile-centric activities, and shifting into user-generated content as asset. Important key models can be elaborated into technology acceptance model that explores customer attitude towards digital products, and theory planned behavior that explores prediction and consumer decision-making influence.

Research related with the development of digital marketing is crucial because the impact of digital advancements poses a significant need to adapt considering how fast technology growth. Information Technology effect through modern business models become the hot topic in the last decades (Putri et al., 2021). Technology changes the way people interact around the world. Technology also could help companies to increase their efficiency, productivity, and competitiveness through business. Business process, analysis, product quality, and service quality also increased while using and adapting to technology (Anggraeni & Elan Maulani, 2023).

3. Method

This study uses bibliometric analysis method, with data collection from Scopus conducted in January 2024. Bibliometric analysis was a method used to understand the global research trends in particular field using academic publications data (Alsharif et al., 2020). This method could summarizes large quantities of data to present the state of intellectual structure and trends of topic (Donthu et al., 2021). Based on research by Chen et al. (2016), analysis step that can be conduct is started with data collection, selection of keywords, calculation using tools, visualization result, and interpretation of result. This study aims to provide scholarly trends in scientific research about digital marketing and visualization of bibliometric maps related with hot research keywords in digital marketing transformation. This study analyzes all Scopus documents content mention "Digital Marketing". Therefore, the following is the syntax of research:

KEY (digital AND marketing) AND PUBYEAR > 1989 AND PUBYEAR < 2023 AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "cp") OR LIMIT-TO (DOCTYPE , "re") OR LIMIT-TO (DOCTYPE , "ch") OR LIMIT-TO (DOCTYPE , "sh") OR LIMIT-TO (DOCTYPE , "no") OR LIMIT-TO (DOCTYPE , "ed") OR LIMIT-TO (DOCTYPE , "bk") OR LIMIT-TO (DOCTYPE , "cr")) AND (LIMIT-TO (SRCTYPE , "j") OR LIMIT-TO (SRCTYPE , "p") OR LIMIT-TO (SRCTYPE , "d") OR LIMIT-TO (SRCTYPE , "k") OR LIMIT-TO (SRCTYPE , "b"))

Results of data collecting have been downloaded in RIS format and processed further with VOS Viewer to visualize and analyze with bibliometric method. Total documents filtered and used was 6306 in this study. This study result will be visualized in the shape of networks between related content. Bibliometric networks was the composed nodes and edges with relations which can be publications, journals, keywords, or researchers (Saheb et al., 2021). Based on data collected with trends subject results, this study points out as per following result:

- Most cited articles on digital marketing.
- Various research language published on digital marketing.
- Research area of published research on digital marketing.
- Segmentation of research publication year on digital marketing.
- Publication country or territory on digital marketing.
- Journal published source on digital marketing.
- Author of research on digital marketing.
- Term analysis on digital marketing.

Below figure 3 shows data collecting process from Scopus website with Digital Marketing keywords.

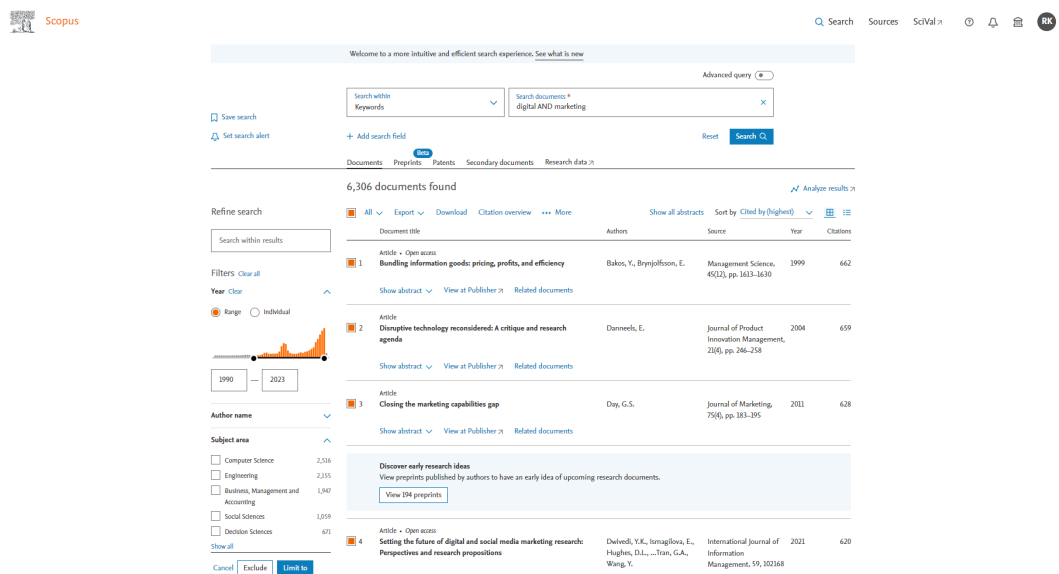


Fig 3: Data Collecting Source

Source: Scopus (2024)

Scopus data collection uses keywords of 'digital' and 'marketing', data then filtered as can be shown at fig.3 left side of figure. Data filtering resulting in 6306 documents with publication year 1990 till 2023. Data exported in Ris and CSV format to be processed further using VOS Viewer, resulting in visualization network of keywords, author, cluster, level of connection, and density. Further step and result will be discussed in next chapter.

4. Result and Discussion

4.1. Most Cited Articles

After data collected and processed, below figure 1 shows the recap of top 10 most cited articles related to digital marketing keywords. Total publications were 6306 with total citations 71249.

Table 1. Top 10 Most Cited Articles on Digital Marketing

Document Title	Authors	Source Title	Citations
Bundling information goods: pricing, profits, and efficiency	Bakos, Y., Brynjolfsson, E.	Management Science	662
Disruptive technology reconsidered: A Critique and research agenda	Danneels, E.	Journal of Product Innovation Management	659
Closing the marketing capabilities gap	Day, G.S.	Journal of Marketing	628
Setting the future of digital and social media marketing research: Perspectives and research propositions	Dwivedi, Y.K., Ismagilova, E., Hughes, D.L.,...Tran, G.A., Wang, Y.	International Journal of Information Management	620
The future of social media in marketing	Appel, G., Grewal, L., Hadi, R., Stephen, A.T.	Journal of the Academy of Marketing Science	619
Children and adolescents and digital media	Chassiakos, Y.R., Radesky, J., Christakis, D....Smith, J., Swanson, W.S.	Pediatrics	610
Digital marketing: A framework, review, and research agenda	Kannan, P.K., Li, H.	International Journal of Research in Marketing	602
From social to sale: The effects of firm-generated content in social media on customer behavior	Kumar, A., Bezawada, R., Rishika, R., Janakiraman, R., Kannan, P.K.	Journal of Marketing	581
A thematic exploration of digital, social media, and mobile marketing: Research evolution from 2000 to 2015 and an agenda for future inquiry	Lamberton, C., Stephen, A.T.,	Journal of Marketing	573
Advertising content and consumer engagement on social media: Evidence from Facebook	Lee, D., Hosanagar, K., Nair, H.S.	Management Science	481
Total			6035

Source: Scopus data processed

Most cited articles were by Bakos & Brynjolfsson (1999), with total cited 662. Bakos &

Brynjolfsson (1999) research discussed about the strategy of bundling many information goods. Second most cited articles followed by Danneels (2004), with total cited 659. Danneels (2004) research discussed about disruptive technology, including definition, predictive use of theory, success of incumbents, implications of theories, and merits of creating a spin off to commercialize the disruptive technology. Third most articles was Day (2011), with total cited 628. Day (2011) research discussed about marketing capabilities gap that are needed, such as vigilant market learning, adaptive market experimentation, and open marketing that forges relationship and social networking technologies of current partners.

4.2. Language

Various of research languages found on Scopus published articles. Total languages discovered related to digital marketing published from 1990 till 2023 was 20 languages.

Table 2. Top 10 Research Language Published on Digital Marketing

Language	Published Number
English	5989
Spanish	111
German	49
French	40
Portuguese	39
Russian	35
Chinese	15
Italian	11
Japanese	10
Turkish	7

Source: Scopus data processed

Based on data processed above, majority research published in English language, with total 5989 paper. Majority research after English language, followed by Spanish with total 111 articles and German language with total 49 articles. This significant amount of paper with English language might be happened because English was worldwide international language. English language on research could help researchers around the world to understand the content generally.

4.3. Research Area

A significant amount of research paper area on computer science and engineering was because technology development related to this field, where digital marketing is also linked with technology. Digital marketing itself was a modern marketing way using advanced technology, where marketing method switched from conventional methods to internet-related method. Digital marketing is also related with companies' future, value, planning, cost, and any other related content, that relevant with top three majority research area on business, management, and accounting.

Table 3. Top 10 of Research Area on Digital Marketing

Research Area	Published Number
Computer Science	2517
Engineering	2156
Business, Management, and Accounting	1947
Social Sciences	1060
Decision Sciences	671
Economics, Econometrics and Finance	509
Chemical Engineering	450
Mathematics	381
Materials Science	364
Medicine	290

Source: Scopus data processed

4.4. Year of Publication

After data processed, below table 4 shows the recap of research publication year on digital marketing. Digital marketing articles started around 1990, when technology begins to emerge around the world.

Table 4. Year of Research Publication on Digital Marketing

Year	Published Number	Year	Published Number	Year	Published Number	Year	Published Number
2023	875	2013	78	2003	248	1993	11
2022	752	2012	95	2002	121	1992	5
2021	638	2011	76	2001	66	1991	6
2020	507	2010	51	2000	55	1990	22
2019	405	2009	49	1999	59		
2018	245	2008	54	1998	50		
2017	200	2007	79	1997	54		
2016	156	2006	153	1996	89		
2015	125	2005	348	1995	78		
2014	110	2004	376	1994	35		

Source: Scopus data processed

Below is shown visualization of documents by year published on Scopus related with digital marketing. We can see from the graphic that digital marketing started to be discussed through academic

papers in 1990 and started to arise in 2002. This can happen because of many kinds of factors such as transition from phone into smartphone, ‘.com’ revolution, internet popularity arises, apps and software development era, transformation of internet speed, and start of e-commerce era.

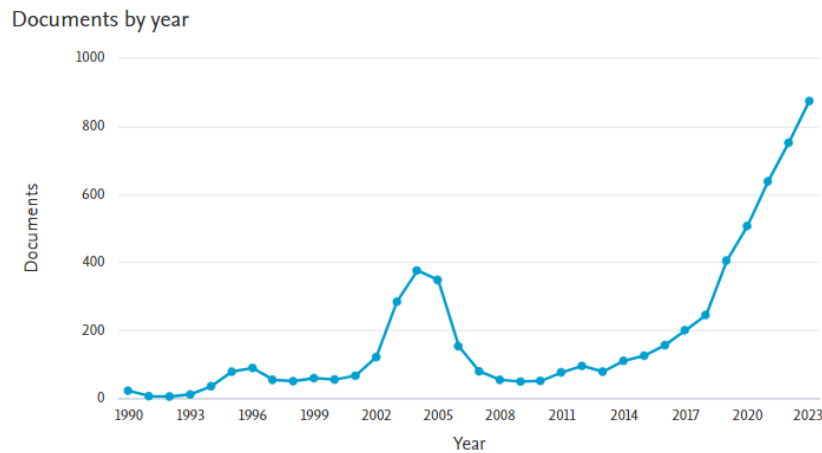


Fig 4: Graphic of Documents by Year on Digital Marketing
Source: Scopus Analysis (2024)

Documents per year also have a significant increase in numbers in 2017. Rapid growth in internet usage year-by-year might be the biggest reason for this significant increase in numbers. Social media also become popular in this era, with pictures post that slightly switch also into video content in 2023. Some of startups in the 2014 era also started to growth significantly such as e-commerce or communication media, with Search Engine Optimization (SEO) focus and start of Artificial Intelligence tools in digital marketing. Digital marketing popularity has a potential relation with digital growth, advancements in technology, consumer behavior switching, and business efficiency method.

4.5. Countries & Publisher

Majority research countries published related with digital marketing was on United States, with total published number 1012. India becomes the second majority with total published number 514, followed by United Kingdom with 368 total published number.

Most of the research published with digital marketing was ACM International Conference Proceeding Series, with total published number 102 papers. We can also see below at tabel 6 for top ten research publisher on digital marketing segment. Lecture Notes in Networks and Systems become the second majority with total published number 95 papers, followed by Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics with total published number 81 papers.

Table 5. Top 10 of Research Countries Published on Digital Marketing

Research Country	Published Number
United States	1012
India	514
United Kingdom	368
China	356

Indonesia	235
Spain	212
Germany	188
Portugal	172
Russian Federation	168
Italy	158

Source: Scopus data processed

Table 6. Top 10 of Research Publisher on Digital Marketing

Research Publisher	Published Number
ACM International Conference Proceeding Series	102
Lecture Notes in Networks and Systems	95
Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics	81
Smart Innovation Systems and Technologies	79
Sustainability Switzerland	71
Springer Proceedings in Business and Economics	60
Advances in Intelligent Systems and Computing	52
AP Australian Printer Magazine	52
Journal of Digital and Social Media Marketing	45
Communications in Computer and Information Science	36

Source: Scopus data processed

As can be seen on figure 5, documents by source on digital marketing arise at 2018 with two consistent publishers since 2003 such as ACM international Conference Proceeding Series and Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics.

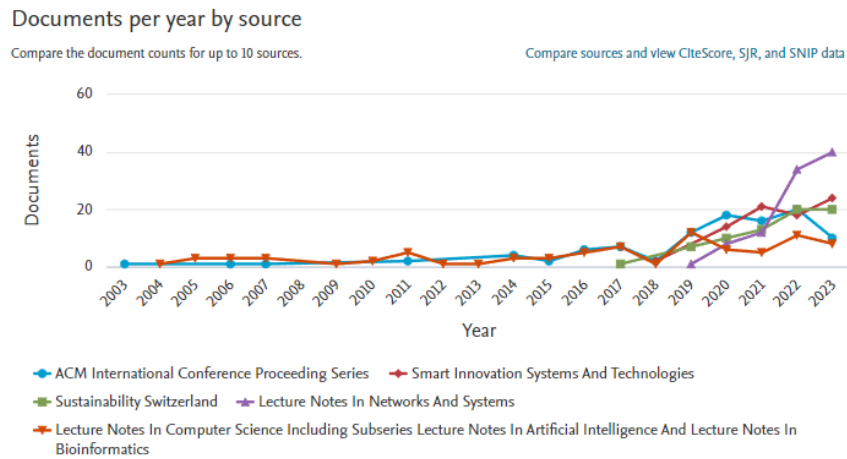


Fig 5: Graphic of Documents by Source on Digital Marketing
Source: Scopus Analysis (2024)

4.6. Author

Most authors on digital marketing were Anon with 35 published papers, followed by Sakas, D.P. with 18 published papers, and Clinkunbroomer, J. with 13 published papers.

Table 7. Top 10 Authors on Digital Marketing

Author	Published Number
Anon	35
Sakas, D.P.	18
Clinkunbroomer, J.	13
Savastano, D.	11
Wright, S.	10
Dwivedi, Y. K.	10
Cunha, C.R.	10
Tribute, A.	9
Saura, J.R.	9
Pitcher, G.	9

Source: Scopus data processed

Below figure 6 shows influential authors through VOS Viewer analysis. Even though top publisher was Anon, Sakas, D.P., and Clinkunbroomer, J., we can see that most collaborative authors with most linked line was Wang, Y., According to VOS Viewer results, primary authors are was Wang, Y., Sharma, S., and Gupta, S.. Three of the primary authors frequently publish research on digital marketing and collaborate with other authors.

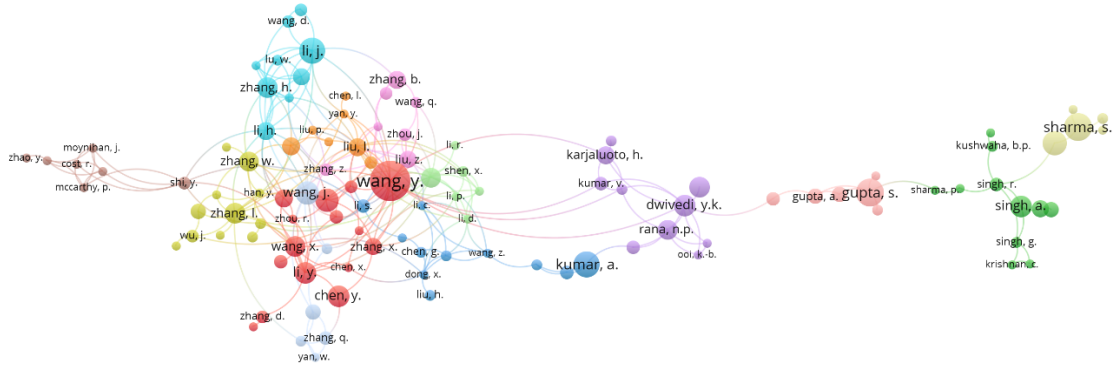


Fig 6: Visualization of Author Co-Citation Analysis on Digital Marketing

4.7. Analysis

Data collected and processed using VOS Viewer. Of a total of 17279 keywords, 2327 meet the threshold. Data result shown at figure 7, represents a structured visualization of term, indicating the number of studies and edited work discuss terms related to digital marketing and interrelations among the terms. Total cluster found was seven clusters, with three dominant clusters such as digital marketing, marketing, and human. Three dominant clusters can be seen with blue, green, and red color. The data result was in line with Saravanan & Sundara Rajan (2024), Acheampong et al. (2023), and Fernandes & Gabriel (2023). Saravanan & Sundara Rajan (2024), research results show the majority clusters were related to social media, humans, and internet. Acheampong et al. (2023) research result show majority clusters were related with digital marketing, and social media marketing. Fernandes & Gabriel (2023) research results show the majority clusters were related with digital marketing, and e-commerce. In contrast, Acheampong et al. (2023) and Fernandes & Gabriel (2023) research result also show majority clusters was related with covid-19, which was not found as majority clusters in this research.

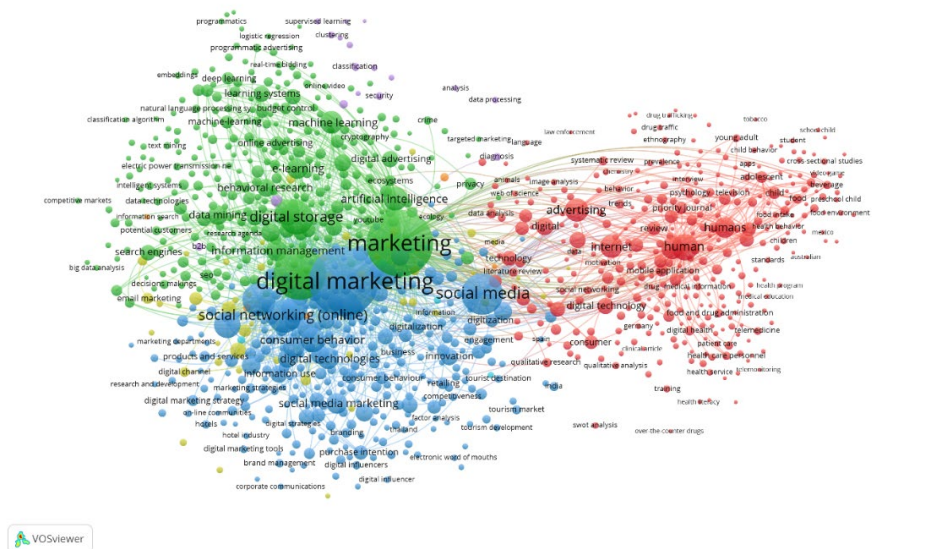


Fig 7: Visualization of Term Network on Digital Marketing

Publication trends may be attributed to the rapid growth of digital technologies, particularly caused by the widespread use of social media, e-commerce, and chatbot or AI integration into marketing strategies. These data integrated with statistic data of significant increase of internet and mobile device users. Additionally, the impact of Covid-19 pandemic also affects consumer behavior shift with more people relying on digital channels for shopping, entertainment, and communication. This lead

publication trend and marketing itself into massive change because increased interest and research in digital marketing strategies. Interconnections between these research areas also reflect high complexity and needed integration in marketing strategies.

The other four clusters can be seen as small insignificant dot colored yellow, purple, ginger, and turquoise. These four clusters with minority items were related to digital marketing intelligence, data algorithm and acquisition, chatbot technology, and consumer preferences research. The small dot clusters in line with previous research of Hocutt (2024), Nixon et al. (2024), and Xia et al. (2024) that focused on AI and chatbots. These findings are also in line with Liu (2024), which focus on algorithm technologies. These four clusters have the potential to be investigated further, considering their rarity of research and great potential of research findings.

Figure 8 shows the cluster density on digital marketing. Seven clusters were found at VOS Viewer, but only three clusters showed interrelations and majority. As seen below, Blue colored clusters density was the digital marketing field cluster. Green colored clusters density was the marketing field cluster, while the red colored clusters density was the human field cluster. Marketing and digital marketing blend into each other while human blend but not as significant as both blue and green field.



Fig 8: Visualization of Cluster Density on Digital Marketing

Figure 9 shows the digital marketing level group connection. Digital marketing has a relationship in internal cluster with social networking, consumer behavior, digital technologies, social media marketing, content marketing, innovation, sales, strategy marketing, and many other keywords related. While in marketing clusters, digital marketing has linked into digital storage, e-learning, online advertising, machine learning, data mining, artificial intelligence, and many other keywords related. In human clusters, digital marketing has linked into consumer, technology, pandemic, internet, child, and many other keywords related.



Fig 11: Visualization of Overlay Density on Digital Marketing

It's crucial to pay attention to technology advancements and trends when designing an effective digital marketing strategy. Researchers and business practitioners need to update skills and knowledge related with technology to keep the pace with rapid developments of technology. This research shown the interconnected publication trends across digital marketing, social media, AI, and chatbot technologies increasingly became important to reach successful marketing strategies. Understanding the role of technological advancements enables practitioners to craft targeted marketing strategies tailored to consumer needs. For instance, cosmetic brands like Maybelline, Loreal, and Luxcrime, utilize camera filters to showcase how their products would appear when worn by customers, aiding in purchasing decisions without the need for in-store trials. Similarly, IKEA employs AI through its virtual assistant "IKEA Place," allowing users to visualize furniture in their living spaces via smartphone cameras, enhancing the shopping experience. However, practitioners must also prioritize issues such as security and data privacy, as highlighted by the data leak incident at Tokopedia, Indonesia's largest e-commerce platform. This breach eroded trust, leading to decreased user confidence and significant financial repercussions, including legal penalties and customer attrition. While technologies offer immense benefits, advancements in technology also a dual-edged swords, capable of both enhancing but also challenging of business marketing strategies.

5. Conclusions

In summary, this study contributes a bird's eye view of the academic literature landscape related to digital marketing research. The revelation of nascent research spaces around consumer analytics, algorithms and human-bot interactions highlights potential for scholarship at these intersections to advance digital marketing knowledge in alignment with industry innovations.

This research reveals several findings that can give knowledge to researchers in the field of digital marketing. Future investigations about digital marketing hopefully can encompass a more extensive collection of articles that illustrate the role of digital marketing. Several promising areas for future research can be outlined such as big data analysis, algorithms, search engine marketing (SEM), digital influencers, data protection and security, programmatic advertising, and real-time marketing. However, as scientometric analyses remain descriptively limited, quantitative validation through content analysis and empirical surveys presents a logical next step. This study also does have limitations related to excluding books, non-English publications, grey literature, and variability in database indexing. This

may introduce bias to research results.

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