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Research trends in digital marketing and data-driven marketing: A bibliometric analysis

Tuğçe Acar Kara¹, Ferhat Orman²¹ Istanbul Aydın University, Istanbul, Türkiye² Istanbul Beykent University, Istanbul, Türkiye

Abstract. The accelerated development of digital technologies and the Internet stimulates the transition from the traditional to the digital model of marketing. The study presents a bibliometric analysis to examine international publications in the field of digital marketing (DM) and data-driven marketing (DDM) with a holistic approach, determine the current level of research interest in the topic under review and identify key development trends. The fundamental principles of bibliometrics and scientometric management constitute the methodological framework of the paper. Among the research methods applied are statistical and scientometric analyses. The data used in the study were retrieved from the Web of Science. Bibliometric analysis was carried out with 1,541 and 58 articles on digital and data-driven marketing, respectively. The data set covers the period of 2006–2024, when the first study on digital marketing emerged, and the period of 2003–2024 for data-driven marketing. The obtained data were processed using the R Project. The findings indicate a constantly growing research interest in the concepts under consideration. We have identified journals with most publications on digital marketing (*Sustainability*) and data-driven marketing (*Journal of Business Research*); established the countries publishing most studies on DM (USA) and DDM (China); and revealed the most frequently used keywords in DM ('impact') and DDM ('management'). The results of keywords' occurrence analysis were utilized to create thematic maps for visualizing motor, niche, basic and emerging/declining research areas in the field of digital and data-driven marketing.

Keywords: digital marketing; data-driven marketing; bibliometric analysis; thematic map; keyword analysis.

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Библиометрический анализ исследовательских трендов в сфере цифрового и data-driven маркетинга

Т. Аккар Кара¹, Ф. Орман²¹ Университет Айдын, г. Стамбул, Турция² Университет Бейкент, г. Стамбул, Турция

Аннотация. Активное развитие цифровых технологий и интернета обуславливает переход от традиционной к цифровой модели маркетинга. Статья посвящена библиометрическому анализу зарубежных исследований в области цифрового маркетинга (ЦМ) и маркетинга на основе данных (МД), направленному на определение текущего уровня научного интереса к рассматриваемой тематике и выявление ключевых тенденций ее развития. Методологической основой послужили базовые положения библиометрии и наукометрического менеджмента. Использовались методы статистической оценки и наукометрического анализа. Информационную базу составили материалы МНБД Web of Science с момента индексации первой публикации по каждому из направлений: для цифрового маркетинга объем выборки составил 1 541 статью за период 2006–2024 гг.; для маркетинга, основанного на данных, – 58 статей за период 2003–2024 гг. Обработка данных осуществлялась в статистической среде R. Результаты анализа свидетельствуют о постоянно возрастающем интересе научного сообщества к изучаемым концепциям. Выявлены журналы, публикующие основной массив исследований в области ЦМ (журнал *Sustainability*) и МД (*Journal of Business Research*); определены страны – лидеры по количеству профильных публикаций в сферах ЦМ (США) и МД (Китай); идентифицированы наиболее распространенные ключевые слова в ЦМ («impact» – «влияние») и МД («management» – «менеджмент»). Результаты анализа состава и частотности ключевых слов легли в основу тематических карт для визуализации «локомотивного» («моторного»), нишевого, базового и зарождающегося / затухающего направлений исследований в области цифрового и data-driven маркетинга.

Ключевые слова: цифровой маркетинг; маркетинг на основе данных; библиометрический анализ; тематическая карта; анализ ключевых слов.

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INTRODUCTION

Organizations are increasingly expanding their activities in data-driven and digital marketing due to the rapid advancements in technology and the increased usage of the Internet in recent years. Many issues that used to be common due to traditional methods began to change rapidly thanks to unlimited opportunities created by technology. In the past years, in both social and corporate life, many issues that can be evaluated within certain patterns and standards have required a different assessment with the combination of technology and the Internet [Bulunmaz, 2016, p. 350]. According to Philip Kotler, one of the leading figures of the modern marketing discipline, the field of marketing is experiencing a shift from traditional paradigms to digital ones. This change is shaped by the influence of technological developments, and marketing strategies and practices are evolving from traditional media and communication channels to digital platforms. In their review, Kotler, Kartajaya and Setiawan [2017] highlight the changing dynamics of marketing's nature and functioning and focus on the digital transformation of modern marketing practice. In this context, the replacement of traditional marketing methods with digital marketing strategies requires businesses and marketing experts to use digital technologies effectively to gain competitive advantage.

Marketing 1.0 is the first stage of marketing that emerged with the industrial revolution in the industrial age. During that period, businesses implemented a traditional marketing approach, and consumers' wishes and needs were not taken into account. The aim was only to produce goods; there was no competition, and the product range was limited. Here, the focus was mainly on selling products without considering the needs and demands of the target market. As a result, one could characterize this strategy as product-oriented.

Marketing 2.0 emerged in the information age we are in. In Marketing 2.0, today's consumers are well-equipped in terms of information and can easily compare similar products, so the value of the product is determined by the customer, but not the manufacturer. According to Ertuğrul and Deniz [2018], Marketing 2.0 is a customer-oriented period in which the user defines the product's value. Put it another way, companies in this period need to cater to customer preferences.

In the age of Marketing 3.0, or value-based marketing, marketers approach customers as people with mind, heart and soul, rather than treating them just as consumers [Kotler, Kartajaya, Setiawan, 2010, p. 4]. The era of Marketing 3.0 is one in which shifts in customer attitudes and behaviour have a significant impact on marketing strategies. One could characterize this period as human-centered [Kotler, Kartajaya, Setiawan, 2010, p. 4]. Artificial intelligence technology is leading the way in this era.

According to marketing guru Philip Kotler, Marketing 4.0 refers to the transition from traditional marketing to a

customer- and data-oriented marketing framework. Compared to traditional marketing, it is less expensive and can reach a wider audience with a smaller budget. Businesses have been able to contact more people thanks to the advancement of information technology, improved communication, and the Internet's ability to link users worldwide. Furthermore, digitalization and marketing analytics are now essential elements of contemporary marketing strategies [Rosario, Dias, 2023]. With digital marketing, companies may thus take advantage of several prospects in the global market. Consequently, digital marketing represents the convergence of the initial three generations of marketing. Additionally, as businesses prioritize using customer and marketing data to develop products and make informed decisions, data-driven marketing has emerged as a result of the integration of marketing analytics and digitalization into marketing processes. Data-driven marketing optimizes customer information to develop a marketing strategy. It involves using online and offline channels to collect complex data that are analysed to better understand customers. The marketing team can create and execute highly customized marketing plans thanks to the data collection and analysis, which aids in understanding consumer psychology and purchasing habits [Nadler, McGuigan, 2017]. In Braverman's [2015] study, many panellists from around the world acknowledged the importance of data in driving marketing efforts. They also expressed confidence in data-driven marketing and its potential. Despite the benefits of integrating data into marketing, scholars were concerned about several potential negative impacts of data-driven marketing, such as privacy and security breaches, exacerbating market discrimination, and strengthening marketers' capacity for social control through their asymmetric power over consumer data [Andrejevic, 2002; Gandy, 1993a, 1993b; Turow, 2011; Cohen, 2013; Buehler et al., 2020].

On the other hand, Nadler and McGuigan [2017] point out that independent consultancies such as Forrester Research see data-driven strategies as a central part of current and future marketing. Additionally, analysts argue for investment in data-driven marketing capabilities and a focus on "customer centricity" as necessary safeguards against "digital disruption," assuming that new technologies will empower consumers [Bernoff, 2011; Cooperstein, 2013]. The results show that businesses that adopt data-driven marketing strategies establish a more effective connection with their target audiences and, in this context, achieve higher sales and recurring income. It results in increased customer loyalty and trust. However, the lack of a detailed explanation in the literature on the relationship between digital marketing and data-driven marketing shows that there is a gap between these two fields. It highlights the need for more academic studies to understand and investigate this relationship. Therefore, in order to comprehend the contribution of information technolo-

gies to today's literature-oriented research, it is of great importance to conduct qualified studies on prestigious platforms such as the Web of Science. These studies can help us better understand the relationship between digital marketing and data-driven marketing and encourage businesses to improve their strategies in these areas.

When bibliometric studies in the field of digital marketing and data-driven marketing were examined, the studies were concentrated in the field of digital marketing (see, e.g., [Kim, Kang, Lee, 2019; Faruk, Rahman, Hasan, 2021; Leon-Castro et al., 2021; Krishen et al., 2021; Kargaran et al., 2022; Saheb, Amini, Kiaei Alamdari, 2021; Purnomo et al., 2021; Dunakhe, Panse, 2022; Naldi, Maulina, Herawaty, 2022; Amiri, Kushwaha, Singh, 2023]). No bibliometric study has been found in the field of direct data-driven marketing. In general, studies in this field are more limited than digital marketing.

In this context, the study aims to investigate the development in the field of digital marketing and data-driven marketing and to explore the interaction between the two fields through bibliometric analysis. For this purpose, we seek answers on the following questions.

Research question 1: What are the emergence trends and topic trends in digital and data-driven marketing?

Research question 2: What are the motor and niche foundations in digital and data-driven marketing?

Research question 3: Which are the leading academic journals and researchers in the field of digital and data-driven marketing?

Research question 4: What is the importance and future place of digital and data-driven marketing?

Through these questions, this study presents a subjective and qualitative assessment of the literature in the field of digital marketing and data-driven marketing. We also attempt to give a comprehensive overview of research in this area, examine emerging trends, and provide a useful guide for future research by identifying gaps in the literature.

THEORETICAL BACKGROUND

Bibliometrics is a discipline that involves the quantitative examination of academic publications on a particular subject. The term was first used in 1922 by Wyndham Hulme, a professor at Cambridge University. In describing bibliometrics, Hulme [1923] coined it as a statistical term for measuring textual communication processes. Bibliometrics is a tool used to understand the production and communication of knowledge through the analysis and evaluation of scientific research and publications. In this context, bibliometrics plays an important role in measuring and monitoring scientific activities and the dissemination of knowledge. Later, Raisig used it in a critical paper on citation studies (see, [Raisig, 1962]). Research requires that terminology related to science and technology processes be clarified. Within this domain, bibliometric analyses emerge as extremely sensitive instruments capable

of quantitatively assessing research results through geometric and statistical techniques. Such publishing analysis has become crucial for library and information science as well as for scholarly communication, ranging from statistical bibliography to bibliometrics, science metrics, and information science [Herubel, 1999, p. 382].

Researchers use these methods to understand the characteristics of disciplines, their development, and the types of institutions that form the materials for bonds, relationships, and scholarly activity. In these data, they can identify the intellectual heritage of a discipline, among other useful tools for researchers studying the development of possibilities (see, e.g., [Vogt, 1982]). Bibliometric methods have historically been used to track and analyse scholarly citations. Today, however, bibliometrics is utilized more broadly to help identify "hidden patterns." This allows researchers to find, organise and analyse historical data, helping them predict future trends. By examining relationships, citations, and interactions between scientific publications, bibliometric analyses help identify priority topics, implications, and emerging trends in a particular research field. In this way, researchers can lay a strong foundation for planning and determining the direction of their future work [Daim et al., 2006, p. 983].

More specifically, bibliometrics is used to examine the impact of a particular discipline, the scholarly activity of a researcher, or the scholarly impact of an article, especially in large-scale data sets. This methodology helps understand interdisciplinary interactions and flows of information by analysing changes in scientific communication, relationships and citations between scientific publications.

Additionally, bibliometric analyses can be used to identify research trends, priority studies on a particular topic, and measure the influence of important figures in the scientific world. In this context, bibliometrics is considered a powerful tool for evaluating the scientific activities of researchers and determining future research directions [Cobo et al., 2011, p. 147]. In short, bibliometrics allows us to build a complete archive of a field. It uses a variety of methods to analyse and visualise qualitative and quantitative changes in a specific field of research. Durieux and Gevenois [2010] stated that bibliometric indicators are divided into three types:

- 1) a quantitative measure of the productivity of a specific researcher;
- 2) a measure of the quality (or "performance") of researchers' output quality index;
- 3) measure connections between publications, authors and research areas structural indicators.

Bibliometric methods, which rely on content or citation analysis for data extraction and examination, have become increasingly popular. This field employs computerized data analysis and has seen a rise in the volume of publications in recent times. The increase in the use of bibliometric methods can be attributed in part to

advancements in computer-based data processing techniques. The growing adoption is also driven by the attainment of a sufficient volume of data necessary to ensure statistical reliability [Ellegaard, Wallin, 2015].

In addition to assessing scientific productivity in a research field, bibliometric studies serve a variety of functions, such as tracking trends in specific fields, deepening knowledge, and evaluating researchers. This type of research helps understand research trends and developments in a particular topic or discipline by using quantitative analysis of published academic studies. In addition to measuring scientific activity in a particular research field, these analyses are also used to evaluate how much research outputs are cited and interacted with by other scientists. Therefore, the more published research findings are read and referenced, the more important bibliometric measurements and analyses become, as this is considered an indicator of scientific activity and engagement in a research field.

Bibliometric analysis findings play an important role in evaluating academic activities in a particular research field, and this evaluation provides an objective measurement for researchers and institutions. These analyses help evaluate researchers' scientific contributions and impact by examining the numerical and qualitative characteristics of publications. Additionally, bibliometric indicators provide information on international cooperation and scientific balances by examining the geographical distribution and scientific influence of different countries in the same research field. In this way, bibliometric analyses are considered an important tool for understanding the evolution of academic literature, identifying research trends, and observing interdisciplinary interactions [Durieux, Gevenois, 2010].

The first stage of bibliometric analysis involves identifying research objectives and selecting an appropriate database. While in the literature researchers often refer to widely used databases such as Google Scholar and Scopus, there are also a number of different sources for bibliometric analysis. However, this study focused on Web of Science (WoS) results, relying only on the highest quality data. The Web of Science database provides a comprehensive data set by offering access to a large collection of journals, books and articles from different scientific disciplines. This provides researchers with a reliable platform to consolidate and analyse data from various academic sources.

In this context, the dataset presented by the WoS is considered an important resource for conducting interdisciplinary research and evaluating scientific activities [Yu, Shi, 2015]. Once the database is identified, the next step is to select bibliometric indicators.

Data set. Within the scope of the research, articles registered in the Web of Science system regarding "digital marketing" and "data-driven marketing" variables will be examined. For the "digital marketing" variable, a search

was made by typing "digital marketing" in the search bar in the Web of Science Clarivate system¹. The results showed that 1,541 studies had been conducted in this field since 2006, when the first study was published. Likewise, for the "data-driven marketing" variable, the search term "data-driven marketing" was typed into the search bar and it was seen that there were 58 articles published in this field since 2003, when the first study was released. Files in plain text format were downloaded for the two variables. These files included the titles of the studies, their abstracts, author, country, institution and similar information. After the mentioned files were ready, they were analysed in March 2024 using the Bibliometrix [Aria, Cuccurullo, 2017] package of the R Project, which is a statistical analysis program.

RESEARCH RESULTS

This study aims to conduct a bibliometric analysis of distinguished articles published in the fields of digital marketing and data-driven marketing in the Web of Science database. The bibliometric variables applied in the study are basically as follows:

- topic trends in digital marketing and data-driven marketing within the specified time period;
- the number of articles prepared in the fields of digital marketing and data-driven marketing;
- the most published journals in the fields of digital marketing and data-driven marketing;
- the most cited articles and authors in the fields of digital marketing and data-driven marketing;
- countries and collaborations of authors who produce works in the fields of digital marketing and data-driven marketing;
- motor and niche themes in digital marketing and data-driven marketing.

The findings obtained as a result of the analysis in the context of these basic variables are summarized in the remainder of the study.

The number of articles is considered a quantitative indicator that measures the productivity of a researcher or group of researchers. It reflects the quantity of papers published within a certain period and serves as an important parameter to demonstrate the scope and depth of their scientific activities.

Additionally, the number of articles indicates the relevance of the topic; a high volume of publications suggests that the topic is either popular or possibly exhausted.

As shown in Fig. 1, this analysis encompasses the entire array of publications on digital marketing. This metric is a common tool for assessing scientific impact in the academic world and is used to measure researchers' knowledge, interdisciplinary interactions, and contributions to the scientific community.

¹ Web of Science. <https://www.webofscience.com/wos/woscc/basic-search>.

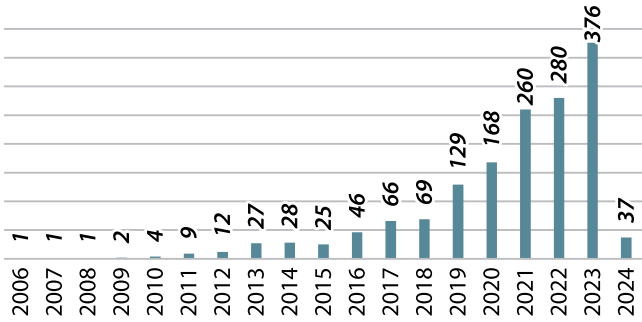


Fig. 1. Number of digital marketing studies, 2006–2024
Рис. 1. Количество публикаций по теме «цифровой маркетинг» в 2006–2024 гг.

It has been observed that the number of studies conducted in the field of digital marketing has continued to increase since 2006, when the first study was conducted, and has a rising trend. A total of 1,541 articles have been written since the first study. In particular, the developments in technology and the emergence of new shopping channels in marketing have attracted the attention of researchers and played an important role in enhancing the number of studies conducted in this field. A similar situation occurred in the field of data-driven marketing. A total of 58 articles have been written since 2003, when the first study was conducted (Fig. 2).

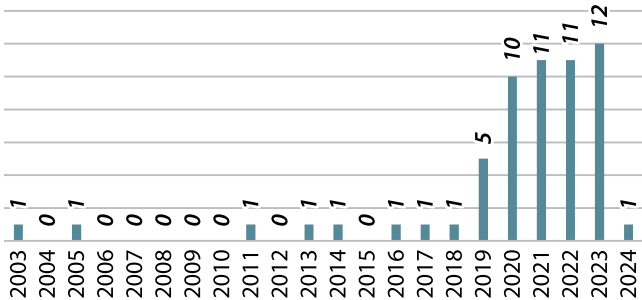


Fig. 2. Number of data-driven marketing studies, 2003–2024
Рис. 2. Количество публикаций по теме «маркетинг на основе данных» в 2003–2024 гг.

Research in this field has shown a significant increase, especially since 2019. In recent years, interest and research activities in data-driven marketing have grown significantly in academic circles, especially such issues as measuring consumer behaviour based on data and bas-

ing marketing policies on these databases have come to the fore. Among the main factors behind this increase are the development and widespread use of digital technologies, as well as the impact of advances in the fields of big data analysis and data science. In this context, the particular interest observed in academic literature reflects the increasing need and importance of understanding consumer behaviour and developing marketing strategies.

Journals specialising in a certain field provide the most interesting opportunities for researchers who want to make new publications in that field. One of the facts that guides researchers on this subject is Bradford's law. With this law, it can be determined what journals publishing in a certain field are core sources. In other words, the distribution of literature on a particular subject according to journals is defined. Thus, the sources that will be most useful in creating new studies can be easily determined [Garfield, 1980]. The top 5 journals with most publications in the fields of digital marketing and data-driven marketing determined according to the Bradford's law are listed in Table 1.

Among the journals that publish the most in both fields are *Sustainability*, *Journal of Business Research* and *Journal of Marketing Education*. In addition, these journals are the most important sources in both digital marketing and data-driven marketing and constitute core sources according to Bradford's law.

Another important issue in terms of exploring a certain field or guiding academics willing to conduct new research in that field is to identify the most cited works. In this context, the most cited studies in the fields of digital marketing and data-driven marketing are summarized in Tables 2 and 3. These tables have been compiled to reflect studies that are considered priority in a particular research field and the scholarly impact of these studies. These findings can provide an important reference point for researchers to understand important issues, approaches and findings in the relevant research field.

"Closing the marketing capabilities gap", published in *Journal of Marketing* by George S. Day in 2011, is one of the most important studies published in the field of digital marketing, with 477 citations. This is followed by the study by Kumar et al. "From social to sale: The effects of

Table 1 – Journals with most publications on digital marketing and data-driven marketing
Таблица 1 – Ключевые журналы по тематике «цифровой маркетинг» и «маркетинг на основе данных»

Rank	Digital marketing		Data-driven marketing	
	Journals	No. of articles	Journals	No. of articles
1	Sustainability	64	Journal of Business Research	5
2	Journal of Business Research	27	Journal of Marketing Education	4
3	Industrial Marketing Management	16	Sustainability	4
4	Journal of Marketing Education	16	Journal of Strategic Marketing	3
5	Marketing and Management of Innovations	16	British Food Journal	2

Table 2 – Most cited publications on digital marketing
Таблица 2 – Наиболее цитируемые публикации в области цифрового маркетинга

Author(s)/article	Journals	Year of publication	Total citation
Day G.S. Closing the marketing capabilities gap	Journal of Marketing	2011	477
Kumar A. et al. From social to sale: The effects of firm generated content in social media on customer behavior	Journal of Marketing	2016	472
Lamberton C., Stephen A. 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	2016	454
Dwivedi Y.K. et al. Setting the future of digital and social media marketing research: Perspectives and research propositions	International Journal of Information Management	2021	446
Appel G. The future of social media in marketing	Journal of the Academy of Marketing Science	2020	326

Table 3 – Most cited publications on data-driven marketing
Таблица 3 – Наиболее цитируемые публикации в области маркетинга на основе данных

Author(s)/article	Journals	Year of publication	Total citation
Sheth J., Kellstadt C. Next frontiers of research in data driven marketing: Will techniques keep up with data tsunami?	Journal of Business Research	2021	261
Liu W. et al. The impacts of market size and data-driven marketing on the sales mode selection in an Internet platform based supply chain	Transportation Research Part E: Logistics and Transportation Review	2020	87
Bleier A. et al. Consumer privacy and the future of data-driven innovation and marketing	International Journal of Research in Marketing	2020	80
Krishen A. et al. A broad overview of interactive digital marketing: A bibliometric network analysis	Journal of Business Research	2021	64
Jabbar A. et al. Real-time big data processing for instantaneous marketing decisions: A problematization approach	Industrial Marketing Management	2020	58

firm generated content in social media on customer behaviour" published in *Journal of Marketing* in 2016, which ranks second with 472 citations.

In the field of data-driven marketing, the most cited study is "Next frontiers of research in data driven marketing: Will techniques keep up with data tsunami?" published by Jagdish Sheth and Charles H. Kellstadt in *Journal of Business Research* in 2021.

"The impacts of market size and data-driven marketing on the sales mode selection in an Internet platform based supply chain" prepared by Liu et al. in *Transportation Research Part E: Logistics and Transportation Review* with 87 citations ranks second most cited article in the area of data-driven marketing.

Based on the affiliation of the author(s), Fig. 3 shows that the USA is the country publishing most digital marketing studies. The USA also outperforms the other countries in the categories of single country publication (SCP) and multi-country publication (MCP). In addition, when the figure is analysed in general, it can be seen that the SCP values are higher compared to the MCP values, indicating that the researchers tend to collaborate within their own country. The country demonstrating the closest SCP and MCP values is South Korea.

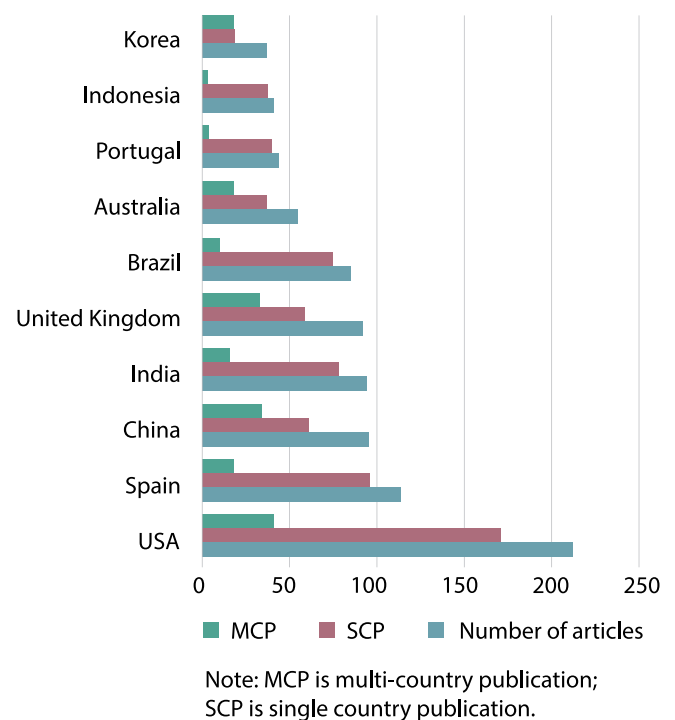


Fig. 3. Distribution of digital marketing studies according to authors' affiliation countries

Рис. 3. Распределение публикаций по цифровому маркетингу в соответствии со страновой аффилиацией авторов

When the graph is created for the field of data-driven marketing (Fig. 4), it is possible to say that China is at the forefront in the number of articles. The country is also in the lead in terms of SCP values, and it is seen that authors from countries such as Germany and Japan are only involved in SCP studies. When MCP values are analysed, China and the USA are at the forefront, while authors from Austria, Canada and Egypt collaborate with authors from other countries.

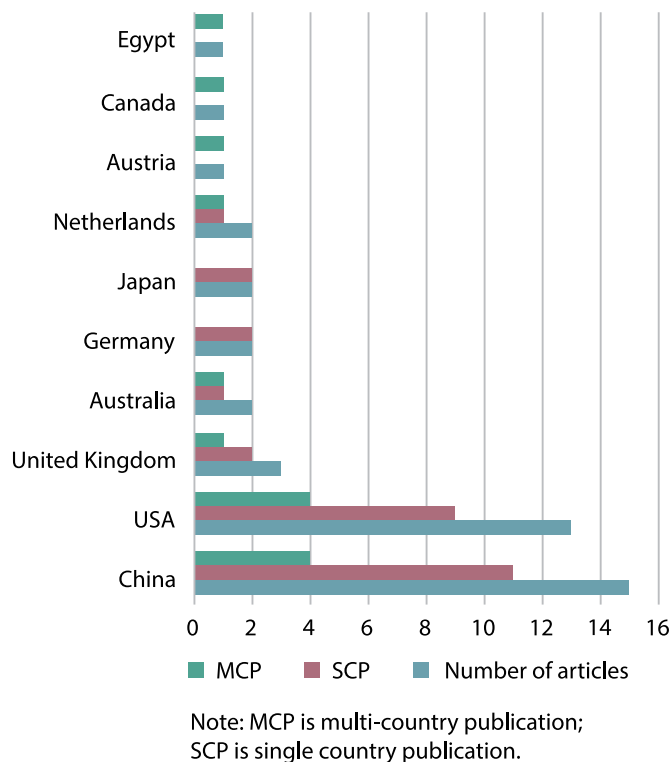


Fig. 4. Distribution of data-driven marketing studies according to authors' affiliation countries

Рис. 4. Распределение публикаций по маркетингу на основе данных в соответствии со страновой аффилиацией авторов

Keywords used in research are words that help determine the main subject and content of the study and provide a summary to readers. Keywords that stand out in the fields of digital marketing and data-driven marketing and frequently used in the specific literature are listed in Table 4. These keywords were chosen to highlight the scope and focus of the relevant study and generally reflect key concepts, approaches and findings in the research fields. In this context, the correct selection and use of keywords can help readers better understand the content of the study and gain information about its position in the relevant literature.

Examining keywords is an important method to identify prominent themes and focal points in digital marketing and data-driven marketing. In the field of digital marketing, it is seen that strategies based on data obtained from people in the consumer role of marketing come to the fore. In this context, the words such as "social media",

Table 4 – Keywords' occurrence in studies on digital marketing and data-driven marketing

Таблица 4 – Частотность ключевых слов в исследованиях по цифровому маркетингу и маркетингу на основе данных

Digital marketing		Data-driven marketing	
Keywords	n	Keywords	n
Impact	232	Management	9
Social media	186	Impact	6
Model	129	Information	6
Performance	88	Big data	5
Information	84	Performance	5
Word of mouth	81	Analytics	4
Behaviour	77	Internet	4
Management	74	Model	4
Online	72	Orientation	4
Technology	70	Strategy	4

"word of mouth" and "behaviour" are among the most frequently used and important terms in digital marketing literature. On the other hand, in the field of data-driven marketing, it is observed that more technical aspects of marketing come to the fore: the words such as "big data", "analytics" and "internet" are among the key concepts that emphasize data-driven marketing strategies and technological tools. These findings reveal that the fields of digital marketing and data-driven marketing have different priorities, and each of them has a unique emphasis. The frequency of these keywords in the literature reflects the importance of the relevant topics and the areas researchers focus on.

The four sections in the thematic map format, developed by Cobo et al. [2011] on the basis of cluster analysis and created according to the centrality (importance of the entire research area) and density (measure of the scientific development of the theme) of the keywords used in the studies, contain different themes. There are two options in the Bibliometrix program for the keywords to be examined in this analysis: Author's Keywords and Keywords Plus. The difference between these two options is seen in the study prepared by Zhang et al. [2015]. One of the findings obtained in this study is that the Keywords Plus option produces more comprehensive results than the Author's Keywords option and is more effective in defining the literature. For this reason, thematic map outputs were obtained by using the Keywords Plus option in our study.

The thematic map created for the digital marketing field is presented in Fig. 5, in which it is observed that:

- within the motor theme (upper right corner; guiding the main theme), the words "model", "information" and "word of mouth" are used with significant frequency. In addition, the words "impact", "social media" and "performance" stood out in the word group between the motor theme and main theme groups. These findings

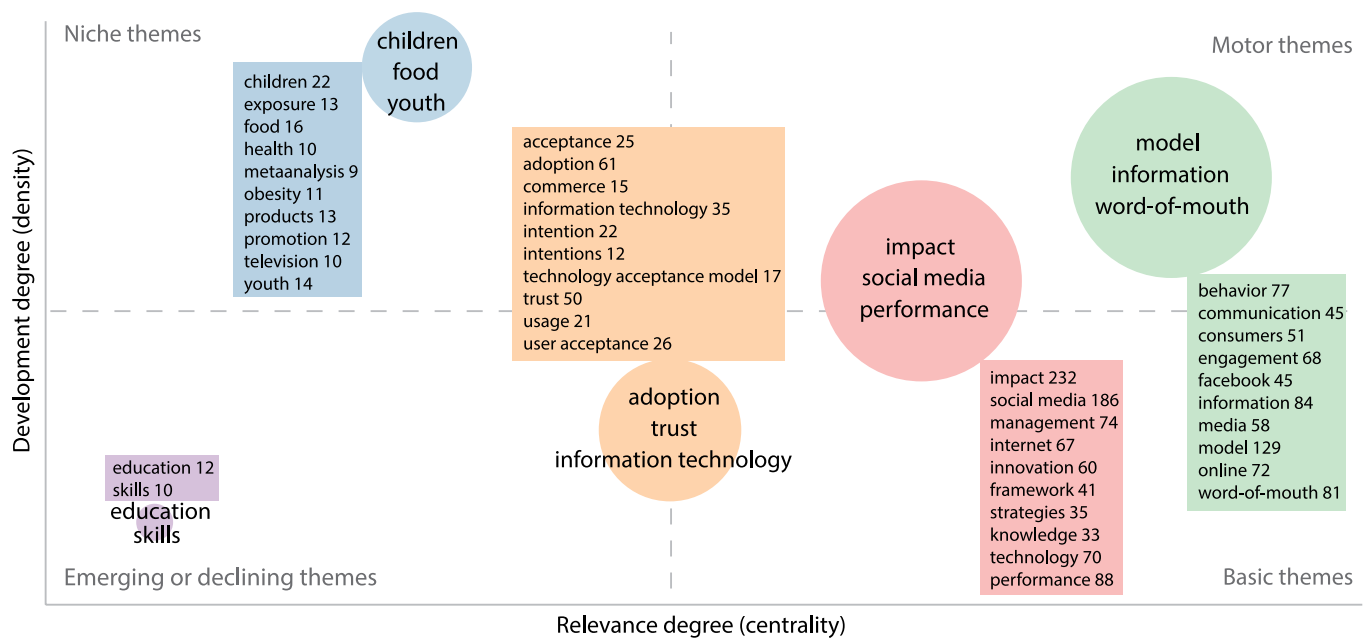


Fig. 5. Digital marketing thematic map

Рис. 5. Тематическая карта направления «цифровой маркетинг»

emphasize the importance of the words used in determining the key themes and subthemes in the analysed texts. The motor theme is one that usually determines and focuses on the main theme, and the frequent use of the words "model", "information" and "word of mouth" indicates that the main theme is shaped around these concepts. On the other hand, the words "impact", "social media" and "performance" in the group of words between the motor theme and main theme groups contribute to a deeper understanding of the analysis by reflecting the subheadings or focal points of the main theme. These findings show the diversity and importance of the themes and sub-themes contained in the texts;

- the terms such as "children", "food" and "youth" are prominently featured among the words in the niche theme (upper left corner; separated from the main theme, potentially open to development) and likely to fall into the niche theme. These words reflect the characteristics of the niche theme, referring to potential focal points in a particular field and potential directions for future research. In new studies to be carried out in this field, highlighting these words and examining them in depth may enable the niche theme to be discussed in more detail and specific subheadings to be discovered. In this context, analysing the niche theme and understanding its content is an important step in determining future research areas and thoroughly addressing niche topics;

- the frequency of the words such as "education" and "skill" in the decreasing theme (bottom left corner; moving away from the main theme) drops in works written within the scope of this theme. This finding indicates that the main concepts within the descending theme are now less prominent in a particular research field and that the focus in the relevant literature has changed. In particular, the decrease in the frequency of use of the terms "education"

and "skills" demonstrates that these topics are receiving less attention from researchers and academics and that the studies in these areas are declining in popularity. These findings highlight the importance of bibliometric analysis in determining the significance and relevance of a particular theme. In this context, examining the concepts within the descending theme is considered an important tool for monitoring developments and changes in a research field.

The thematic map created for the data-driven marketing field is presented in Fig. 6, where the following are observed:

- in the basic theme (lower right corner), the words such as "big data", "analytics" and "business" are frequently used and are central concepts that determine and focus on the main theme. These terms help to determine the main topics of the analysed texts and reflect the key components and focal points of the basic theme. These concepts play an important role in determining the core problems and solution approaches in this field by indicating the dynamics and interest base in the field of research. In this context, the frequent use of these words in the main theme shows that the topics of big data and analytics are central to the research literature and that there is intensive research activity in these areas;

- in the motor theme (upper right corner; driving the main theme), it is seen that various word groups are used together. The largest of these word groups covers the words "management", "impact" and "information". These terms stand out as key concepts in the motor theme and reflect important elements that indicate the main theme in the analysed texts. It is observed that marketing tools are included in the "media, social media and data-driven" group outside this word group. The last word group to be discussed in the engine theme consists of

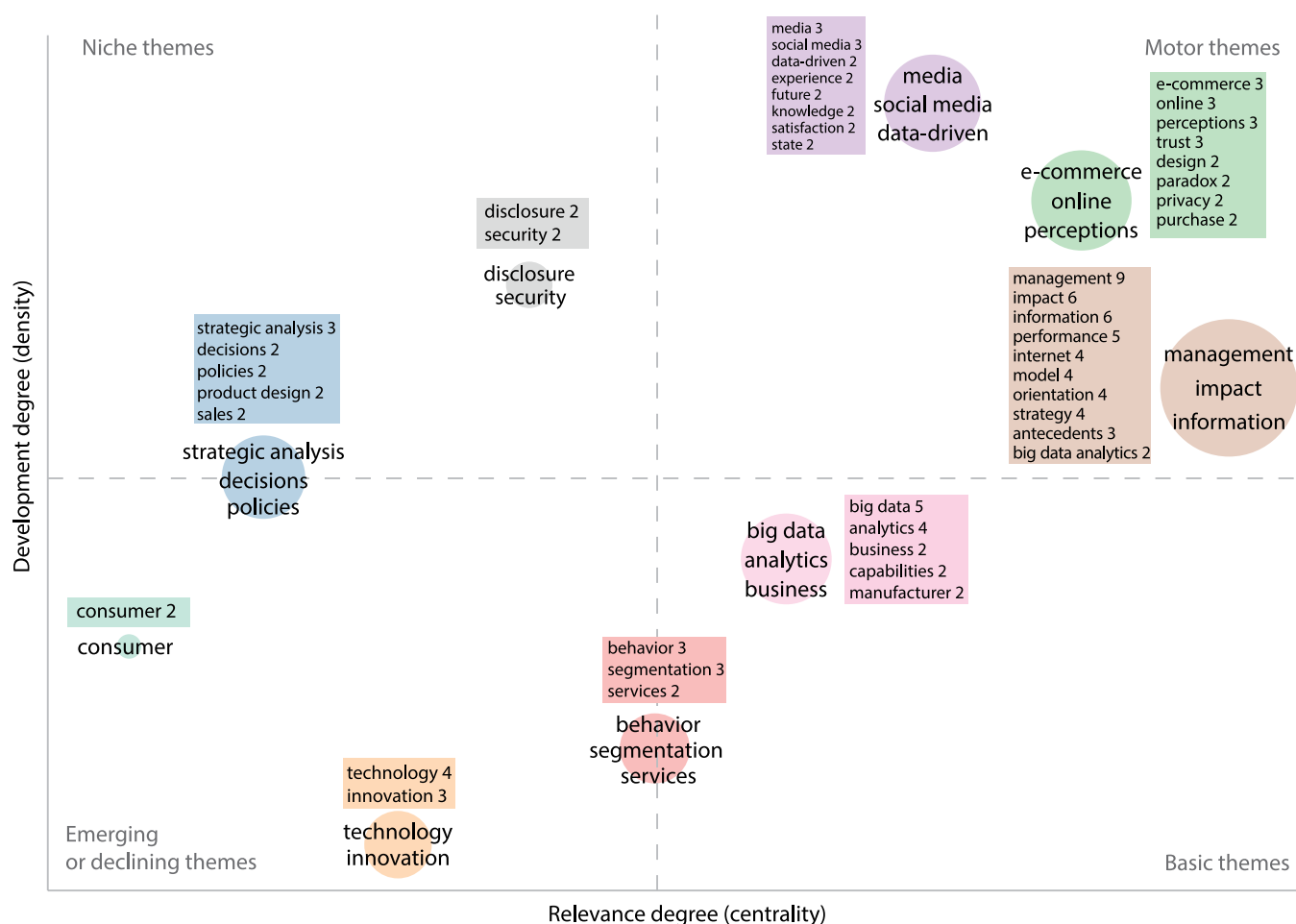


Fig. 6. Data-driven marketing thematic map

Рис. 6. Тематическая карта направления «маркетинг на основе данных»

the words "e-commerce", "online" and "perceptions". It has been observed that this group expresses the market areas preferred by the end user in terms of reaching the product in the marketing field;

- among the words that are included in the niche theme (upper left corner; isolated from the main theme, open to development) and likely to come to the fore in new studies to be written in this field are the words "disclosure" and "security". It can be expected that new studies to be conducted in the domain of security in particular will direct the field of data-driven marketing;
- there are two noteworthy word groups in the emerging or decreasing theme (lower left corner; moving away from the main theme). While the words "technology" and "innovation" are in the first group, the word "consumer" is on the other side. It can be said that these word groups are moving away from the main theme in the field of data-driven marketing and their frequency of use will decrease in new studies.

DISCUSSION AND CONCLUSION

In the study, we have conducted a bibliometric analysis to provide a starting point for many other studies in the field and also comprehend the relevant research gaps that exist in the field of digital marketing and data-driven marketing. The approach to the review was theoretical

and no primary data were collected. The article is original in that it examines the literature on related topics within the studies published in the Web of Science database on "digital marketing" and "data-driven marketing".

When the number of studies on digital marketing and data-driven marketing is examined, it has been determined that researchers show more interest in the former. Studies in the field of data-driven marketing are more limited. It requires knowledge of marketing principles and data analytics techniques. Since expertise in both fields is required, the number of researchers working on this subject is limited.

It has been determined that among the journals publishing the most in both fields are *Sustainability*, *Journal of Business Research*, and *Journal of Marketing Education*, and that these journals are the central journals that constitute core sources according to Bradford's law in both fields. When the most cited studies are examined, the one most cited in the field of digital marketing with 477 citations is "Closing the Marketing Capabilities Gap" published in the *Journal of Marketing* by George S. Day in 2011. The most cited study in the field of data-driven marketing is the study by Sheth and Kellstadt [2021] in the *Journal of Business Research*. When the most used keywords in the field of digital marketing are examined, it is seen that "social media", "word of mouth" and "behaviour", which

come from the data obtained from people who are in the consumer role of marketing, are at the forefront. As for the field of data-driven marketing, the words "big data", "analytics" and "internet", which are more on the technical side of marketing, are predominant. The results also showed that the USA is the country with the most studies on digital marketing, whereas China is the leading nation in terms of the number of data-driven marketing research.

When the thematic map is examined, it is seen that the words "model", "information" and "word-of-mouth" are frequently used as engine themes for digital marketing. In addition, it was observed that the words "impact", "social media" and "performance" were included in the word group between the motor theme and main theme groups. The words that are within the niche theme and are likely to come to the fore in new studies to be written in this field are the words "children", "food" and "youth".

In data-driven marketing, the words "management", "impact" and "information" were observed in the engine theme. The words that are likely to come to the fore in new studies to be written as a niche theme in this field include the words "disclosure" and "security". When we look

at the words that determine the main theme, the words "big data", "analytics" and "business" stand out.

The future importance of digital marketing and data-driven marketing lies in their ability to drive innovation, improve customer experiences and achieve business objectives in an increasingly digital and data-driven environment. As the world moves towards digitalization due to the COVID-19 pandemic, it has become even more important to take into account the developments in the field of digital marketing and data-driven marketing.

These concepts have the potential to allow interacting globally across geographical borders and enable businesses to reach global audiences with minimum effort. It can be predicted that studies in this field will develop further and these concepts will gain wider acceptance. These developments will be supported by technological advances as well as factors such as the deepening globalization process and the evolution of communication tools. In this context, while the ability of businesses to access and interact with global markets is expected to rise, the importance of research in this field will increase even more. ■

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Information about the authors**Tuğçe Acar Kara**

Dr., Technology Development Center. **Istanbul Aydin University**, Istanbul, Türkiye. E-mail: tugcekar@aydin.edu.tr

Ferhat Orman

PhD, Research Assistant of Finance and Banking Dept. **Istanbul Beykent University**, Istanbul, Türkiye. E-mail: ferhatorman@beykent.edu.tr

Информация об авторах**Акар Кара Тугче**

Dr., сотрудник Центра развития технологий. **Университет Айдын**, г. Стамбул, Турция. E-mail: tugcekar@aydin.edu.tr

Орман Ферхат

PhD, стажер-исследователь кафедры финансов и банковского дела. **Университет Бейкент**, г. Стамбул, Турция. E-mail: ferhatorman@beykent.edu.tr