**How do entrepreneurs perform digital marketing across the customer journey? A review and discussion of the main uses**

**Abstract**

The development and use of digital marketing strategies by entrepreneurs is a key element of success for innovative projects. Moreover, effective execution of marketing intervention in what is referred to as the digital customer journey is essential to achieving business success. Under this paradigm, the present study aims to identify the use of digital marketing activities by entrepreneurs in their projects at each phase of the customer journey. The research bridges a gap in in the existing literature, first by a systematic review of literature using the statistical approach known as Multiple Correspondence Analysis (MCA) under the homogeneity analysis of variance using alternating least squares (HOMALS) framework programmed in the R language. Based on the results of this analysis, 13 digital marketing techniques are identified along with their use across the five phases of the digital customer journey that are linked to technology transfer and adoption: awareness, engagement, conversion, loyalty, and advocacy. Furthermore, different applications of digital marketing techniques by entrepreneurs are discussed, and new applications for each phase are proposed. The results reveal that entrepreneurs lack knowledge about the customer journey, the use of the awareness phase, and the knowledge of Big Data tools to boost innovation. Finally, the main digital marketing strategies are appropriately classified for each phase of the customer journey, and 16 questions for future research in this research area are proposed.

**Keywords:** entrepreneurs, digital marketing, customer journey, Multiple Correspondence Analysis

**1. Introduction**

In recent years, technological development has led to dramatic changes in the marketing strategies (Killian and McManus, 2015). In particular, the Internet has become a key tool enabling new technologies to be applied and adapted to any type of product or service, as well as to communication and promotion strategies (Leeflang et al., 2014; Mazzucchelli et al., 2021). In this context, business models have been adapted to a new data-era in which digitalization strategies are configured as a fundamental pillar for the adoption of new technologies that influence key areas of firm behavior (Teruel et al., 2022).

In this evolving ecosystem, marketing innovation has emerged as a key variable for the success of Internet marketing campaigns—also known as digital marketing—both in established companies and in new entrepreneurial projects (Rosario and Cruz, 2019). In this evolutionary paradigm, digital marketing strategies have particular relevance in the business ecosystem due to the ease of measuring their profitability, adaptability to different industries, and ability to process large volumes of data that improve strategies over time (Saura et al., 2021; Teruel et al., 2022).

Overall, digital marketing is understood as the entirety of marketing strategies adapted to the digital ecosystem where digital platforms and social media become the fundamental axes for the development of these strategies (Wright et al., 2019). However, in the last decade, various problems associated with the use of the main digital marketing techniques in different sectors have been identified. For instance, Royle and Laing (2014) reported that, when it comes to applying digital marketing strategies, essential aspects are employees’ knowledge and the skills to successfully execute these techniques.

Similarly, Ratten and Rashid (2021) argued that digital marketing in entrepreneurship is a key factor for the success of new products and services. Furthermore, Rathee and Rajain (2017) concluded the combination of innovation with digital marketing and entrepreneurship ensures short- and long-term success of new projects.

It is important to emphasize that digital marketing strategies must address the basic and theoretical principles of traditional marketing itself (Armstrong et al., 2014). In other words, the development and implementation of digital marketing strategies through the use of digital tools that work on digital platforms or social networks are not sufficient to obtain a successful digital marketing strategy (Kotler and Pfoertsch, 2007).

Digital marketing strategies and usage should follow, both theoretically and practically, the principles of marketing adapted to the digital ecosystem exemplified by the so-called marketing funnel, digital customer path, or customer journey (Kartajaya et al., 2019). Customer journey in digital marketing is an analytical phase that describes and analyzes each of the steps that users develop in a digital ecosystem, understood as digital customer journey (Lemon and Verhoef, 2016). Previously, different authors classified and categorized some of the main uses and techniques of digital marketing (Rosenbaum et al., 2017) into several phases. However, unaddressed questions remain regarding digital marketing by entrepreneurs. These include: What strategies and uses of digital marketing have been researched in the academic literature on entrepreneurship and innovation? What are the main uses and techniques in each phase of the customer journey? Are appropriate uses of digital marketing based on these objectives? Are technology transfer and adoption drivers of these digital actions? Is users’ digital customer journey in entrepreneurial projects optimized and appropriately developed?

To date, these questions have not been addressed in the literature. Therefore, the aim of the present study is to bridge this gap in the previous research and to identify and classify the main uses and techniques of digital marketing used in entrepreneurship into categories of digital customer journey (Kartajaya et al., 2019) and digital marketing funnel (Kumar, 2013; Kannan, 2017), with a special focus on innovation. The following stages of digital customer journey are taken into account: (i) awareness; (ii) engagement; (iii) conversion; (iv) loyalty; and (v) advocacy.

The main research question (RQ) addressed in this study is as follows: What are the appropriate uses and techniques of innovative digital marketing in entrepreneurship to the main categories of digital customer journey? To answer this question, this study has the following objectives:

* To identify the main uses of innovative digital marketing in entrepreneurship
* To classify the main techniques of digital marketing in entrepreneurship in relation to the digital customer journey
* To create knowledge on the appropriate uses of digital marketing techniques for entrepreneurial projects based on innovation
* To provide future guidelines to track challenges in relation to digital marketing in entrepreneurship.
* To define and organize the uses of digital marketing around digital customer journey as previously investigated in the literature
* To discuss how technology transfer and adoption in digital customer journeys influence online user behavior in entrepreneurship projects

The main methodology used in the present study is a systematic literature review (SLR) of the main academic contributions made to date regarding digital marketing in entrepreneurship that will be classified around the five categories present in digital customer journey previously proposed by Kartajaya et al. (2019), Kumar (2013) and Kannan (2017). For data analysis, a Multiple Correspondence Analysis (Kaciak and Louviere, 1990) was developed using the homogeneity analysis of variance. This was done using the alternating least squares (HOMALS) theoretical framework developed in the programming language R (Nenadic and Greenacre, 2007). Finally, the results are discussed, and practical and theoretical implications of our results are discussed with respect to the use of digital marketing techniques in entrepreneurial projects.

**2. Theoretical framework**

*2.1. Mapping customer journey in digital environments*

In a study on the evolution of traditional marketing towards digital marketing, Kartajaya et al. (2019) proposed a model structure of the new customer journey through its main theoretical actors, which are defined as the Five A’s: awareness, appeal, ask, act, and advocate. The five A’s concern the different phases that users go through in digital environments until they make a conversion (purchase, download a file, submit a form, call, subscription, among other actions) and are also linked to digital customer journey in which the objectives of digital marketing strategies are related to the categories of awareness, engagement, conversion, loyalty, and advocacy (Kumar, 2013).

According to Kartajaya et al. (2019), in the first phase of the digital customer journey—i.e., (i) aware/awareness—customers are passively exposed to the impact of digital marketing strategies in which brands, through their communications, try to gain notoriety and awareness amongst potential users. Here users have no information about the brand through exposure to digital advertising. Moreover, at this point, users may recognize the brand based on past experiences or the recommendation of a friend or family member (Makrides et al., 2020).

In the next step (ii) appeal/engagement; customers process the information they are exposed to in digital ecosystems. In this way, short-term memory is created, which can be extended in the long term by continuing to impact users with digital advertising. At this step, users are attracted to brands and start building brand awareness. They may interact with the brand through social media or, if they identify with the brand, start sharing relevant content with friends or family (Scheinbaum et al., 2016).

In the next phase, which is (iii) ask/conversion, the relevance of actions to create curiosity is increased. This curiosity is elicited through the user’s feeling of discovery of a brand, product, or service, which makes them request information from friends and family to make a purchase or subscribe to a product (Chaffey and Patron, 2012). At this point, conversions are understood as any type of action that the company has set up for the user to contact them. In this phase, users might call friends, identify positive or negative product reviews, and compare prices. At the end of this phase users make or close a conversion, such as a subscription to or purchase of the product (Saleem et al., 2019).

In the next phase, which is (iv) act/loyalty, users re-inform themselves through the content that companies publish on their digital platforms. Here users might buy a particular brand and inform themselves in more detail about the product or service. According to Kumar (2013) and Kartajaya et al. (2019), at this stage, the product is purchased, so, in order to ensure that consumers repeat the purchase in the medium/long term, companies must correctly configure consumers’ loyalty actions.

In the final step, defined as (v) advocate/advocacy, companies, use digital marketing strategies to develop powerful campaigns to increase consumer loyalty towards the brand and the corresponding products and services. At this point, retention and repurchase are the main objectives of digital marketing strategies (Wilk et al., 2021). Recommendations to others and continued day-to-day use of the brand must be addressed to increase consumer loyalty and recommendation (Urban, 2004). Table 1 provides a summary the recommended actions according to the phases of the digital customer journey proposed by Kartajaya et al. (2019), Kumar (2013), and Kannan (2017).

Table 1. Main digital marketing actions in customer journey

|  |  |
| --- | --- |
| Customer journey | Main digital actions |
| Aware/Awareness | * Massive promotion of consumer exposure to the brand * Encouraging the creation of brand experiences through marketing communications * Learning about the brand through its presence in digital environments * Getting consumers exposed to products and services through digital advertising |
| Appeal/Engagement | * Implementing actions so that consumers process the messages launched in digital environments * Creating short-term memory of the brand’s products and services. * Making users feel attracted to the brand with content strategies and actions that increase brand awareness |
| Ask/Conversion | * Encouraging users to ask family and friends to make a purchase * Managing the digital reputation of products and services to ensure that customer interactions drive sales generation * Creating promotional strategies leveraging the brand’s position against competitors * Incentivizing purchase through digital communication strategies |
| Act/Loyalty | * Encouraging users to take action to make more than one purchase over time * Reinforcing online communication so that customers are re-engaged with the brand * Boosting brand-customer contact with post-sale digital strategies |
| Advocate/Advocacy | * Continuing to use digital marketing strategies to strengthen brand experience * Encouraging promotions to recommend the brand to family and friends * Developing digital actions that aim to maintain the relationship with the brand over time |

*2.2. Setting appropriate digital marketing strategies in entrepreneurship*

Giones and Brem (2017) and Harding et al. (2020) argued that one of the main problems in entrepreneurial projects to develop digital marketing strategies is to understand what objectives should be achieved. Overall, there is no solid awareness of the different typologies of digital marketing strategies that can be used to achieve specific objectives on digital platforms or social networks. In this respect, Pradhan et al. (2018) noted that this issue may be due to the lack of knowledge and necessary marketing skills for the development of strategies in digital environments.

While entrepreneurs try to develop digital marketing strategies to attract new customers (Järvinen and Karjaluoto, 2015), increase loyalty (Donnelly et al., 2015), or close sales (Figueiredo et al., 2019), these strategies will not be effective if they are developed at inappropriate times. Said differently, in the event that a customer is not yet a recurrent and loyal user of the brand, user loyalty will not emerge (Masínová and Svandová, 2014). Therefore, the analysis of user customer journey (formerly called digital customer journey) through its different phases is of vital importance in setting appropriate objectives for each of digital marketing action (Lemon and Verhoef, 2016). Furthermore, digital marketing strategies should be classified and categorized depending on the objectives for each of the phases.

In the entrepreneurship sector where innovation plays a crucial role to ensure the development of new entrepreneurial projects with added value and original products (Tumbas et al., 2018), digital marketers must adapt to these values and create an innovative and original philosophy, both in terms of advertising creativity and the tone or wording of the published content. In this way, innovative projects are considered those that apply the use of new technologies and adopt emerging technologies (Bhatnagar et al., 2022). If emerging technologies are adopted in entrepreneurial projects, the importance of the value of technology transfer is clearly identified. Therefore, entrepreneurs should also be focused on technology transfer as a way of enhancing innovativeness to create original products and services (Goel, 2022).

To improve their chances of to achieve success, entrepreneurs should order their actions according to the phases of the customer journey—first, through the creation of content that reinforces the brand, innovation, and creativity of digital marketing strategies. Table 2 provides a summary of major previous studies on the importance of digital customer journey for the success of digital marketing campaigns.

Table 2. Previous studies on the importance of digital marketing and customer journey

|  |  |
| --- | --- |
| Authors | Description |
| Lemon and Verhoef (2016) | This study investigated different phases of customer journey to improve user experience to increase conversions. The authors proposed an optimized multichannel customer journey where digital technologies are the key to optimizing customer behavior |
| Micheaux and Bosio (2019) | Highlighted the importance of measuring the actions occurring during customer journey of digital marketing strategies. Based on the results, the authors proposed different approaches focused on data analysis to extract practical knowledge from each of the phases of the customer journey and thus improve the effectiveness of the company's products and services. |
| de Ruyter et al. (2018) | This study highlights the importance of analyzing different user touchpoints with the phases of the digital customer journey. Techniques are defined to increase engagement and improve the ability to obtain sales with digital marketing. |
| Saura et al. (2021a) | Explores the influence of artificial intelligence in relation to the customer journey of B2B companies. Different digital marketing strategies linked to CRMs and user experience and behavior on digital platforms are developed. |
| Vollrath and Villegas (2021) | Analyzes different phases of customer journey to increase trust in the relationship between companies and users. The authors also define and analyze different applications and tools to optimize customer journey. |

**3. Methodology**

To answer the research question addressed in the present study, we used the following two methodological approaches. First, we conducted a systematic literature review to identify the main contributions published to date in our field of research. Second, MCA was used under the theoretical framework known as HOMALS. The second approach was used to visualize the results of the systematic review and to identify the importance of each of the uses and techniques of digital customer journey. The analysis was done in the R language.

*3.1. Systematic literature review*

Following Xiao and Watson (2019), we conducted a systematic literature review to analyze the main academic contributions published to date in relation to digital marketing and entrepreneurial projects. As argued by Bhimani et al. (2019), literature review is an effective methodology to identify emerging issues that help to better understand a field of study.

Systematic literature reviews are usually conducted to theorize concepts and identify new linkages between existing concepts (Ahmed et al., 2019). However, several previous studies proposed conducting systematic literature reviews to explore emerging issues (Abed et al., 2015; Drus and Khalid, 2019). In the present study, the systematic literature review was divided into the following steps.

First, we established the theoretical foundations linked to the main digital marketing techniques and their relationship with users’ on-line customer journey. To this end, as argued by Arrigo (2018), the concepts that structure the subject matter of the research should be coherently presented. Focusing on the different theoretical approaches concerning how users establish on-line purchasing processes, the main contributions published to date were identified to consolidate theory to supports our research objectives.

Second, following Sarka and Ipsen (2017), we systematically examined previously published studies that directly or indirectly defined the use of digital marketing strategies and innovative techniques in entrepreneurial projects. Third, the main findings of the literature review were highlighted and discussed; at this stage, concepts were visualized and explained to theorize future research questions in which PRISMA related criteria were also tested consulted (Rehman et al., 2020).

For the specific process of developing our methodology, different search terms were first selected for subsequent search in academic databases. Once the data were collected, irrelevant results were eliminated. The terms that were relevant for the main uses and techniques of digital marketing techniques in entrepreneurial projects were classified and studied in depth. During data collection, we focused only on original articles and reviews indexed in the selected databases. Proceedings, books, and book chapters were not included in this process.

As stated above, we were interested in academic publications. Accordingly, following Saura et al. (2021a), the following databases were used for the searchers: ACM Digital Library, AIS Electronic Library, IEEE Explore, ScienceDirect, and Web of Sciences. The search terms were "Digital Marketing" OR "Online Marketing" AND "Entrepreneurship" OR "Entrepreneur" AND "Innovation" OR "Innovative". The queries were carried out on November 21, 2021.

To identify potentially suitable articles, we focused on publications that discuss the uses and techniques of digital marketing in entrepreneurial projects that consider innovation. The different analyses and methodologies used in the reviewed studies were not taken into account. However, in order to increase the quality of the results, a risk bias analysis was performed (see the Results section for further detail).

Subsequently, the articles were included in our dataset based on the definitions, concepts, and development of the objectives proposed in their content (Arrigo, 2018). Any publications that contained inappropriate terms or did not correspond to our research objectives were not included. In addition, the papers where no quality assessment was performed or that did not contain specific descriptions were eliminated (Parris and Peachey, 2013). Figure 1 provides in results a graphical representation of the steps taken during our data collection process.

*3.2. Multiple correspondence analysis developed in R*

To statistically analyze the results, an MCA was developed using the R programming language. This open-source programming language has been widely used in the last decade due to its adaptability and relevance for various types of statistical analysis (Hothorn and Everitt, 2006).

For instance, Cao et al. (2013) argued that the use of methodological approaches that translate visual graphical data can boost computer statistical representation. Similarly, Nenadic and Greenacre (2007) noted that R can be effectively used to identify patterns and perform quantitative analysis.

Accordingly, using the R language, we first graphically represented the different categories and variables identified in the database. In this way, we identified categorical variables linked to each of the digital marketing techniques and uses.

In general, MCA is used to group individual variables together by identifying the main associations between them. This makes it possible to compute and visually represent the relationships between the variables in a sample. Therefore, when categorical variables are identified, individual variables are linked by understanding the approximation between categorical variables and individualized variables in the analyzed database.

Following Greenacre and Blasius (2006), this type of analysis can identify the main components of a topic in which qualitative and categorical variables are identified instead of quantitative variables. In this way, different relationships between variables in a sample can be explored to establish future indicators or empirical constructs for statistical models.

To improve the analysis, we used the conceptual framework of homogeneity analysis of variance employing alternating least squares known as HOMALS analysis (Gonzalez-Loureiro et al., 2015; Kaciak and Louviere, 1990; Kiessling et al., 2019). HOMALS enables the definition of a value of "1" to be entered when a keyword is found in relation to a subject (in our study, studies found in the literature), and the value "0" otherwise (see also Saura et al., 2021b). In this way, the relationship between these two values is represented and understood in terms of distance that measures the relevance of the subject linked to the categorical variable.

To develop MCA studio in R, we ran chi-square, p-value, variance, % of the variance and cumulative percentage of variance analyses (Ihaka and Gentleman, 1996). Chi-square is a statistical analysis used to test whether there is statistical significance between an expected distribution and the actual distribution. Variance, which is a squared deviation of a variable from its mean, measures the terms of the spread of random data in a set from its mean or median value (Soetaert et al., 2010). According to Saura et al. (2021b), the percentage of variance and cumulative percentage of variance measure the accumulative percentage of the cumulative input parameters in the database. Finally, *p*-value is the probability that, when the null hypothesis is true, the statistical summary is equal to or greater than the actual observed results; in HOMALS analysis, it is used to test accuracy of the display of variables included in the MCA and HOMALS study (Gonzalez-Loureiro et al., 2015; Kiessling et al., 2019; Saura et al, 2021b).

**4. Analysis of results**

*4.1. Systematic literature review results*

As mentioned previously, the present study is database-oriented. The databases where we ran our searches are major academic databases containing research publications in the categories of digital marketing, information science and innovation.

The results of our database searches were as follows. In ACM Digital Library, we identified a total of 16 results, of which 3 were included in the study; in AIS Electronic Library, we found 7 results, of which 1 was selected for further analysis. In IEEE Explore, we identified a total of 5 studies, of which 1 was included in the research. In ScienceDirect, a total of 196 studies were collected, of which 12 were included in the final dataset. Finally, in Web of Sciences, we found a total of 236 results, of which 16 were included in the study. Therefore, the final sample contained a total of 33 articles.

As concerns inclusion criteria used in the present study, after searching in databases, the corresponding articles (*n*=460) were first reviewed regarding whether or not they contained inappropriate or non-inclusive terms. Based on this criterion, a total of 254 articles were eliminated from the sample, while 206 articles potentially suitable for inclusion in the study were retained. We then closely inspected the full texts of the articles regarding whether their objectives were relevant, directly and indirectly, to the objective of our study; we also evaluated the research category, quality assessment, and specific descriptions of the elements analyzed in each study. Based on the results of this screening process, a total of 173 articles were eliminated (see Figure 1).

Figure 1. Systematic literature review process and articles included in the final sample

Diagram

Description automatically generated

Accordingly, the final sample was reduced to a total of 33 articles. Table 3 provides further detail on the authors, category, publishing journals, as well as a brief description of their research purposes.

Table 3. Articles identified in the systematic literature review

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Authors | Journal | Category | Main concepts analyzed | Purpose |
| Giones and Brem (2017) | *Technology Innovation Management Review* | Technology, Innovation, Management | Digital entrepreneurship, technology, technology Innovation, digital strategies | * To study the main strategies developed by entrepreneurs for digitalization of their companies * To identify digital technologies and tools for online development of entrepreneurial strategies |
| Pattinson (2016) | *International Journal of Business Environment* | Business, Management | Digital marketing, innovation, entrepreneurial marketing | * To investigate the use of e-marketing and collaborative information platforms * To discuss their correct development in entrepreneurship |
| Dong (2019) | *Technological Forecasting and Social Change* | Management | Digital entrepreneurship, Innovation, Digital Driven Marketing | * To transform start-ups and their digital strategies * To explore data-driven strategies to improve development and performance in digital environments |
| Jafari-Sadeghi et al (2021) | *Journal of Business Research* | Business | Technology entrepreneurship, digital strategies, marketing research, online environments | * To create value through the study of technology entrepreneurship and technological market expansion * To develop digital strategies to improve the marketing of business projects. |
| Chen (2018) | *Business Horizons* | Business | Blockchain, Crowdfunding strategies, Open innovation, digital environments | * To explore a new way to raise funds and engage stakeholders online * To study innovation by giving innovators a new way to develop, deploy, and diffuse decentralized digital tools and applications |
| Millman and El-Gohary (2012) | *International Journal of Online Marketing* | Online Marketing, Business | New media communication, knowledge innovation, digital marketing strategies | * To explore the main digital marketing strategies developed in digital media * To identify new forms of innovation in digital marketing |
| Cooke (2017) | *European Planning Studies* | Business, Management | innovative systems, entrepreneurial strategies, digital marketing | * To investigate entrepreneurs’ skills in the digital sector * To explore data-oriented strategies in digital environments |
| Dwivedi et al. (2021) | *International Journal of Information Management* | Information Sciences | Digital marketing, social media marketing, data-driven strategies, innovative marketing | * To analyze how customers engage in their behaviors and customer journeys * To review ethical practices in relation to artificial intelligence in digital marketing * To analyze digital marketing strategies linked to Electronic Word-of-Mouth (e-WOM) |
| Nambisan et al. (2019) | *Research Policy* | Business, Innovation | Digital transformation, Innovation, Digital entrepreneurship | * To explore how the main digital technologies have driven the development of online strategies in entrepreneurship. * To analyze digital techniques used to enhance entrepreneurship in digital environments |
| Scuotto et al. (2017) | *The Journal of Technology Transfer volume* | Technology, Management | Social media, digital entrepreneurship, social media marketing | * To explore the adoption of social media marketing tools by entrepreneurs * To investigate how to create knowledge using new technologies in entrepreneurship |
| Mariani and Nambisan (2021) | *Technological Forecasting and Social Change* | Management | Big data analytics, Online review platforms, Digital innovation | * To develop a typology of online review analysis * To explore key innovation techniques with data-driven techniques. |
| Nylén et al. (2019) | *Information Technology and People* | Information Systems | Innovative entreprenership, digital strategies, digital innovation | * To investigate new forms of innovation in a traditional market * To study entrepreneurship with the website development and digital optimization |
| Boeker et al. (2021) | *Journal of Business Research* | Business | Digital Knowledge, Innovativeness, digital strategies, online entrepreneurship | * To identify techniques for the creation of knowledge in digital environments * To study the use of information technology systems techniques to improve decision-making in digital marketing for entrepreneurial projects |
| Drummond et al. (2020) | *European Journal of Marketing* | Maketing, Business | Digital Engagement, Facebook, Twitter, Social Ads, Social Media Marketing | * To propose a model for the study of collective intelligence in digital entrepreneurship * To identify techniques for promoting entrepreneurs in digital environments and the technologies linked to their use |
| Elia et al. (2020) | *Technological Forecasting and Social Change* | Management | Collective intelligence, Digital entrepreneurship, Digital technologies | * To propose a model for the study of collective intelligence in digital entrepreneurship * To identify techniques for promoting entrepreneurs in digital environments and the technologies linked to their use |
| Zaheer et al. (2019) | *Technological Forecasting and Social Change* | Management | Digital entrepreneurship, Digital start-up, Online start-ups | * To analyze data-driven digital strategies in start-ups * To redefine key factors for marketing and communication strategies in a digital environment |
| Secundo et al. (2020) | *International Journal of Entrepreneurial Behavior & Research* | Business, Management | Social Media Marketing, Digital Entrepreneurship, Online Marketing | * To analyze online marketing strategies developed by entrepreneurs in social networks * To identify the main entrepreneurial marketing actions in digital ecosystems |
| Zhao et al. (2021) | *Journal of Small Business and Enterprise Development* |  | Digital entrepreneurship, digital marketing, social media marketing | * To explore social media interactions of entrepreneurial projects in digital environments * To develop and analyze actions to increase engagement on social networks |
| Xie et al. (2020) | *IEEE Access* | Computer Sciences | Online reputation, digital strategies, digital business penetration | * To develop a model to increase attendance in digital and social media environments * To investigate the main entrepreneurial business models and their development in digital environments |
| Spradling et al. (2014) | *Journal of Computing Sciences in Colleges* | Computer Sciences | Marketing communication, adoption of technological tools, digital ecosystem | * To explore the adoption of a technological application in a marketing and communication agency * To analyze the main indicators to improve digital communication and teamwork |
| Huang et al. (2017) | *Management Information Systems Quarterly* | Information Systems, Management | Mobile applications, digital communications, startups | * To investigate the functioning of a mobile application and communications through the Internet to increase investments * To identify strategies to develop digital marketing strategies in different markets |
| Chen et al. (2005) | *Journal of Information Technology Theory and Application* | Information Systems, Management | Digital marketing communication, digital competition, digital tools | * To develop strategies to improve decision-making in digital environments * To propose the analysis and communications models in the digital economy and entrepreneurship industry |
| Bharadwaj et al. (2013) | *Management Information Systems Quarterly* | Information Systems, Management | Digital business strategy, liderazgo digital, digital strategy, digital marketing | * To explore the main opportunities and challenges for project development in the digital environment * To study the main digital strategies in the online strategy |
| Saura (2021) | *Journal of Innovation & Knowledge* | Business, Management | Data Sciences, Digital Marketing, Knowledge discovery, social media marketing | * To identify the main digital marketing strategies influenced by data science * To define digital marketing techniques according to the business model * To discuss user privacy in digital environments |
| Verdugo and Villarroel (2021) | *Heliyon* | Multidisciplinary | Social media, Entrepreneurship drivers, Online learning, | * To explore the impact of sustainability and innovation on the development of entrepreneurial projects in the digital ecosystem * To develop and define the uses of social media marketing techniques |
| Cavallo et al. (2021) | *Technovation* | Management | Open innovation, Digital platform, Online strategy | * To explore the impact of the use of digital technologies for team organization * To review new digital technologies to improve institutional communication |
| Nosova et al. (2021) | *Procedia Computer Science* | Computer Sciences | Digital transformation, Digital economy, online strategies | * To analyze the impact of the use of new technologies to promote entrepreneurial projects * To identify the uses of artificial intelligence in digital strategies |
| Laurell et al. (2021) | *Technological Forecasting and Social Change* | Management | Crowdfunding, Sustainability, Social media analytics, digital marketing strategies | * To explore the impact of the perception of sustainability on the development of social media marketing strategies * To explore the main digital marketing strategies related to social marketing |
| Cao et al. (2021) | *Journal of Business Research* | Business | Social media engagement, online behaviour, content marketing, users’ contribution | * To analyze user behavior in social media * To evaluate trustworthiness of digital marketing content as perceived by users |
| Saura et al. (2021) | *Journal of Business Research* | Business | Ethical design, Social media, User behavior modification, Performance measurements | * To develop strategies and indicators related to social media marketing. * To explore user behavior in social media * To develop strategies to generate digital marketing content that respects user privacy |
| Krings et al. (2021) | *Industrial Marketing Management* | Business | Digital media, digital performance, digital media strategies | * To propose a holistic framework to examine, identify, and arrange digital media communications and marketing |
| Palos-Sanchez et al. (2019) | *Journal of Business Research* | Business | Programmatic advertising, Privacy concern, digital marketing, social media marketing | * To gain a better understanding of programmatic advertising and similar digital marketing technologies * To discuss privacy in digital marketing and social media strategies |
| Ribeiro-Navarrete et al. (2021) | *Technological Forecasting and Social Change* | Management | Estrategias digitales basadas en datos, marketing digital aplicado, tecnologías de geolocalización | * To develop digital marketing strategies in a data-based era * To identify content development techniques and monitoring digital user behavior |

According to Saura et al. (2021b), in order to increase the quality of the systematic review process and to reduce risk bias, the following variables were considered for the classification of the research that forms part of the study. Regarding study design, we evaluated whether the structure and design of the each study was valid from a scientific point of view. With regard to random sequence generation, we identified the sample selection process and the participants in each study. As concerns blinding of outcome assessment, we checked whether the study reported specific results or made generalizations that can be considered anonymous in relation to the participants. Furthermore, as concerns withdrawl and drop out, we inspected each paper for systematic elements of the sampling process and methodology development. In inclusion-exclusion criteria, we identified whether the study explicitly explained the main reasons for the exclusion of selection criteria in the sample. Finally, with regard to reporting adverse events, we checked whether the selected studies indicated important limitations of the study and its contributions. Table 4 summarizes the results of our risk bias assessment.

Table 4. Risk bias of the articles included in the literature review

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Authors | Study design | Random sequence generation | Blinding of  outcome assessment | Withdraw and  drop out | Inclusion-exclusion criteria | Reporting adverse event |
| Giones and Brem (2017) | + | - | - | - | ? | - |
| Pattinson (2016) | + | + | ? | ? | ? | - |
| Dong (2019) | + | - | ? | - | ? | - |
| Jafari-Sadeghi et al (2021) | + | + | + | ? | + | + |
| Chen (2028) | + | + | ? | + | + | + |
| Millman and El-Gohary (2012) | + | + | ? | ? | ? | - |
| Cooke (2017) | + | - | ? | - | ? | ? |
| Dwivedi et al. (2021) | + | + | + | + | + | + |
| Nambisan et al. (2019) | ? | ? | - | - | ? | - |
| Scuotto et al. (2017) | + | + | ? | + | + | ? |
| Mariani and Nambisan (2021) | + | ? | + | + | + | + |
| Nylén et al. (2019) | + | + | ? | ? | - | + |
| Boeker et al. (2021) | + | + | + | + | + | ? |
| Drummond et al. (2020) | + | + | ? | ? | + | ? |
| Elia et al. (2020) | + | ? | ? | - | ? | - |
| Zaheer et al. (2019) | ? | + | + | + | - | ? |
| Secundo et al. (2020) | + | ? | ? | + | + | + |
| Zhao et al. (2021) | ? | ? | - | + | + | ? |
| Xie et al. (2020) | + | + | ? | + | + | + |
| Spradling et al. (2014) | ? | - | ? | - | ? | - |
| Huang et al. (2017) | + | + | - | ? | - | ? |
| Chen et al. (2005) | + | - | - | ? | + | + |
| Bharadwaj et al. (2013) | ? | ? | ? | - | ? | ? |
| Saura (2021) | + | ? | ? | + | + | + |
| Verdugo and Villarroel (2021) | + | + | ? | + | + | ? |
| Cavallo et al. (2021) | - | ? | ? | + | - | - |
| Nosova et al. (2021) | + | + | + | + | + | + |
| Laurell et al. (2021) | ? | ? | - | - | ? | + |
| Cao et al. (2021) | + | + | ? | ? | + | + |
| Saura et al. (2021) | + | + | ? | ? | + | ? |
| Krings et al. (2021) | + | + | ? | + | ? | + |
| Palos-Sanchez et al. (2019) | + | + | + | + | + | + |
| Ribeiro-Navarrete et al. (2021) | + | + | ? | ? | + | + |

*4.2. Multiple correspondence analysis (MCA) results*

To analyze the results of MCA supported by HOMALS, we used Katiak and Louviere (1990), Gonzalez-Loureiro et al. (2015) and Kiessling et al. (2019) as a reference. As discussed previously, HOMALS is a methodological approach that builds a visual matrix from the analysis of the data and thus makes it possible to understand the relevance of variables included in the study (Furrer et al., 2008; Hoffman and De Leeuw, 1992; Hoffman and Franke, 1986).

In this way, HOMALS creates dimensional maps with keywords visually representing the sample. These keywords appear in a matrix, with distance among the nodes representing associations and linkages among the corresponding variables (Furrer et al., 2008). In the literature, MCA is used with different technologies and software such as SPSS; in the present study, we used HOMALS as a theoretical framework, which justifies conducting an exploratory statistical analysis of the variables and indicators that form part of the sample adding originality and creativity to the application of this approach to the present study.

With this design, we were able to analyze the distance among the variables and the existing link with the subject of study (Gonzalez-Loureiro et al., 2015; Kiessling et al., 2019). As argued by Saura et al. (2021a), such pairs will have been associated jointly in a relevant portion of articles. If variables separated by distance are represented in the graphs, it means there is no link between them (Hoffman and De Leeuw, 1992).

Therefore, as noted by Hoffman and Franke (1986) and Saura et al. (2021a), gaps can be identified by creating clusters of variables from a literature review study, because the variables that are outside a multivariate cluster can be visually understood. For the development of the MCA study, researchers must establish categorical variables coded from the articles in the systematic literature review. These variables are structured as groups of keywords that form multivariate word clusters in the visual representation.

In the present study, a total of 5 multi-variables corresponding to the phases of the customer journey in digital marketing were coded. In addition, we identified 13 independent variables corresponding to the uses and techniques of digital marketing. These variables included: Mobile Apps, representing smartphone strategies related to digital marketing; CRM, related to the use of data analysis techniques through dashboards to improve or boost sales; Social Media Marketing, related to the use of social ad strategies in social networks; SEM, meant for the development of strategies related to the promotion of search results in search engines or sponsored content; Cloud, i.e., a service that supports digital marketing campaigns in which data is processed, collected and compiled; Big Data Analytics, needed for the use of data-centric techniques for the development of digital marketing techniques; Digital Platforms, needed for the creation of digital platforms that are at the center of digital marketing strategies; Reviews Management, involved in review and digital reputation management strategies on the Internet; Customer Experience, meant for the optimization of user experience and the analysis of user behavior in digital environments; SEO, necessary for the development of positioning strategies in different search engines; Customer Journey, related to the study and optimization of customer journey as part of digital marketing uses; Programmatic Advertising, which involves the use of programmatic advertising techniques as part of digital marketing strategies and, finally, Email Marketing, a technique for promotion and sales in digital marketing.

While there are more techniques and uses of digital marketing, in the reviewed studies, only these 13 independent variables related to techniques and uses of digital marketing in entrepreneurial projects focused on innovative development were identified. The remaining variables corresponded to the 33 studies included in the sample. We classified the content of the variables by entering 1 in the database for the identification of a variable, and 0 otherwise.

In this way, when developing the MCA with R, the distances and weights of each of the variables individually and concerning the multi-variables (Awareness, Engagement, Conversion, Loyalty and Advocacy) were visually represented. The variables were then measured using the indicators of chi-square, p-value, variance, % of the variance and cumulative percentage of variance. MCA results indicated that the chi-square of independence between the two variables was equal to 294.354, and the result for *ρ*-value is 1, meaning that the result of chi-square is greater than the critical value calculated from df = (row− 1) (colum− 1) degrees and p = 1. The associations among the variables are shown in in Figures 1 and 2. The eigenvalues indicators corresponding to variance, percentage of variance, and the cumulative percentage of variance can be seen in Tables 5 and 6 (see also Saura et al., 2021a). Annex 1 provides further detail on all variables and dimension performance (Gonzalez-Loureiro et al., 2015).

Table 5. Eigenvalues dimensions 1 to 10

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| R\* | Dim.1 | Dim.2 | Dim.3 | Dim.4 | Dim.5 | Dim.6 | Dim.7 | Dim.8 | Dim.9 |
| 1 | 0.243 | 0.170 | 0.156 | 0.114 | 0.099 | 0.089 | 0.082 | 0.064 | 0.048 |
| 2 | 20.076 | 14.001 | 12.859 | 9.409 | 8.189 | 7.372 | 6.797 | 5.255 | 3.959 |
| 3 | 20.076 | 34.077 | 46.936 | 56.345 | 64.534 | 71.906 | 78.703 | 83.958 | 87.917 |

R1 = Variance, R2 = percentage of variance, R3 = cumulative percentage of variance.

Table 6. Eigenvalues dimensions 9 to 18

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| R\* | Dim.10 | Dim.11 | Dim.12 | Dim.13 | Dim.14 | Dim.15 | Dim.16 | Dim.17 | Dim.18 |
| 1 | 0.039 | 0.031 | 0.026 | 0.019 | 0.017 | 0.010 | 0.005 | 0.002 | 0.000 |
| 2 | 3.198 | 2.563 | 2.133 | 1.548 | 1.364 | 0.866 | 0.413 | 0.073 | 0.000 |
| 3 | 91.115 | 93.677 | 95.810 | 97.358 | 98.721 | 99.587 | 100.000 | 100.000 | 87.917 |

R1 = Variance, R2 = percentage of variance, R3 = cumulative percentage of variance.

As mentioned above, in the visual representation, keywords are close to each other based on their proximity and belongingness to the same category. If they are in the same space within the X- and Y-axis dimensions, it means that these variables are clustered around these outcomes. If the variables are close to each other, it means that their relationship is more robust.

The distance from the origin reflects the "average" response to the pattern computed in R (Saura et al., 2021st). This pattern responds to the average indicators that correspond to the frequency of the analyzed categories. Thus, the variables that appear in the graphs correspond to the characteristics established based on the beginning of the origin of the representation. In contrast, the keywords that move away from the origin have a single characteristic that can be linked to other variables.

Figure 2 shows the eigenvalues / variances results related to the biplot of individuals and variable categories represented in two dimensions (see also Saura et al., 2021b). Dimension 1 accounted for 20,08% of total variance in the sample, while Dimension 2 accounted for 14.00% of the total variance. The cos2 measures the percentage of distance to the central mean of the graphical representation between 0 and 0.8 points. In addition, the axes in Figure 3 represent the center of the correlations of the analyzed variables.

Figure 2. Biplot of individual and variable categories using MAC and HOMALS analysis with R

A picture containing chart

Description automatically generated

Source: the authors

As can be seen in Figure 2, we identified five clusters made up of the variables that determine the customer journey in digital marketing for entrepreneurial projects. As can be seen in the figure, there is a gap in cluster number 1 (awareness), as it has not been possible to statistically link any of the techniques and uses of digital marketing strategies to this action within customer journey.

Concerning the second step, the engagement cluster consists of techniques and actions developed in relation to social media marketing and digital platforms. Likewise, the third cluster corresponds to conversion, which includes techniques related to SEO, SEM, and programmatic advertising.

As for loyalty, the corresponding cluster includes customer journey optimization as a technique to increase conversions, as well as customer experience optimization, together with e-mail marketing strategies and mobile application optimization. The last cluster, which corresponds to advocacy, is made up of the variables cloud technologies, CRM, and reviews management. Of note, although in the space corresponding to the X and Y axes occupied by the engagement cluster, Big Data analytics strategies did not achieve sufficient relevance to form part of a cluster in the analyzed database.

On the other hand, Figure 4 shows the symmetric plot of individuals and variable categories used to understand the variations of the strong patterns in the dataset. Here, small differences can be understood in relation to the categorical variables and the clusters they form. In this case, Dimension 1 accounts for 20.08% of the total variance in the sample, while Dimension 2 accounts for 14.00%. The cos2 is represented as in Figure 3 by determining the percentage of distance to the center of the X and Y axes. Figure 4 also represents the set of variables represented in the database, including the points where the authors' research selected for the study is represented because of its relevance to the studied variables.

Figure 3. Symmetric plot of individuals and variable categories

Chart, scatter chart

Description automatically generated

Source: the authors

Figure 3 shows the independent variables (in red) related to customer journey in entrepreneurial digital marketing. The blue represent different studies that form part of the research and their links to the axes that form the clusters. Of note, although there were studies that highlighted the influence of digital marketing strategies in relation to awareness, their statistical link with the rest of the digital marketing strategies in relation to the customer journey was not relevant. In other words, our analysis did not suggest that the strategies used or analyzed in the contributions selected for the study were sufficiently valid to be linked to a digital marketing strategy as compared to the remaining strategies used in the different phases of the customer journey.

That is, when comparing the combined uses of all studies in the sample, the phase not linked to the remaining entrepreneurial digital marketing actions is awareness, although it is mentioned in the academic contributions analyzed, no specific strategies are defined or its linkage and statistical comparison with the rest of the contributions are lower than the clusters identified in Figure 3.

**Discussion**

Over the last decade, entrepreneurial digital marketing has been studied from different theoretical and practical perspectives (Hull et al., 2007). Similarly, innovation has also been the subject of extensive research (Kraus et al., 2019). The overall conclusion made in previous research was that understanding customer journey in digital marketing is essential for the success of marketing strategies (e.g., Lemon and Verhoef, 2016).

For the entrepreneurial ecosystem and projects focused on innovation, it is important to develop relevant digital marketing strategies appropriate for each of the phases of customer journey in which a customer encounters a company in digital ecosystems. However, as demonstrated by our results, there are significant discrepancies in the use and effectiveness of digital marketing techniques in entrepreneurial projects. Moreover, innovation is predominantly linked not to digital marketing techniques, but to changes in business models and the use of technologies, without specifying how innovation is adapted or perceived through digital marketing techniques.

According to Alamsyah et al. (2021), digital marketing strategies to be carried out in the awareness phase are those related to attracting new customers and those that can ensure that the brand is remembered and recognized. Here, the aim is usually to attract quality traffic that allows companies to generate sales. For instance, Chaffey and Patron (2012) noted that SEO, SEM, social media marketing and programmatic advertising strategies are appropriate tools to increase brand presence and create awareness. However, as indicated by our findings, during the first phase of customer journey—namely, awareness-digital marketing techniques identified in the literature are not used appropriately. This highlights entrepreneurs’ lack of knowledge about digital marketing strategies and their effective use in digital environments.

The problem lies in the fact that, while customer journey should begin with brand awareness, entrepreneurial projects frequently skip this phase of the purchasing process, thereby putting at risk the effectiveness of the remaining phases. In this respect, our results agree with the findings reported by Royle and Laing (2014) who questioned the skills and knowledge on the part of companies for the appropriate development of digital marketing strategies.

Furthermore, with regard to the second phase of customer journey (engagement), we identified social media strategies and active listening on digital platforms. However, as argued by Scheinbaum (2016) and Hollebeek and Macky (2019), sales strategies should focus on calls to action, obtaining leads, and understanding how users behave on-line. Yet, as revealed by our results, current entrepreneurial projects overlook this aspect and prioritize attempts to increase interaction on social networks and digital platforms, disregarding content marketing, one of the most valid digital marketing techniques to boost this action (Holliman and Rowley, 2014; Järvinen and Taiminen, 2016).

Furthermore, in relation to the third phase of the customer journey (conversion), previous studies analyzed the strategies related to SEO, SEM and programmatic advertising. For instance, Palos-Sanchez et al. (2018) argued that, in this phase, priority should be assigned to understanding user experience and customer journey to attract attention and increase conversions with techniques such as e-mail marketing (Kaur, 2017), as well as programmatic advertising actions and social ads on social networks and digital platforms.

In phase four (loyalty), optimization of customer journey and user experience, as well as mobile-focused e-mail marketing strategies, are commonly used. However, while the use of e-mail marketing to boost loyalty was previously reported to be appropriate (Adam et al., 2020), in the present study, we did not identify actions related to Big Data Analytics or CRM. Ma et al. (2020) showed that innovation by digital entrepreneurs should focus on the use of both technologies.

In relation to Big Data Analytics techniques, at present, they remain outside any phase of understanding digital marketing strategies in customer journey. In other words, these techniques are used without a real mechanism to link to the development of digital marketing strategies. In this context, it appears to be imperative to question innovation and the use of these techniques to improve sales processes in digital environments.

Next, as concerns the fifth phase (advocacy), the use of cloud platforms was identified for the development of digital marketing techniques as well as CRM. In addition, one of the main techniques for the development of this phase of customer journey is the management of reviews. While these can effectively increase loyalty, Keylock and Faulds (2012) and Utari (2021) indicated that email marketing and programmatic advertising strategies could be essential to encourage users to share their product ideas and experiences with family and friends.

Finally Zeng (2018) and Obschonka and Audretsch (2020) argued that, in entrepreneurial projects, Big Data analysis should be a fundamental approach to investigate development of innovation in business models. The authors also noted that these techniques could be used to extract insights and knowledge about the audience that interacts with the main tools used in digital environments. Accordingly, entrepreneurial projects should make extensive use of these techniques, as doing so can provide new patterns that can facilitate knowledge extraction and boost brand value.

*Future research agenda*

According to Dwivedi et al. (2021) or Saura et al. (2021a), the importance of establishing relevant guidelines for the development of strategies in digital environments should not be underestimated. Accordingly, in Table 7, we classify different phases of customer journey and provide recommendations for the use of major digital marketing techniques. This is done through formulating relevant research questions that should be addressed in future studies.

Table 7. Future research agenda

|  |  |  |
| --- | --- | --- |
| Customer journey | Main techniques that should be used | Future research questions |
| Awareness | SEO, SEM,  Social Media Marketing  Content Marketing  Online Video  Blog/Posts  Keyword research  Influencer marketing | * What digital marketing technique applied to entrepreneurial projects most effectively boosts awareness? * How should entrepreneurs use innovation to create awareness in digital marketing? * What role does the awareness phase of digital marketing play in the success of entrepreneurial projects? |
| Conversion | Social Media Marketing  Email Marketing Programmatic advertising  Customer Experience  Lading pages optimization  SEM | * What is the most effective digital marketing technique to increase the average conversion rate in entrepreneurial projects? * What type of call-to-actions related to the innovation of entrepreneurial projects should be used in digital marketing techniques? * What is the most profitable digital marketing technique to increase sales conversion in entrepreneurial projects? |
| Engagement | Digital Platforms  Cloud  Reviews Management  Customer Journey Optimization  Mobile Apps Optimization | * How does the adoption of new technologies and digitalization strategies of companies influence online user behavior? * Should Big Data Analytics be applied to digital marketing strategies to boost engagement? * Which social media metrics should be optimized to increase engagement? * What promotional actions developed on mobile phones work the best to increase engagement? * What are the main customer journey models according to the type of product or service? |
| Loyalty | CRM  Big Data Analytics  Social Ads  Email Marketing  Content Marketing | * What type of CRM should be implemented in entrepreneurial projects to increase loyalty in digital marketing strategies? * What Big Data Analytics techniques have the greatest impact on increasing user loyalty? * What is the most profitable social media network for entrepreneurial projects? |
| Advocacy | Cloud  Big Data Analytics  Influencer Marketing | * What kind of platforms and cloud technologies should be applied to entrepreneurial digital marketing? * What should be the message of influencers when working with entrepreneurial products and services? * What kind of associations and patterns identification are essential to drive the customer journey advocacy in entrepreneurial projects? |

Source: The authors

**Conclusions**

In the present study, we conducted a systematic literature review and an MCA to determine the main digital marketing techniques used by entrepreneurial projects, as well as their related uses within digital customer journey. The specific research question addressed in this study was as follows: What are the appropriate uses and techniques of innovative digital marketing in entrepreneurship to the main categories of digital customer journey? In the sample of a total of 33 academic contributions, we identified 13 digital marketing techniques—namely, Social Media Marketing, SEM, SEO, Big Data Analytics, Cloud-Based techniques, Digital Platforms Optimization, Reviews Management, Customer Experience optimization, Mobile/Apps optimization, CRM, Customer Journey optimization, Programmatic Advertising and Email Marketing). We also proposed appropriate uses of digital marketing techniques in entrepreneurship in each of the phases of customer journey identified by Kartajaya et al. (2019), Kumar (2013) and Kannan (2017)—specifically, the phases of awareness, engagement, conversion, loyalty, and advocacy, Finally, based on the results, we formulated a total of 16 future research questions to be addressed in further research.

One of the main findings of this study is related to the awareness phase. The results revealed that entrepreneurs do not assign importance to this phase and develop digital marketing strategies linked directly to other phases of customer journey. However, it should be noted that this phase is the most important for entrepreneurial projects, as it is at this stage that brand awareness is created and users become more aware of the products and services linked to an entrepreneurial project. Moreover, if innovation is the basis of an entrepreneurial project, the awareness phase is fundamental to make the product known and increase brand awareness. Accordingly, it is essential that entrepreneurs gain new knowledge linked to digital marketing so that to better understand how users behave in digital environments.

Furthermore, our findings showed the importance of technology transfer and adoption, as we discover that Big Data Analytics techniques are not used in any phase of customer journey. This finding is important because the scientific literature indicates that this type of strategy should be used in entrepreneurial projects to generate conversions, brand loyalty, and to delight future users. Big Data Analytics can be used to effectively identify behavioral patterns and relationships from the application of predictive algorithms on user actions and should be adopted promptly by companies that operate online. Other strategies have also been grouped into clusters and linked to each of the phases of customer journey. Furthermore, our results reveal that entrepreneurs apply digital marketing strategies without considering the importance of the phases of customer journey, which lowers efficiency and profitability of their campaigns. Accordingly, entrepreneurs need to understand the main phases of customer journey and better adapt the use of digital marketing strategies to each of these phases.

*Theoretical implications*

The results of the present study have several theoretical implications. First, our identification of the main parts of customer journey that influence digital marketing processes and strategies provides new insights for entrepreneurs. In addition, we also formulated several research questions for further research that would provide a better understanding of the main challenges for digital marketing in relation to entrepreneurs.

Similarly, our findings showed that entrepreneurs do not have sufficient knowledge regarding the creation of brand recognition and brand value, nor the new techniques of data collection and data processing with Big Data that can boost the innovation of their business models. Therefore, future scientific contributions should focus on the development and understanding of knowledge linked to these issues, as well as the appropriate use of digital marketing techniques for the promotion of entrepreneurial projects.

Third, in the present study, we demonstrated that the R language is an original way of establishing patterns and identifying associations through a systematic study of the literature. In subsequent research, this approach can be meaningfully used for the development of new methodologies applied in this research domain.

*Practical implications*

With regard to practical implications of our findings, entrepreneurs and other practitioners can use our results as a guide for understanding the current use of digital marketing strategies in relation to customer journey. Specifically, practitioners can leverage the classification of digital marketing techniques according to customer journey phases as a guide for the development of their digital marketing plans.

Our results also provide useful insights for practitioners in terms of the main digital marketing challenges in relation to each of the phases of customer journey. Accordingly, practitioners can use this knowledge to improve current digital marketing strategies and boost the effectiveness of their actions via both social media and in digital environments. Moreover, with the identification of new digital marketing techniques according to customer journey phases, entrepreneurs can begin to implement these strategies and techniques for the identification of new behavioral patterns or extraction of new databases to be later analyzed using Big Data Analytics techniques.

*Limitations*

The present study has several limitations. First, we analyzed publications from only several databases, with queries being made in each of the corresponding search engines. Another limitation is that we focused only on studies published in English, which may have introduced some bias into our findings. Therefore, the results of the present study cannot be generalized as they are linked to the results of the SLR performed. As indicated previously, to reduce risk bias we tested the SLR results using 6 variables described in Table 4. One more limitation is related to the selection of criteria and keywords linked to each of the variables defined in MCA. Finally, since the subject matter under study is constantly evolving, our results should be interpreted with caution, as the exponential use of the identified digital marketing techniques may change within a short period time.

**Conflicts of interest statement:** None

**References**

Abed, S. S., Dwivedi, Y. K., & Williams, M. D. (2015). Social media as a bridge to e-commerce adoption in SMEs: A systematic literature review. *The Marketing Review*, *15*(1), 39-57.

Adam, M., Ibrahim, M., Ikramuddin, I., & Syahputra, H. (2020). The Role of Digital Marketing Platforms on Supply Chain Management for Customer Satisfaction and Loyalty in Small and Medium Enterprises (SMEs) at Indonesia. *International Journal of Supply Chain Management*, *9*(3), 1210-1220.

Ahmed, Y. A., Ahmad, M. N., Ahmad, N., & Zakaria, N. H. (2019). Social media for knowledge-sharing: A systematic literature review. *Telematics and informatics*, *37*, 72-112.

Alamsyah, D. P., Ratnapuri, C., & Aryanto, R. (2021). Digital marketing: Implementation of digital advertising preference to support brand awareness. *Academy of Strategic Management Journal*, *20*(2), 1-10.

Armstrong, G., Adam, S., Denize, S., & Kotler, P. (2014). *Principles of marketing*. Pearson Australia.

Arrigo, E. (2018). Social media marketing in luxury brands: A systematic literature review and implications for management research. *Management Research Review*.

Bahcecik, Y. S., Akay, S. S., & Akdemir, A. (2019). A Review of Digital Brand Positioning Strategies of Internet Entrepreneurship in the Context of Virtual Organizations: Facebook, Instagram and Youtube Samples. *Procedia Computer Science*, *158*, 513-522.

Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. V. (2013). Visions and voices on emerging challenges in digital business strategy. *MIS quarterly*, *37*(2), 14-001.

Bhatnagar, B., Dörfler, V. & MacBryde, J. Navigating the open innovation paradox: an integrative framework for adopting open innovation in pharmaceutical R&D in developing countries. *Journal of Technology Transfer* (2022). https://doi.org/10.1007/s10961-022-09958-6

Bhimani, H., Mention, A. L., & Barlatier, P. J. (2019). Social media and innovation: A systematic literature review and future research directions. *Technological Forecasting and Social Change*, *144*, 251-269.

Boeker, W., Howard, M. D., Basu, S., & Sahaym, A. (2019). Interpersonal relationships, digital technologies, and innovation in entrepreneurial ventures. *Journal of Business Research*.

Cao, C., Weng, Y., Zhou, S., Tong, Y., & Zhou, K. (2013). Facewarehouse: A 3d facial expression database for visual computing. *IEEE Transactions on Visualization and Computer Graphics*, *20*(3), 413-425.

Cao, D., Meadows, M., Wong, D., & Xia, S. (2021). Understanding consumers’ social media engagement behaviour: An examination of the moderation effect of social media context. *Journal of Business Research*, *122*, 835-846.

Cavallo, A., Burgers, H., Ghezzi, A., & Van de Vrande, V. (2021). The evolving nature of open innovation governance: A study of a digital platform development in collaboration with a big science centre. *Technovation*, 102370.

Chaffey, D., & Patron, M. (2012). From web analytics to digital marketing optimization: Increasing the commercial value of digital analytics. *Journal of Direct, Data and Digital Marketing Practice*, *14*(1), 30-45.

Chen, Y. (2018). Blockchain tokens and the potential democratization of entrepreneurship and innovation. *Business horizons*, *61*(4), 567-575.

Chen, Y. S., Okoli, C., & Lihua, H. (2005). Strategic growth of firms in the digital economy: a Simonian research agenda. *Journal of Information Technology Theory and Application (JITTA)*, *7*(2), 5.

Cooke, P. (2017). ‘Digital tech’and the public sector: what new role after public funding? *European Planning Studies*, *25*(5), 739-754.

Dong, J. Q. (2019). Moving a mountain with a teaspoon: Toward a theory of digital entrepreneurship in the regulatory environment. *Technological Forecasting and Social Change*, *146*, 923-930.

Donnelly, C., Simmons, G., Armstrong, G., & Fearne, A. (2015). Digital loyalty card ‘big data’and small business marketing: Formal versus informal or complementary?. *International Small Business Journal*, *33*(4), 422-442.

Drummond, C., O'Toole, T., & McGrath, H. (2020). Digital engagement strategies and tactics in social media marketing. European Journal of Marketing.

Drus, Z., & Khalid, H. (2019). Sentiment analysis in social media and its application: Systematic literature review. *Procedia Computer Science*, *161*, 707-714.

Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J., ... & Wang, Y. (2021). Setting the future of digital and social media marketing research: Perspectives and research propositions. *International Journal of Information Management*, *59*, 102168.

Elia, G., Margherita, A., & Passiante, G. (2020). Digital entrepreneurship ecosystem: How digital technologies and collective intelligence are reshaping the entrepreneurial process. *Technological Forecasting and Social Change*, *150*, 119791.

Figueiredo, J., Cardoso, A., Pocinho, M., Rodrigues, P., & Oliveira, I. (2019). Web-marketing triggering entrepreneurial behaviour. *International Journal of Entrepreneurship*, *23*(3), 1-11.

Følstad, A., & Kvale, K. (2018). Customer journeys: a systematic literature review. *Journal of Service Theory and Practice*.

Furrer, O., Thomas, H., & Goussevskaia, A. (2008). The structure and evolution of the strategic management field: a content analysis of 26 years of strategic management research. *International Journal of Management Reviews*, 10(1), 1–23.

Giones, F., & Brem, A. (2017). Digital technology entrepreneurship: A definition and research agenda. Technology Innovation Management Review, 7(5).

Goel, R.K. Seek foreign funds or technology? Relative impacts of different spillover modes on innovation. *Journal of Technology Transfer* (2022). https://doi.org/10.1007/s10961-022-09950-0

Gonzalez-Loureiro, M., Dabić, M., & Kiessling, T. (2015). Supply chain management as the key to a firm’s strategy in the global marketplace. International Journal of Physical Distribution & Logistics Management, 45(1/2), 159–181. http://dx.doi.org/10.1108/IJPDLM-05-2013-0124

Greenacre, M., & Blasius, J. (2006). *Multiple correspondence analysis and related methods*. Chapman and Hall/CRC.

Harding, D., Kadiyono, A. L., Hafiar, H., Ma'mun, T. N., Wibowo, H., Nugraha, Y., & Siswadi, A. G. P. (2020). Readiness of Technology Adaptation towards Digital-Based Entrepreneurship. *International Journal of Entrepreneurship*, *24*(1), 1-5.

Hoffman, D. L., & De Leeuw, J. (1992). Interpreting multiple correspondence analysis as a multidimensional scaling method. Marketing Letters, 3(3), 259–272. https://doi.org/10.1007/BF00994134

Hoffman, D. L., & Franke, G. R. (1986). Correspondence analysis: graphical representation of categorical data in marketing research. *Journal of Marketing Research*, 23(3), 213–227. https://doi.org/10.2307/3151480

Hollebeek, L. D., & Macky, K. (2019). Digital content marketing's role in fostering consumer engagement, trust, and value: Framework, fundamental propositions, and implications. *Journal of Interactive Marketing*, *45*, 27-41.

Holliman, G., & Rowley, J. (2014). Business to business digital content marketing: marketers’ perceptions of best practice. *Journal of research in interactive marketing*.

Hothorn, T., & Everitt, B. S. (2006). *A handbook of statistical analyses using R*. Chapman and Hall/CRC.

Huang, J., Henfridsson, O., Liu, M. J., & Newell, S. (2017). Growing on steroids: Rapidly scaling the user base of digital ventures through digital innovaton. *Mis Quarterly*, *41*(1).

Hull, C. E. K., Hung, Y. T. C., Hair, N., Perotti, V., & DeMartino, R. (2007). Taking advantage of digital opportunities: a typology of digital entrepreneurship. *International Journal of Networking and Virtual Organisations*, *4*(3), 290-303.

Ihaka, R., & Gentleman, R. (1996). R: A language for data analysis and graphics. Journal of Computational and Graphical Statistics, 5(3), 299–314. https://doi.org/10.1080/10618600. 1996.10474713

Jafari-Sadeghi, V., Garcia-Perez, A., Candelo, E., & Couturier, J. (2021). Exploring the impact of digital transformation on technology entrepreneurship and technological market expansion: The role of technology readiness, exploration and exploitation. *Journal of Business Research*, *124*, 100-111.

Järvinen, J., & Karjaluoto, H. (2015). The use of Web analytics for digital marketing performance measurement. *Industrial Marketing Management*, *50*, 117-127.

Järvinen, J., & Taiminen, H. (2016). Harnessing marketing automation for B2B content marketing. *Industrial Marketing Management*, *54*, 164-175.

Kaciak, E., & Louviere, J. (1990). Multiple correspondence analysis of multiple-choice experiment data. Journal of Marketing Research, 27(4), 455–465. https://doi.org/10.1177/ 002224379002700407

Kannan, P. K. (2017). Digital marketing: A framework, review and research agenda. *International Journal of Research in Marketing*, *34*(1), 22-45.

Kartajaya, H., Kotler, P., & Hooi, D. H. (2019). Marketing 4.0: moving from traditional to digital. *World Scientific Book Chapters*, 99-123.

Kaur, G. (2017). The importance of digital marketing in the tourism industry. *International Journal of Research-Granthaalayah*, *5*(6), 72-77.

Keylock, M., & Faulds, M. (2012). From customer loyalty to social advocacy. *Journal of Direct, Data and Digital Marketing Practice*, *14*(2), 160-165.

Kiessling, T., Vlačić, B., & Dabić, M. (2019). Mapping the future of cross-border mergers and acquisitions: A review and research Agenda. IEEE Transactions on Engineering Management, 68(1), 212–222. https://doi.org/10.1109/TEM.2019.2954799

Killian, G., & McManus, K. (2015). A marketing communications approach for the digital era: Managerial guidelines for social media integration. *Business horizons*, *58*(5), 539-549.

Kotler, P., & Pfoertsch, W. (2007). Being known or being one of many: the need for brand management for business‐to‐business (B2B) companies. *Journal of business & industrial marketing*.

Kraus, S., Roig-Tierno, N., & Bouncken, R. B. (2019). Digital innovation and venturing: an introduction into the digitalization of entrepreneurship.

Krings, W., Palmer, R., & Inversini, A. (2021). Industrial marketing management digital media optimization for B2B marketing*. Industrial Marketing Management*, 93, 174-186.

Kumar, V. (2013). *Profitable customer engagement: Concept, metrics and strategies*. SAGE Publications India.

Laurell, C., Sandström, C., & Suseno, Y. (2019). Assessing the interplay between crowdfunding and sustainability in social media. *Technological Forecasting and Social Change*, *141*, 117-127.

Leeflang, P. S., Verhoef, P. C., Dahlström, P., & Freundt, T. (2014). Challenges and solutions for marketing in a digital era. *European management journal*, *32*(1), 1-12.

Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of marketing*, *80*(6), 69-96.

Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of marketing*, *80*(6), 69-96.

Ma, H., Lang, C., Liu, Y., & Gao, Y. (2020). Constructing a hierarchical framework for assessing the application of big data technology in entrepreneurship education. *Frontiers in Psychology*, *11*, 2338.

Makrides, A., Vrontis, D., & Christofi, M. (2020). The gold rush of digital marketing: assessing prospects of building brand awareness overseas. *Business Perspectives and Research*, *8*(1), 4-20.

Mariani, M. M., & Nambisan, S. (2021). Innovation analytics and digital innovation experimentation: the rise of research-driven online review platforms. *Technological Forecasting and Social Change*, *172*, 121009.

Masínová, V., & Svandová, Z. (2014, September). Factors defining satisfaction and loyalty of the online shopping customers within e-commerce and cyber entrepreneurship. In *Proceedings of the 9th European Conference on Innovation and Entrepreneurship* (pp. 539-555).

Massari, P., & Passiante, G. (2006). Customer satisfaction and loyalty in a digital environment: An empirical test. *Journal of Consumer Marketing*.

Mazzucchelli, A., Gurioli, M., Graziano, D., Quacquarelli, B., & Aouina-Mejri, C. (2021). How to fight against food waste in the digital era: Key factors for a successful food sharing platform. *Journal of Business Research*, *124*, 47-58.

Millman, C., & El-Gohary, H. (2011). New Digital Media Marketing and Micro Business: A UK perspective. *International Journal of Online Marketing (IJOM)*, *1*(1), 41-62.

Nambisan, S., & Baron, R. A. (2019). On the costs of digital entrepreneurship: Role conflict, stress, and venture performance in digital platform-based ecosystems. *Journal of Business Research*.

Nenadic, O., & Greenacre, M. (2007). Correspondence analysis in R, with two-and three-dimensional graphics: The ca package. Journal of Statistical Software, 20(3). http:// resolver.sub.uni-goettingen.de/purl?gs-1/5892

Nosova, S., Norkina, A., Makar, S., & Fadeicheva, G. (2021). Digital transformation as a new paradigm of economic policy. *Procedia Computer Science*, *190*, 657-665.

Obschonka, M., & Audretsch, D. B. (2020). Artificial intelligence and big data in entrepreneurship: a new era has begun. *Small Business Economics*, *55*(3), 529-539.

Palos-Sanchez, P. R., Saura, J. R., & Debasa, F. (2018). The influence of social networks on the development of recruitment actions that favor user interface design and conversions in mobile applications powered by linked data. *Mobile Information Systems*, *2018*.

Parris, D. L., & Peachey, J. W. (2013). A systematic literature review of servant leadership theory in organizational contexts. *Journal of business ethics*, *113*(3), 377-393.

Pattinson, H. M. (2016). A neo-Schumpeterian perspective of innovation, entrepreneurship and entrepreneurial marketing in the age of digitisation. *International Journal of Business Environment*, *8*(2), 87-104.

Pradhan, P., Nigam, D., & Ck, T. (2018). Digital marketing and SMES: An identification of research gap via archives of past research. *Journal of Internet Banking and Commerce*, *23*(1), 1-14.

Purnomo, A., Susanti, T., Sari, A. K., Firdaus, M., & Dewi, R. (2020, August). A Study of Digital Entrepreneurship through Bibliometric Visualizing from 1993 to 2019. In *2020 International Conference on Information Management and Technology (ICIMTech)* (pp. 911-915). IEEE.

Raj, A. S., Shagirbasha, S., & Madhan, K. (2021). A model for lead conversions through cold calling in startup B2B services firms in India: a sense-making derivation. *South Asian Journal of Business Studies*.

Rathee, R., & Rajain, P. (2017). Entrepreneurship in the digital era. Asia Pacific Journal of Research in Business Management, 8(6), 52-63.

Ratten, V., & Rashid, S. (2021). Entrepreneurship Education and Digital Marketing: What Does the Future Hold?. In *Developing Digital Marketing*. Emerald Publishing Limited.

Rehman, Z. U., Baharun, R., & Salleh, N. Z. M. (2020). Antecedents, consequences, and reducers of perceived risk in social media: A systematic literature review and directions for further research. *Psychology & Marketing*, *37*(1), 74-86.

Rosario, A. M. F. T., & Cruz, R. N. (2019). Determinants of innovation in digital marketing. *Journal of Reviews on Global Economics*, *8*, 1722-1731.

Rosenbaum, M. S., Otalora, M. L., & Ramírez, G. C. (2017). How to create a realistic customer journey map. *Business horizons*, *60*(1), 143-150.

Royle, J., & Laing, A. (2014). The digital marketing skills gap: Developing a Digital Marketer Model for the communication industries. *International Journal of Information Management*, *34*(2), 65-73.

Saleem, H., Uddin, M. K., Habib-ur-Rehman, S., Saleem, S., & Aslam, A. M. (2019). Strategic data driven approach to improve conversion rates and sales performance of E-commerce websites. *International Journal of Scientific & Engineering Research (IJSER)*.

Sarka, P., & Ipsen, C. (2017). Knowledge sharing via social media in software development: a systematic literature review. *Knowledge Management Research & Practice*, *15*(4), 594-609.

Saura, J. R., Ribeiro-Soriano, D., & Palacios-Marqués, D. (2021). From user-generated data to data-driven innovation: A research agenda to understand user privacy in digital markets. *International Journal of Information Management*, 102331.

Saura, J. R., Ribeiro-Soriano, D., & Palacios-Marqués, D. (2021a). Setting B2B Digital Marketing in Artificial Intelligence-based CRMs: A review and directions for future research, *Industrial Marketing Management*, 98, October 2021, 161-178. https://doi.org/10.1016/j.indmarman.2021.08.006

Scheinbaum, A. C. (2016). Digital engagement: opportunities and risks for sponsors: Consumer-Viewpoint and practical considerations for marketing via mobile and digital platforms. *Journal of Advertising Research*, *56*(4), 341-345.

Scuotto, V., Del Giudice, M., & Carayannis, E. G. (2017). The effect of social networking sites and absorptive capacity on SMES’innovation performance. *The Journal of Technology Transfer*, 42(2), 409-424.

Secundo, G., Del Vecchio, P., & Mele, G. (2020). Social media for entrepreneurship: myth or reality? A structured literature review and a future research agenda. *International Journal of Entrepreneurial Behavior & Research*.

Smith, K. T. (2012). Longitudinal study of digital marketing strategies targeting Millennials. *Journal of Consumer Marketing*.

Soetaert, K. E., Petzoldt, T., & Setzer, R. W. (2010). Solving differential equations in R: Package deSolve. Journal of Statistical Software, 33(9). https://doi.org/10.18637/jss.v033.i09

Taiminen, H. M., & Karjaluoto, H. (2015). The usage of digital marketing channels in SMEs. *Journal of Small Business and Enterprise Development*.

Teruel, M., Coad, A., Domnick, C., Flachenecker, F., Harasztosi, P., Janiri, M. L., & Pal, R. (2022). The birth of new HGEs: internationalization through new digital technologies. *The Journal of Technology Transfer*, *47*(3), 804-845. (2022). https://doi.org/10.1007/s10961-021-09861-6

Tiago, M. T. P. M. B., & Verissimo, J. M. C. (2014). Digital marketing and social media: Why bother?. *Business horizons*, *57*(6), 703-708.

Urban, G. L. (2004). The emerging era of customer advocacy. *MIT Sloan Management Review*, 45(2), 77.

Utari, N. K. M. T. (2021). Marketing Strategy of Small and Medium Enterprises (MSMES) Through Instagram in the Marketing Era 4.0. *Jurnal Ekonomi & Bisnis JAGADITHA*, *8*(1), 15-22.

Verdugo, G. B., & Villarroel, A. V. (2021). Measuring the association between students’ exposure to social media and their valuation of sustainability in entrepreneurship. *Heliyon*, e07272.

Wilk, V., Soutar, G. N., & Harrigan, P. (2021). Online brand advocacy and brand loyalty: a reciprocal relationship?. *Asia Pacific Journal of Marketing and Logistics*.

Wright, L. T., Robin, R., Stone, M., & Aravopoulou, D. E. (2019). Adoption of Big Data technology for innovation in B2B marketing. *Journal of Business-to-Business Marketing*, *26*(3-4), 281-293.

Wu, J. S., Ye, S., Zheng, C. J., & Law, R. (2021). Revisiting customer loyalty toward mobile e-commerce in the hospitality industry: does brand viscosity matter?. *International Journal of Contemporary Hospitality Management*.

Xiao, Y., & Watson, M. (2019). Guidance on conducting a systematic literature review. *Journal of Planning Education and Research*, *39*(1), 93-112.

Xie, C., Zhu, Y., & Zhao, Q. (2020). How Digital Business Penetration Influences Farmers’ Sense of Economic Gain: The Role of Farmers’ Entrepreneurial Orientation and Market Responsiveness. *IEEE Access*, *8*, 187744-187753.

Zaheer, H., Breyer, Y., & Dumay, J. (2019). Digital entrepreneurship: An interdisciplinary structured literature review and research agenda. *Technological Forecasting and Social Change*, *148*, 119735.

Zeng, J. (2018). Fostering path of ecological sustainable entrepreneurship within big data network system. *International Entrepreneurship and Management Journal*, *14*(1), 79-95.

Zhao, F., Barratt-Pugh, L., Standen, P., Redmond, J., & Suseno, Y. (2021). An exploratory study of entrepreneurial social networks in the digital age. *Journal of Small Business and Enterprise Development*.

Appendix A. Annex 1

Table 8. Results of multiple correspondence analysis according to the coordinates established for the group of variables in graphic representations in Figs. 1 and 2, based on the coding of all studied variables.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rows | Iner\*1000 | Dim.1 | ctr | cos2 | Dim.2 | ctr | cos2 | Dim.3 | ctr | cos2 |
| 1 | 39.363 | -2.072 | 7.265 | 0.449 | 1.014 | 2.494 | 0.107 | 0.480 | 0.610 | 0.024 |
| 2 | 36.547 | 0.229 | 0.890 | 0.059 | -0.473 | 5.425 | 0.252 | 0.426 | 4.804 | 0.205 |
| 3 | 45.271 | -0.296 | 0.446 | 0.024 | -1.020 | 7.576 | 0.284 | -1.229 | 11.966 | 0.412 |
| 4 | 38.509 | -1.059 | 3.794 | 0.240 | 0.501 | 1.219 | 0.054 | 0.792 | 3.312 | 0.134 |
| 5 | 38.509 | -1.575 | 8.395 | 0.530 | 0.346 | 0.583 | 0.026 | 0.416 | 0.912 | 0.037 |
| 6 | 36.975 | -0.517 | 2.263 | 0.149 | -0.547 | 3.625 | 0.166 | -0.744 | 7.316 | 0.308 |
| 7 | 41.524 | -0.858 | 4.987 | 0.292 | 0.562 | 3.061 | 0.125 | 0.306 | 0.990 | 0.037 |
| 8 | 47.774 | -0.529 | 1.895 | 0.096 | 0.715 | 4.961 | 0.176 | -0.055 | 0.032 | 0.001 |
| 9 | 37.231 | 0.598 | 8.460 | 0.553 | 0.392 | 5.221 | 0.238 | 0.077 | 0.219 | 0.009 |
| 10 | 60.074 | 0.485 | 2.384 | 0.097 | 0.534 | 4.149 | 0.117 | -0.856 | 11.615 | 0.301 |
| 11 | 42.175 | -0.206 | 0.360 | 0.021 | -0.437 | 2.312 | 0.093 | -0.891 | 10.493 | 0.388 |
| 12 | 44.590 | 0.193 | 0.568 | 0.031 | -0.084 | 0.153 | 0.006 | -0.257 | 1.569 | 0.055 |
| 13 | 46.548 | -0.179 | 0.325 | 0.017 | 0.787 | 9.026 | 0.329 | -0.423 | 2.843 | 0.095 |
| 14 | 35.608 | -0.006 | 0.001 | 0.000 | -0.357 | 2.776 | 0.132 | 0.683 | 11.081 | 0.485 |
| 15 | 33.328 | -0.545 | 3.523 | 0.257 | -0.346 | 2.032 | 0.103 | 0.417 | 3.220 | 0.150 |
| 16 | 36.060 | 0.346 | 1.618 | 0.109 | -0.627 | 7.624 | 0.359 | -0.062 | 0.080 | 0.003 |
| 17 | 43.505 | -0.197 | 0.462 | 0.026 | 0.237 | 0.950 | 0.037 | 0.119 | 0.262 | 0.009 |
| 18 | 27.394 | -1.115 | 8.419 | 0.747 | -0.084 | 0.069 | 0.004 | -0.225 | 0.533 | 0.030 |
| 19 | 28.793 | -0.817 | 5.649 | 0.477 | -0.205 | 0.508 | 0.030 | -0.283 | 1.056 | 0.057 |
| 20 | 52.147 | -0.559 | 1.587 | 0.074 | 0.960 | 6.705 | 0.218 | 0.799 | 5.054 | 0.151 |
| 21 | 43.783 | 0.221 | 0.578 | 0.032 | -0.610 | 6.329 | 0.245 | 0.609 | 6.860 | 0.244 |
| 22 | 26.452 | 0.154 | 0.484 | 0.045 | 0.443 | 5.717 | 0.367 | 0.011 | 0.004 | 0.000 |
| 23 | 24.457 | 0.492 | 6.963 | 0.692 | 0.066 | 0.181 | 0.013 | 0.021 | 0.019 | 0.001 |
| 24 | 27.394 | -1.115 | 8.419 | 0.747 | -0.084 | 0.069 | 0.004 | -0.225 | 0.533 | 0.030 |
| 25 | 33.050 | -0.162 | 0.312 | 0.023 | -0.227 | 0.878 | 0.045 | 0.244 | 1.099 | 0.052 |
| 26 | 39.635 | -0.153 | 0.197 | 0.012 | -0.704 | 6.004 | 0.257 | -0.327 | 1.415 | 0.056 |
| 27 | 30.374 | -0.430 | 2.506 | 0.201 | -0.388 | 2.929 | 0.164 | 0.301 | 1.911 | 0.098 |
| 28 | 46.144 | -0.665 | 2.990 | 0.158 | 0.541 | 2.843 | 0.105 | -0.658 | 4.575 | 0.154 |
| 29 | 21.085 | 0.166 | 0.603 | 0.070 | -0.233 | 1.706 | 0.137 | -0.026 | 0.024 | 0.002 |
| 30 | 17.845 | 0.316 | 2.701 | 0.368 | 0.201 | 1.570 | 0.149 | -0.123 | 0.643 | 0.056 |
| 31 | 26.406 | -0.334 | 1.511 | 0.139 | 0.023 | 0.010 | 0.001 | -0.140 | 0.412 | 0.024 |
| 32 | 33.766 | 0.559 | 6.879 | 0.495 | 0.066 | 0.138 | 0.007 | -0.140 | 0.674 | 0.031 |
| 33 | 29.019 | 0.318 | 2.567 | 0.215 | 0.178 | 1.159 | 0.068 | 0.312 | 3.865 | 0.207 |

Table 9. Results of multiple correspondence analysis with categorial variables according to the coordinates obtained for the graphic representation by identified variables.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Columns | Iner\*1000 | Dim.1 | ctr | cos2 | Dim.2 | ctr | cos2 | Dim.3 | ctr | cos2 |
| Awareness | 137.533 | -1.022 | 40.633 | 0.718 | 0.417 | 9.727 | 0.120 | 0.190 | 2.184 | 0.025 |
| Engagement | 75.663 | -0.532 | 9.562 | 0.307 | -0.132 | 0.847 | 0.019 | 0.138 | 1.013 | 0.021 |
| Conversion | 95.152 | 0.208 | 0.805 | 0.021 | -0.836 | 18.674 | 0.333 | -0.772 | 17.335 | 0.284 |
| Loyalty | 94.538 | 0.357 | 1.729 | 0.044 | 0.898 | 15.654 | 0.281 | -0.546 | 6.296 | 0.104 |
| Advocacy | 57.422 | 0.185 | 0.812 | 0.034 | -0.283 | 2.715 | 0.080 | -0.203 | 1.530 | 0.041 |
| Mobile Apps | 85.815 | 0.217 | 0.797 | 0.023 | 0.773 | 14.494 | 0.286 | 0.321 | 2.715 | 0.049 |
| CRM | 49.579 | 0.259 | 1.703 | 0.084 | -0.185 | 1.240 | 0.042 | 0.070 | 0.192 | 0.006 |
| Social Media Marketing | 47.009 | -0.357 | 5.602 | 0.290 | -0.133 | 1.118 | 0.040 | -0.165 | 1.879 | 0.062 |
| SEM | 43.819 | 0.546 | 6.051 | 0.336 | -0.239 | 1.658 | 0.064 | 0.429 | 5.832 | 0.207 |
| Cloud | 77.953 | 0.081 | 0.077 | 0.002 | -0.669 | 7.609 | 0.166 | 1.002 | 18.577 | 0.371 |
| Big Data Analytics | 62.982 | -0.022 | 0.017 | 0.001 | -0.005 | 0.001 | 0.000 | 0.435 | 10.014 | 0.248 |
| Digital Platforms | 59.981 | -0.290 | 3.267 | 0.132 | -0.291 | 4.719 | 0.133 | -0.517 | 16.247 | 0.422 |
| Reviews Management | 63.277 | 0.530 | 2.854 | 0.110 | 0.225 | 0.740 | 0.020 | 0.104 | 0.170 | 0.004 |
| Customer Experience | 61.350 | 0.462 | 3.969 | 0.157 | 0.494 | 6.501 | 0.180 | -0.442 | 5.688 | 0.144 |
| SEO | 44.430 | 0.548 | 5.592 | 0.306 | -0.040 | 0.042 | 0.002 | 0.170 | 0.842 | 0.030 |
| Customer Journey | 64.318 | 0.460 | 3.226 | 0.122 | 0.686 | 10.265 | 0.271 | -0.388 | 3.580 | 0.087 |
| Programmatic Advertising | 43.819 | 0.546 | 6.051 | 0.336 | -0.239 | 1.658 | 0.064 | 0.429 | 5.832 | 0.207 |
| Email Marketing | 46.692 | 0.926 | 7.251 | 0.378 | 0.439 | 2.338 | 0.085 | 0.074 | 0.073 | 0.002 |

Table 10. Supplementary categorical variables results according to the number of reviewed articles and their coordinates

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Supplementary categorical variables | Dim.1 | cos2 | v.test | Dim.2 | cos2 | v.test | Dim.3 | cos2 | v.test |
| Bahcecik et al. (2019) | -0.162 | 0.023 | -0.435 | -0.227 | 0.045 | -0.609 | 0.244 | 0.052 | 0.653 |
| Bharadwaj et al. (2013) | 0.154 | 0.045 | 0.548 | 0.443 | 0.367 | 1.571 | 0.011 | 0.000 | 0.040 |
| Boeker et al. (2019) | -0.179 | 0.017 | -0.443 | 0.787 | 0.329 | 1.949 | -0.423 | 0.095 | -1.048 |
| Cao et al. (2021) | 0.166 | 0.070 | 0.613 | -0.233 | 0.137 | -0.860 | -0.026 | 0.002 | -0.098 |
| Cavallo et al. (2021) | -0.153 | 0.012 | -0.344 | -0.704 | 0.257 | -1.586 | -0.327 | 0.056 | -0.738 |
| Chen (2018) | -1.575 | 0.530 | -2.232 | 0.346 | 0.026 | 0.491 | 0.416 | 0.037 | 0.589 |
| Chen et al. (2005) | 0.221 | 0.032 | 0.592 | -0.610 | 0.245 | -1.635 | 0.609 | 0.244 | 1.632 |
| Cooke (2017) | -0.529 | 0.096 | -1.065 | 0.715 | 0.176 | 1.439 | -0.055 | 0.001 | -0.110 |
| Dong (2019) | -0.296 | 0.024 | -0.516 | -1.020 | 0.284 | -1.774 | -1.229 | 0.412 | -2.137 |
| Drummond et al. (2020) | -0.006 | 0.000 | -0.018 | -0.357 | 0.132 | -1.088 | 0.683 | 0.485 | 2.083 |
| Dwivedi et al. (2021) | 0.598 | 0.553 | 2.298 | 0.392 | 0.238 | 1.508 | 0.077 | 0.009 | 0.296 |
| Elia et al. (2020) | -0.545 | 0.257 | -1.461 | -0.346 | 0.103 | -0.927 | 0.417 | 0.150 | 1.118 |
| Giones and Brem (2017) | -2.072 | 0.449 | -2.072 | 1.014 | 0.107 | 1.014 | 0.480 | 0.024 | 0.480 |
| Huang et al. (2017) | -0.559 | 0.074 | -0.973 | 0.960 | 0.218 | 1.669 | 0.799 | 0.151 | 1.389 |
| Jafari-Sadeghi et al. (2021) | -1.059 | 0.240 | -1.500 | 0.501 | 0.054 | 0.710 | 0.792 | 0.134 | 1.122 |
| Krings et al. (2021) | -0.334 | 0.139 | -0.959 | 0.023 | 0.001 | 0.065 | -0.140 | 0.024 | -0.401 |
| Laurell et al. (2019) | -0.665 | 0.158 | -1.337 | 0.541 | 0.105 | 1.089 | -0.658 | 0.154 | -1.324 |
| Mariani and Nambisan (2021) | 0.193 | 0.031 | 0.589 | -0.084 | 0.006 | -0.255 | -0.257 | 0.055 | -0.784 |
| Millman and El-Gohary (2011) | -0.858 | 0.292 | -1.727 | 0.562 | 0.125 | 1.130 | 0.306 | 0.037 | 0.616 |
| Nambisan and Baron (2019) | 0.485 | 0.097 | 1.199 | 0.534 | 0.117 | 1.321 | -0.856 | 0.301 | -2.119 |
| Nosova et al. (2021) | -0.430 | 0.201 | -1.235 | -0.388 | 0.164 | -1.115 | 0.301 | 0.098 | 0.863 |
| Palos-Sanchez et al. (2019) | 0.559 | 0.495 | 2.068 | 0.066 | 0.007 | 0.245 | -0.140 | 0.031 | -0.518 |
| Pattinson (2016) | 0.229 | 0.059 | 0.739 | -0.473 | 0.252 | -1.524 | 0.426 | 0.205 | 1.374 |
| Purnomo et al. (2020) | -0.517 | 0.149 | -1.166 | -0.547 | 0.166 | -1.233 | -0.744 | 0.308 | -1.678 |
| Ribeiro-Navarrete et al. (2021) | 0.318 | 0.215 | 1.269 | 0.178 | 0.068 | 0.712 | 0.312 | 0.207 | 1.246 |
| Saura (2021) | 0.492 | 0.692 | 2.099 | 0.066 | 0.013 | 0.283 | 0.021 | 0.001 | 0.088 |
| Saura et al. (2021) | 0.316 | 0.368 | 1.304 | 0.201 | 0.149 | 0.831 | -0.123 | 0.056 | -0.509 |
| Scuotto et al. (2017) | -0.206 | 0.021 | -0.465 | -0.437 | 0.093 | -0.984 | -0.891 | 0.388 | -2.010 |
| Secundo et al. (2020) | -0.197 | 0.026 | -0.529 | 0.237 | 0.037 | 0.634 | 0.119 | 0.009 | 0.319 |
| Verdugo and Villarroel (2021) | -1.115 | 0.747 | -2.244 | -0.084 | 0.004 | -0.169 | -0.225 | 0.030 | -0.452 |
| Xie et al. (2020) | -0.817 | 0.477 | -1.842 | -0.205 | 0.030 | -0.461 | -0.283 | 0.057 | -0.637 |
| Zaheer et al. (2019) | 0.346 | 0.109 | 0.992 | -0.627 | 0.359 | -1.799 | -0.062 | 0.003 | -0.177 |
| Zhao et al. (2021) | -1.115 | 0.747 | -2.244 | -0.084 | 0.004 | -0.169 | -0.225 | 0.030 | -0.452 |