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

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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.

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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., 2021a, 2021b; 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 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).

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

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

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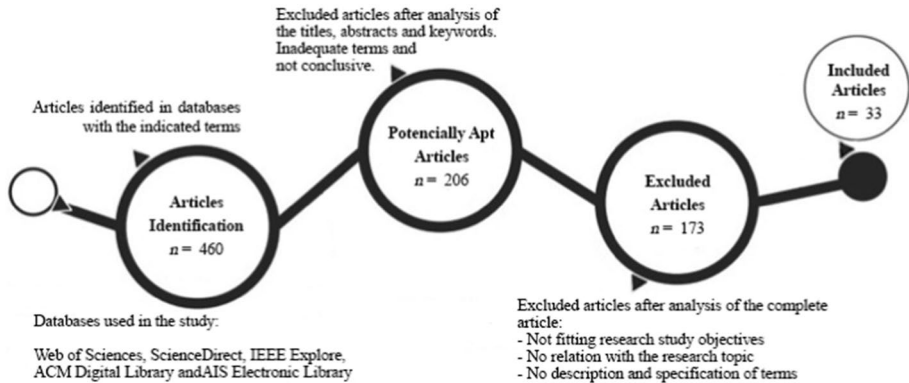
Fig. 1 Systematic literature review process and articles included in the final sample

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).

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.

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 withdrawal 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.

4.2 Multiple correspondence analysis (MCA) results

To analyze the results of MCA supported by HOMALS, we used Kaciak 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

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

Table 3 (continued)

Authors	Journal	Category	Main concepts analyzed	Purpose
Millman and El-Gohary (2011)	*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 and Baron (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

Table 3 (continued)

Authors	Journal	Category	Main concepts analyzed	Purpose
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.	*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. (2019)	*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

Table 3 (continued)

Authors	Journal	Category	Main concepts analyzed	Purpose
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

Table 3 (continued)

Authors	Journal	Category	Main concepts analyzed	Purpose
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.	*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

Table 3 (continued)

Authors	Journal	Category	Main concepts analyzed	Purpose
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 et al. (2021a)	*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

Table 3 (continued)

Authors	Journal	Category	Main concepts analyzed	Purpose
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. (2019)	*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

Table 3 (continued)

Authors	Journal	Category	Main concepts analyzed	Purpose
Saura et al. (2021a, 2021b)	*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. (2018)	*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

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 (2018)	+	+	?	+	+	+
Millman and El-Gohary (2011)	+	+	?	?	?	−
Cooke (2017)	+	−	?	−	?	?
Dwivedi et al. (2021)	+	+	+	+	+	+
Nambisan and Baron (2019)	?	?	−	−	?	−
Scuotto et al. (2017)	+	+	?	+	+	?
Mariani and Nambisan (2021)	+	?	+	+	+	+
Nylén et al. (2019)	+	+	?	?	−	+
Boeker et al. (2019)	+	+	+	+	+	?
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 et al. (2021a)	+	?	?	+	+	+

Table 4 (continued)

Authors	Study design	Random sequence generation	Blinding of outcome assessment	Withdraw and drop out	Inclusion-exclusion criteria	Reporting adverse event
Verdugo and Villarroel (2021)	+	+	?	+	+	?
Cavallo et al. (2021)	−	?	?	+	−	−
Nosova et al. (2021)	+	+	+	+	+	+
Laurell et al. (2021)	?	?	−	−	?	+
Cao et al. (2021)	+	+	?	?	+	+
Saura et al. (2021a, 2021b)	+	+	?	?	+	?
Krings et al. (2021)	+	+	?	+	?	+
Palos-Sanchez et al. (2018)	+	+	+	+	+	+
Ribeiro-Navarrete et al. (2021)	+	+	?	?	+	+

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
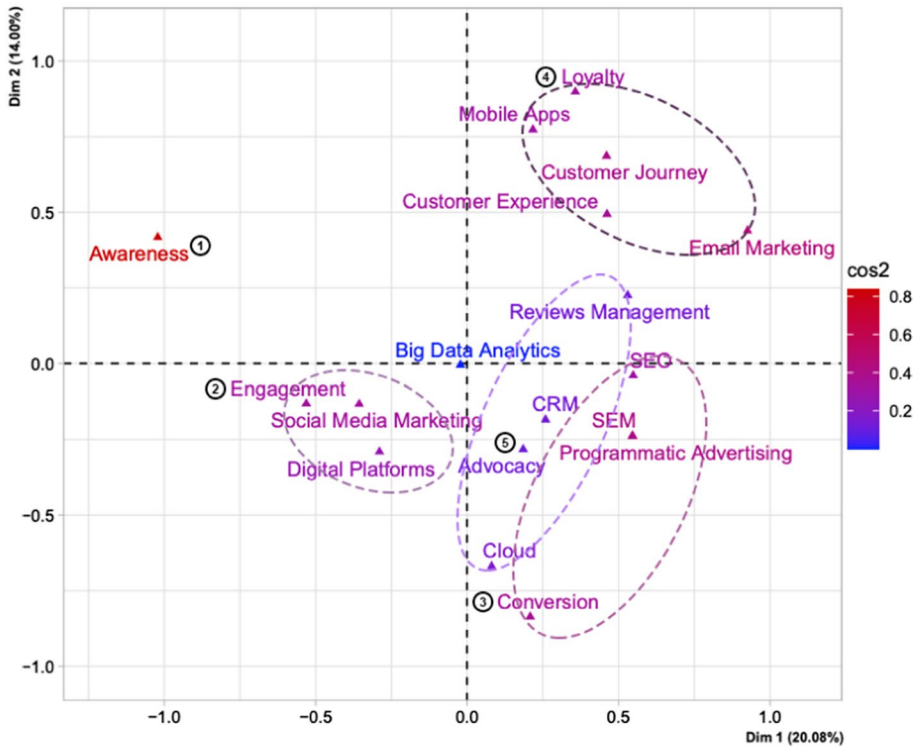
Fig. 2 Biplot of individual and variable categories using MAC and HOMALS analysis with R. Source: the authors

Table 5 Eigenvalues dime nsions 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

cumulative percentage of variance. MCA results indicated that the chi-square of inde-pendence 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, per-centage 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).

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

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

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. 2021ast). 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.

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
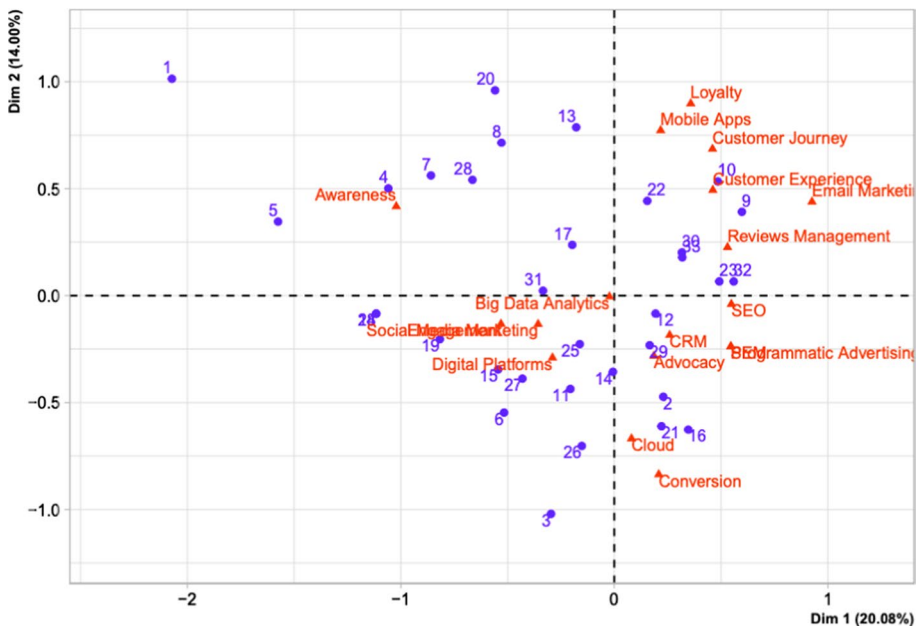
Fig. 3 Symmetric plot of individuals and variable categories. Source: the authors

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 3 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 3 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 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.

5 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.

5.1 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.

6 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

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

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.

6.1 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.

6.2 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.

6.3 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.

Appendix

See Tables 8, 9 and 10.

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. (2018)	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 et al. (2021a)	0.492	0.692	2.099	0.066	0.013	0.283	0.021	0.001	0.088
Saura et al. (2021a, 2021b)	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

Declarations

Conflict of interest The authors declares that there is no conflict of interest.

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