

The Role of Artificial Intelligence in Marketing: A review of Literature

Author Information

Purnima Bhatnagar, Assistant Professor, Department of Management, Dayalbagh Educational Institute, Dayalbagh, Agra. Email: pbhatnagar.dei@gmail.com. [Corresponding Author]

and

Amoli Tadiparthi, Student, Bachelors of Science (Major: Biology), Baylor University, Texas, USA. Email: amoli_tadiparthi1@baylor.edu

ABSTRACT

This research identifies the current state of research on the role of AI in marketing. Here we adopted a systematic literature review of 140 papers published in peer-reviewed journals. Timeline analysis, word occurrence, and cluster analysis were conducted on the paper abstracts. The study reveals a recent interest in the focus area, key journals, and associated themes. The key themes include consumer research, advertisement and digital customer, future of online services, chatbots, results-based frameworks, humans and technologies, social use, management process, and sales. The five-issue areas were identified to be industry standards for data mining, preparing marketers to understand AI, uncertain effects of AI in marketing, preparing customers to experience AI, and safety and privacy concerns.

Keywords: Artificial Intelligence, Marketing, Advertising, Customer experience, chatbots, privacy

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1. INTRODUCTION

The Fourth Industrial Revolution is expected to be an age of significant change, especially from the perspective of the emergence of new technologies, information technology, and digitalization (De Ruyter et. al., 2021). In this context, Artificial Intelligence, which is one of the technological innovations associated with the present age, presents interesting research implications for the field of business, especially marketing. According to Oxford Dictionary, AI is “the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages” [Jarek and Mazurek, 2019]. Marketing, on the other hand, is defined as the “...activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large” [American Marketing Association].

The recent acceptance of AI may be attributed to the availability of big data, access to power, and new AI techniques (Overgoor et al., 2019). Businesses value AI due to expectations of “productivity” enhancements, timely “product promotion” to the target population, and “consumer experience” (S. Gupta et al., 2020).

Researchers have examined the association between the two using specific directions like the uses of AI, customer reactions to AI, among other aspects. However, a holistic study of key thematic areas

has not been attempted yet, which is the focus of the current research paper. Hence, the present research addresses the following questions:

- Research Question 1 (RQ 1): What is the state of current research on the role of AI in marketing?
- Research Question 2 (RQ 2): What are the focus and issue areas which researchers have identified so far?
- Research Question 3 (RQ 3): What are the future research areas that researchers feel need further investigation?

The present paper discusses the research methodology in the next section, which is followed by findings, discussion, and conclusions.

2. RESEARCH METHODOLOGY

To address this exercise, research papers, conference proceedings, and research reports published in databases like JSTOR, Scopus, Google Scholar, Proquest, and EBSCO were accessed for the period 2010 – 2021. Further, out of 84 journal papers, commentaries, editorials, 75 research papers for the period 2019 - 2021, published in peer-reviewed journals were selected for further study based on association with the pooled fields of artificial intelligence and marketing.

Basis the feedback of the conference organizers to enhance the literature review, the search was further expanded to the Web of Science. Out of 1000 articles and abstracts downloaded, a search of the title and abstracts led to the identification of 81 articles that were relevant to the theme. Once the total database was collated for both the phases, 16 duplicate articles were identified and removed from the final article selection. This led to finally 140 articles being taken up for further study.

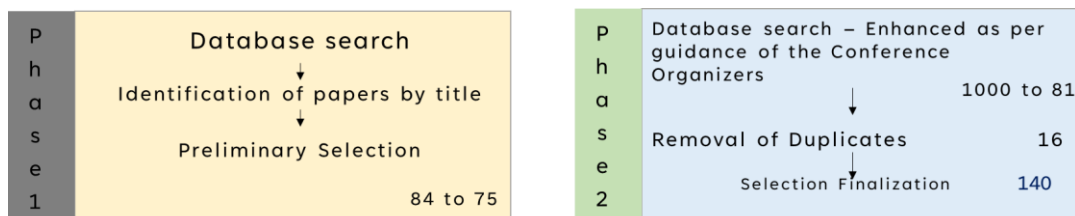


Figure 1: Systematic Literature Review Methodology

The techniques of analysis included thematic analysis, word cloud, cluster analysis, and descriptive analysis. R Studio, excel, manual interpretation, and other online resources were used for analysis. In the next section, the findings of the study are presented.

3. FINDINGS

The present section first presents the findings associated with the distribution of papers, followed by top 20 journals, associated themes, word occurrence, and cluster analysis.

3.1 RQ 1: Current Research on the role of AI in marketing

3.1.1 Distribution and Statistics

It is observed from Figure 2 that 129 (92%) out of 140 papers on the focus area of the theme were published between 2019 – 2021, with the maximum number of 48 papers (34.2%) being published in 2021.

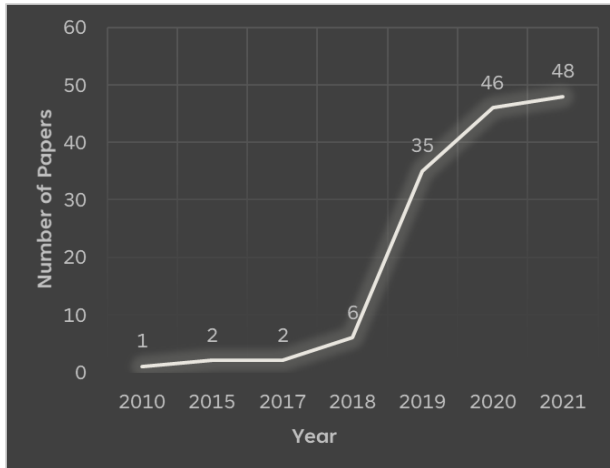


Figure 2: Year-wise Distribution

Further, the paper type distribution highlights that 136 (97%) papers were Journal articles, and 4 (3%) were conference papers.

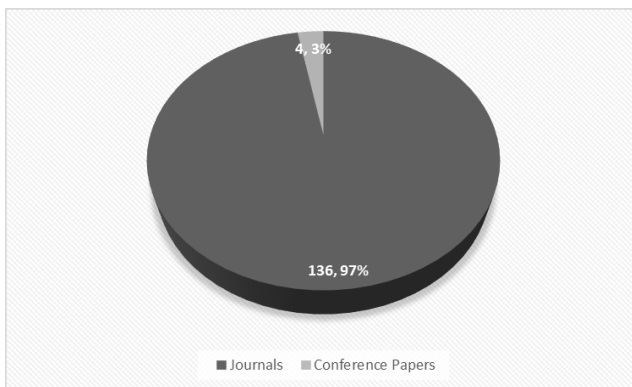


Figure 3: Distribution of Papers

Next, we investigate the Journals that published research papers associated with the focus area of the present study.

3.1.2 List of Journals

A total of 83 Journals published articles associated with the role of AI in marketing. Table 1 provides insights into the Top 10 Journals and indexed databases. The Journal of Advertising (11 papers), Psychology and Marketing (8 papers), Industrial Marketing Management (5 papers), Journal of Interactive Marketing (4 papers), and International Journal of Research in Marketing (3 papers) were the top 5 journals.

Table 1: Descriptive Statistics

Journal Name	Number of Papers	Database
Journal of Advertising	11	Taylor & Francis Online
Psychology & Marketing	8	Wiley Online Library
Industrial Marketing Management	5	Science Direct, Elsevier
Journal of Interactive Marketing	4	Science Direct, Elsevier
International Journal of Research in Marketing	3	Science Direct, Elsevier
Journal of Business Research	3	Science Direct, Elsevier
Academy of Marketing Studies Journal	2	Academy of Marketing Studies
Applied Artificial Intelligence	2	Taylor & Francis Online
Amfiteatru Economic	2	Central and Eastern European Online Library
Business Horizons	2	Elsevier

Next, we present the themes associated with various journals.

3.1.3 Journals and Sub-themes

In the present section, we present the highlights of papers published in the top 10 Journals from the perspective of a count of publications on the focus area.

The dominant themes in the SPM framework encompass

Table 2: Journals and Sub-Themes

Journal Name	Sub Themes
Journal of Advertising	AI and Advertising (3); AI and Consumer Patronage Likelihood (1); AI in programmatic advertising (4); AI as an influencer (1); Technologies in advertising (1); Trust in Social Media Platforms (1)
Psychology & Marketing	Antecedents of creepiness in interacting with Chatbots (1); Consumer Feelings for Voice Assistants (1); Consumer Judgement on AI-based Checkout (1); Automated Vehicle adoption (1); Robot Humaneness and customer service preference (1); Service value expectation and human likeness of robots (1)
Industrial Marketing Management	AI CRM in B2B (1); Digital Sales (1); Factors affecting AI chatbots (1); AI and ML impact on Personal sales and sales management (1); Role of consumer, supplier, and technology in B2B with AI (1)

Journal of Interactive Marketing	AI and customer relationships (1); Pitfalls and opportunities with AI in marketing (1); AI management during customer journey (1); Framework for Digital Insights with AI (1)
International Journal of Research in Marketing	Technology facilitated consumer brand engagement (1); Emotional support by Voice assistants to customers (1); Future of marketing (1)
Journal of Business Research	AI and dyadic service exchange (1); Chatbots and brand-building (1); Dark side of B2B research (1)
Academy of Marketing Studies Journal	AI and personalized customer service (1); AI in digital marketing (1)
Applied Artificial Intelligence	ML applications in car market(1); Social network sites and online purchase behavior (1)
Artificial Intelligence in Wholesale and Retail	AI and consumer acceptance in online retail (1); Impact of AI chatbots on online retail (1)
Business Horizons	AI and B2B sales funnel (1); AI and marketing process (1);

3.1.4 Mapping Journal Sub-theme to SPM Framework Elements

After mapping the Journal to sub-theme, further mapping of sub-theme to Software Product Management Framework was conducted (Table 3), which yielded the following chevrons as important from the perspective of the research area:

Table 3: SPM Framework Elements mapped to Journal Sub-Themes

SPM FRAMEWORK

Strategic Management	Product Strategy	Product Planning	Development	Marketing	Sales and Distribution	Service and support
Corporate strategy	Positioning, Product Definition ②	Customer Insights ③	Product architecture mngt ④	Marketing Planning ⑤	Sales Planning ⑥	Planning and Preparation
Portfolio Management	Delivery model, Service strategy	Life cycle management ③	Dev Environment	Value Communication ⑤	CRM ⑥	Service Execution ⑦
Innovation Management	Eco system Management	Road mapping	Dev Execution	Opportunity Mngt	Operational Sales	Technical Support
Resource Management	Sourcing	Release Planning	UX Design	Channel Preparation	Operational Fulfilment	Operations
Market Analysis ①	Pricing	Requirement Engg	Quality Mngt	Product Launches		
Product Analysis	Financial Management			Operational Marketing		
	Legal/IPR Management ②					
	Performance					

3.1.4 Mapping Journal Sub – theme, SPM Framework to Cluster analysis results

Further, the results of the Cluster analysis executed in R were combined with the analysis to observe the following research themes:

Table 4: Relevant Chevrons of the SPM framework associated with Paper themes and Cluster Analysis

S. No	Relevant chevrons from SPM Framework Sub-theme mapping	Cluster Analysis theme (Annexure 1)
1	Strategic Management <ul style="list-style-type: none"> ▪ Market Analysis 	<ul style="list-style-type: none"> ▪ Data, study ▪ Consumers, research, service ▪ Online, future
2	Product Strategy <ul style="list-style-type: none"> ▪ Product positioning ▪ Legal 	<ul style="list-style-type: none"> ▪ Social, use
3	Product Planning <ul style="list-style-type: none"> ▪ Customer Insights ▪ Life cycle management 	<ul style="list-style-type: none"> ▪ Humans, Technologies
4	Development	<ul style="list-style-type: none"> ▪ Management of AI
5	Marketing <ul style="list-style-type: none"> ▪ Marketing planning ▪ Value Communication 	<ul style="list-style-type: none"> ▪ Advertising, paper, and Digital customer ▪ Results, based, Frameworks
6	Sales and Distribution <ul style="list-style-type: none"> ▪ Sales Planning ▪ CRM 	<ul style="list-style-type: none"> ▪ Literature, Chatbots ▪ Process, sales
7	Service and Support: Execution	<ul style="list-style-type: none"> ▪ Management ▪ Chatbots

3.2 RQ 2: Key Focus Areas and Issue Areas

3.2.1. Focus Areas in marketing

- **Management of AI:** This facet requires decisions about the “autonomy, learning, and inscrutability” of AI (Berente et al., 2021). All functions of management e.g., coordination, communication, leading, and controlling have to be undertaken by a business. Implementation of AI may be executed by composing codes from the beginning, using available libraries (e.g., R part, Tableau, etc) or deploying “plug and play” software (e.g., weka, orange, KEEL) (Overgoor, Chica, Rand, and Weishampel, 2019)
- **Sales and Marketing research:** Some of the drivers of future research in personal selling research are expected to be ICT, “digitization”, “machine learning”, “robotics and artificial intelligence” (Syam and Sharma, 2018). With the advent of Artificial Intelligence in social media marketing, interactions between buying and selling units need to be further studied (Moncrief, 2017). Artificial intelligence-powered predictive modeling is also used by CEOs before the product development stage to gauge potential product success (Soltani-Fesaghandis and Pooya, 2018). Factors impacting the pricing of products sold on e-commerce sites can be determined with the help of advanced tools like “fuzzy logic” and “fuzzy association rule mining approach” (Leung et al., 2019). AI is expected to contribute to understanding customers, users, and the external market, which are key facets of B2B marketing (Paschen, Kietzmann, and Kietzmann, 2019).
- **Advertising:** According to Qin and Jiang (2019), AI intervention in the advertising process includes “consumer insight discovery, ad creation, media planning, and buying, and ad impact evaluation”.
- **E-commerce:** Customer experience on online sites is enhanced with the help of chatbots, which can simulate human behaviors (Sharma, 2019). Luo et al., (2019) in a study of 6,200

customers observed that hidden or anonymous chatbots were as efficient as humans, and four times more efficient than unseasoned employees. Purchase rates can however fall by more than 79.7% of customers learn about the identity of the chatbots. AI can help understand the “word of mouth” in online sites, and even alter websites to provide better customer experiences.

- **Impact on consumers:** Large data-oriented and “micro-targeting marketing practices” are being widely adopted by firms in recent times (André et al., 2018). These have a dual impact on consumers – improve choices and make decisions efficient; at the same time eroding their autonomy. Both phenomena impact consumer well-being with opposing forces. Trust and perceived usefulness have been observed to impact customer adoption of AI (Nagy and Hajdú, 2021). Studies have been conducted to understand consumer reactions in the presence of robots and other forms of artificial intelligence. They have been observed to react more to unforeseen situations in their presence (Ene, 2018). During the customer purchase process, customer engagement through the provision of personalized service has been observed to enhance customer experience with the brand (Daqar and Smoudy, 2019). AI has a big role to play in this process. Klaus and Zaichkowsky (2020) emphasize that bots have become the “service of choice”, whereby customers let bots take their decisions. Traditional customer decision processes are hence being neglected, and this has implications for the services sector. From the perspective of in-store experiences, it has been observed that AI-facilitated checkouts in comparison to self-service checkouts have increased customer patronage (Esch, Cui, and Jain, 2021).
- **Marketing Technology:** Technology used in marketing will be used by firms to stay ahead of the competition (Baltes, 2017). Increasingly AI technologies will create interaction avenues between brands and customers. The transformation of CRM into AI-CRM will improve the prediction of customer lifetime value, which may, in turn, lead to “service discrimination” (Libai et al., 2020).

3.2.2. Issue Areas

- **Industry standards for data mining**

According to Overgoor, Chica, Rand, and Weishampel’s paper of 2019, when we talk about data mining, marketing projects need to be governed by the Cross-Industry Standard Process for Data Mining (CRISP-DM) framework to avoid issues that might arise. The steps include Business Understanding, Data Understanding, Data Preparation, Modeling, Evaluation, and Deployment.

- **Development of AI**

Further, Hayes, Britt, Evans, Rush, Towery, and Adamson (2021) caution us that social media listening platforms that extract insights from social media for brand management are emerging areas of concern. According to them, marketers need to move beyond “blind faith” and train datasets better. This is associated with the quality of AI development, whereby its relevance for marketers needs to be focussed upon. Khrais (2020) proposes that a consensus needs to be reached regarding the term “explainability” associated with AI since AI communities approach this term differently than others. This is directly associated with user trust. Explainable AI permits the customer to journey the machine learning process in the best possible way that imitates human interactions. XAI allows for accurate and personalized information to be given and hence needs to be researched further.

- **Preparing marketers to understand AI**

It is observed from the papers that though marketers acknowledge that AI presents immense opportunities, researchers like Singh (2019) and Syam and Sharma (2018) caution us that there seem to be gaps in how we can operationalize AI for B2B marketing and decision making. Marketers need to understand what AI is. This is associated with the Marketing planning aspect as well as service and support aspects of the SPM framework. In the case of B2B marketing, Wilson and Bettis-Outland (2019) propose the use of ANN (Artificial Neural Networks) which seem to work well in small sample size research situations. Another set of researchers proposes the use of XAI to conduct dynamic analysis, in a manner that “revolves around the evaluation of moral and ethical standards of an ML” (Khrais, 2020).

- **Psychological reductionism**

A group of researchers led by André et al (2017) discussed the concept of psychological reductionism of marketing automation in describing consumer behavior. Data-driven marketing tends to focus on behavior in the form of revealed preferences. It tends to ignore the mental processes that lead to behaviors, especially what are customers' aspirational preferences. By showing a recovering smoker advertisements of cigarettes basis his/her browsing history, marketers may deprive the smokers of improving their character and enjoying a better quality of life. Some platforms have started using rationale for showing recommendations, which may be termed as more ethical, and also give consumers the autonomy to continue seeing/removing the choice to observe these advertisements. This may be associated with the Product planning and customer insights aspect and reveals that research is needed on how best to improve our understanding of customer aspirations.

- **Uncertain effects of AI on marketing**

The results of the deployment of AI in marketing are not well understood. According to Jarek and Mazurek (2019), AI impacts all aspects of the marketing mix, including the marketing function organization. De Bruyn et al., (2020) caution that marketing managers need to be careful about defining their “objective functions”, creating safe learning environments, having unbiased AI, and creating AI which can be controlled.

- **Preparing customers to experience AI**

The integration of digital assistants into firm functioning requires that they prepare customers to identify their expectations from such an interface (Brill, Munoz, and Miller, 2019). If customers feel that their identity is being threatened, they will resist the automation of services (Bakpayev and Belk, 2020). Further, resistance from customers is expected when they expect algorithms to endanger their “privacy, security, wealth, and opportunity”. The reason is that the collection is “increasingly intrusive” and consumers “are not aware of how this information is aggregated” (Cukier, 2021). In this exercise, transparency is proposed as a solution to alleviate customer concerns (Cuckier, 2021).

- **Safety and privacy concerns**

Privacy is often defined as the control of self. Privacy control is when users use the options of the control mechanism to freely determine the degree of information disclosure and the disclosure authorization of the privacy settings to prevent the leak of personal information. This aspect is of importance especially concerning approx. 4.5 billion internet users in the world, most of whom use social networks. This also has implications for its application in the design of the social internet of things or SIoT. According to Chung et al., (2021), most scholars are concerned with privacy risk or privacy management and are less concerned about giving more description on privacy control method or its role.

3.3.RQ3: Areas of Future Research

According to Brynjolfsson & McAfee (2017), the subject of AI and marketing is in its infancy. From a pull factor aspect, De Bruyn et al., (2020, p. 91) believe that marketing managers do not have an adequate understanding of the terms.

- Grewal et al., (2019) believe that future areas of research encompass “health technology, AI and robotics, dark web and chatbots, mobile and social, in-store technology, and legacy technology”.
- Further, Miklosik et al., (2019) observed that there is a lack of knowledge about new technologies, and consequently low adoption and application by marketers.
- Chen et al, (2019) have advocated for researching the area of programmatic advertising, especially the creative processes, which require human intervention.
- Paschen et al., (2019) proposed that researchers should study the impact of AI on sales personnel roles, how it creates value for customers in B2B marketing.
- In addition, future studies could explore how AI can be leveraged to develop market sensing capabilities, how AI will change the value creation processes for users and customers resulting from other external market knowledge, or how AI can facilitate external market knowledge when the external environment undergoes rapid and unforeseen change.

4. CONCLUSIONS

Contemporary research in AI-driven by technological enhancements is developing new knowledge regarding its applications in the field of marketing. We studied 140 papers, most of which were published in recent years (2019-2021). Our findings indicate that journals from management, science, psychology, and engineering are publishing research articles on the area, and hence this topic may not be relegated merely to Business Management journals. Scholars have studied the application of AI from all aspects of the SPM framework – strategic management, product strategy, product planning, development, marketing, sales and distribution, and service and support.

The present study can be enhanced with a further review of the literature and mapping of AI applications in marketing with the help of case studies.

There is scope for further research within the domains, with some elements having been investigated more than others. Within the domain of marketing, research has so far been dominated by the application of AI in sales and marketing, advertising, customer impact, e-commerce, marketing technologies, and management of AI. Our study reinforces the issue areas which need to be resolved as residing in the domain of development of industry standards for use of AI, preparing both marketers and customers to handle AI, improving analytics provided by AI, enhancing the ability to understand the predictability from AI and safety and privacy concerns. New areas of concern from a marketing standpoint relate to whether we need new Ps in marketing – Paravidya for knowledge management, and how do we account for the Artificial Intelligence beings/entities/robots/cyborgs in the marketing mix element of People. Literature has highlighted that customer loyalty is reinforced by comfort and emotional support delivered by AI applications. It throws up the question then, do customers find AI to be more humane than humans? With widespread inequality and deprivations prevalent in emerging economies, what is the role played by AI in marketing technologies being used?

It is the dawn of a new age, with new technologies, new experiences, and an uncertain future. The 4th Industrial Revolution requires new frameworks, new research, and controls built into systems so that they improve the quality of life of mankind.

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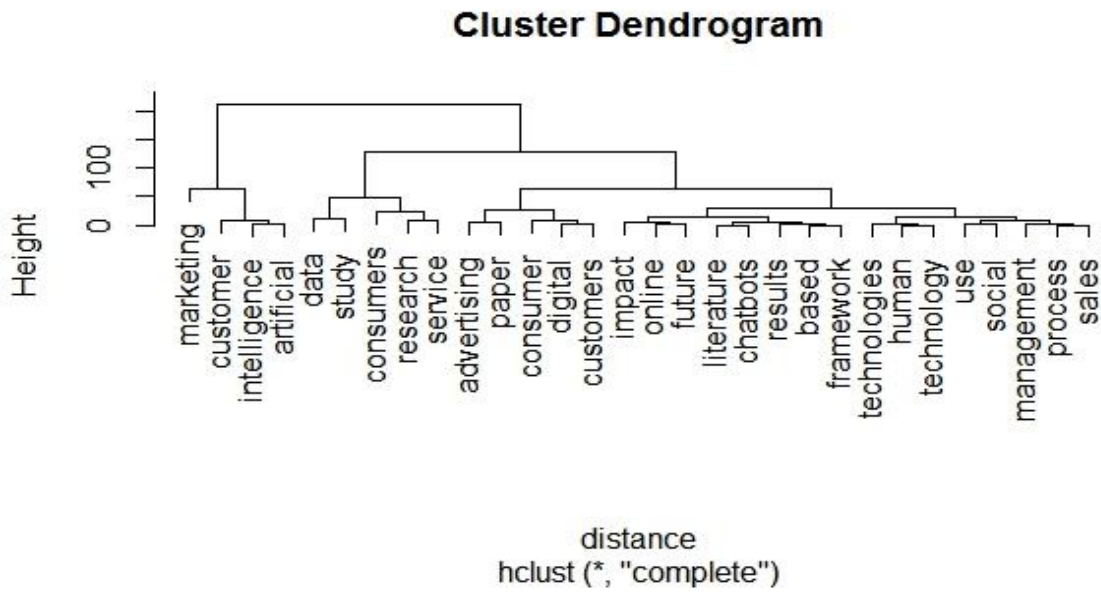
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Annexure

Cluster Analysis Diagram



WORD OCCURRENCE

S.No.	Word	No. of occurrences	S. No	Word	No. of occurrences
1	Marketing	193	11	Paper	84
2	Customer	155	12	Consumer	74
3	Intelligence	151	13	Digital	69
4	Artificial	149	14	Customers	68
5	Research	133	15	Human	64
6	Service	128	16	Technology	64
7	Consumers	117	17	Technologies	62
8	Data	105	18	Use	59
9	Study	98	19	Social	58
10	Advertising	87	20	Process	56