

**Using AI technologies in digital marketing within the service sector
-An analytical study of the automated learning platform-**

Abdelhamid Fadhila¹,

¹ University of Tsemsilt, Algeria , abdelhamid.fadhila@univ-tissemsilt.dz

Received: 15/02/2025

Accepted: 02/03/2025

Published: 17/03/2025

Abstract:

Artificial intelligence technologies are essential tools reshaping digital marketing strategies, aiming to understand how AI can enhance the effectiveness of marketing campaigns and customer engagement. This includes employing predictive analytics to gain deeper insights into customer behaviors and creating personalized content that enhances individual user experiences. AI tools also contribute to optimizing ad targeting and efficiently managing budgets, thereby increasing marketing return on investment.

This research focuses on studying the impact of AI technologies, such as machine learning and natural language processing, on improving customer interaction and satisfaction. Furthermore, it explores the opportunities and challenges companies face in adopting these technologies, with a particular emphasis on the service sector as a prominent area for leveraging AI innovations to achieve growth and competitiveness..

Keywords: Artificial Intelligence; Digital Marketing; Predictive Analytics; Content Personalization.

Jel Classification Codes: M31; L86; C45; O33.

1. INTRODUCTION

With the accelerated developments of ICT, the digital transformation of digital technologies has required accessions to adapt their marketing strategies to keep pace with developments in line with modern digital technology. Its revision of the methods, techniques and systems by which it practices marketing of its products in the digital space. AI is one of the most important modern tools offering innovative solutions to improve digital marketing strategies and has radically changed the management of marketing campaigns and the understanding and forecasting of clients' needs.

2. The problem of the study

The problem will be addressed and formulated according to the following question:

- How are AI technologies used in digital marketing in providing automated education and consulting services?

Sub-questions:

-What do we mean by artificial intelligence?

-What are the most prominent AI applications currently used in digital marketing of the service sector?

-How does AI improve customer experience and service customization in the service sector?

-What is the role of predictive analyses in identifying customers' needs and formulating marketing strategies?

2.1 Study hypothesis: AI contributes to increasing the effectiveness of digital marketing in providing my education services and counseling services.

2.2. The importance of the study: The importance of the study is to showcase the various AI technologies used in the electronic marketing of different organizations and how they contribute to knowledge of the target group and attract customers towards adopting the services they provide. The ability of intelligence technologies to enable organizations and marketers to access data and information about customers and know their positive trends.

2.3. Objectives of the study: This study aims to capture the theoretical aspects of various concepts related to the study.

- Learn how to use AI in digital marketing.

- Know the key applications of AI in digital marketing.

- Recognize the advantages and challenges associated with the application of AI in digital marketing

2.4. Study methodology: To achieve the study's objectives, the descriptive curriculum was relied upon by presenting various concepts of study variables in order to reach the answer to the problem and hypothesis and achieve the objectives of the study, it was divided into three main themes:

 | Theoretical rooting of artificial intelligence

 | Concepts of digital marketing

 | Applied study on e-education and consulting services.

3. Basic concepts about artificial intelligence:

Artificial intelligence is a branch of computer science that manages information technology and makes decisions independently of humans. s capability or sometimes superiority, It has many

abilities such as the ability to learn, understand and organize science. Understanding sounds, analyzing images, videos and emotional interaction in society has many applications and tools that have contributed to the development of medicine, economics and many areas. It is also known to be computer-based data and algorithms that transform into data and information that has the potential to withstand an enormous amount of data and information. (Margaret, 2023). For our part, AI knows that it is one of the branches of computer science that focuses on developing systems capable of performing tasks parallel to human capabilities, training it in huge amounts of data based on algorithms and deep learning. It is an advanced type of machine learning, using neural networks that mimic the G method.

3.1. Characteristics of artificial intelligence: the following are:

- Ability to represent knowledge
- Using an experimental method that focuses on optimistic adequate solutions unlike other programs that emphasize accurate solutions
- It has the ability to handle information that is unavailable or lacking and AI has to create solutions to support the integration of information to the effect that it may lead to unrealistic conclusions
- AI can learn from past experiences and improve performance by leveraging past error correction

Benefits of using artificial intelligence: offers many advantages that enhance the effectiveness of various activities in different fields

- AI enables enterprises to achieve high returns on investment by discovering new marketing opportunities on various social checks that can be invested in at the lowest cost.
- Perform tasks quickly and accurately resulting in increased efficiency and increased productivity reducing errors.
- Improve customer experience to the customization level it gives the customer
- Making decisions effectively and quickly and adapting marketing strategies before quarterly reviews by making real-time decisions that respond to variables.
- Accurately measure marketing methods and know which channels attract the largest number of potential customers by measuring customer response. (Bozian, 2023)

Challenges associated with the use of AI: Despite all the advantages offered by AI to enterprises, there are downsides including:

- Ethical issues related to privacy and data use
- Need for correct learning skills
- Data Problems
- Budget or procurement shortfall
- Inexperienced and skilled staff to positively analyze, analyze and manage AI marketing data
- Privacy Concerns

4. Basic concepts about digital marketing:

4.1. Digital Marketing Definition:

Digital marketing offers new prospects in the marketing world through direct customer targeting and is one of the most important contemporary methods that enables the communication between the seller and the buyer to market goods and services and develop relationships with the client and with the development of media technology and communication technologies. You can

communicate with your customers through a variety of digital media, both through your digital site and via smartphone platforms and various means that have become available (Mohammed, 2020, page 53).

Through these definitions we conclude that digital marketing is a continuous process over time that goes through many stages where we separate later, based on establishing and maintaining a relationship with the client using digital media provided by the Internet.

It can be said that digital marketing relies on effective communication based on effective communication to reach potential clients to rely on digital media, encompassing all marketing efforts using many digital tools by focusing on setting performance standards to see how successful the marketing campaign is.

4.2. Digital Marketing Advantages:

4.2.1. Advantages of digital marketing for organizations:

For the enterprise: access to information about customers

4.2.2. Stages of Digital Marketing: Digital Marketing passes through four basic stages:

Preparation Phase: At this stage, the needs and desires of individuals are identified and the target market is studied, and the knowledge of competitors is through marketing research. Data and information are carried out by specialized Internet-connected centers that provide up-to-date, effective and fast information that enables the identification of target individuals and attractive market to achieve their objectives (Baffra, 2012, p. 136).

Second: Communication phase: The new products on the market are introduced through the process of communication with customers based on several steps:

- a. " Attracting attention: By focusing on viewing advertising messages through various media available by sharing advertising tapes, as well as using email.
- b. Providing product information: so that the customer can build their opinion on the product

5: After-Sales Services: After the sale is completed, the enterprise must maintain a relationship with customers by attracting and incentivizing them through various digital media such as communication via: E-mail: It has several advantages such as speed of access to the other party and a cost that may be free even after distances.

Chat rooms: communicate with customers and identify needs and desires. They are vocal or text, whether individual or collective. Virtual Communities: Allows virtual meeting with customers, acquaintance, dialogue, communication, exchange of ideas, questions, concerns, interactions and discussions through chat halls, forums, social media sites and various software and applications we find on the website Freedom Asked Questions (FAQ) List of frequently asked questions:

The expected and repeated questions from customers to answer include how to buy, pay, use and how to pay (Tawfiq, page 40).

5.1. Digital Marketing Channels:

There are many channels that organizations adopt to conduct their marketing activities and are used to promote products and services online. We focus on the following main digital marketing channels:

First: Search engine marketing: One of the most widely used tools by the customer to search for their needs online. So the joiners seek to be in the top positions of search engine results by using

the means available for this such as purchase keywords, publicity for search engines, optimization of search engines through optimization of the content and structure of the site to increase its ranking in search results, automated detection

First: Content Marketing: This type relates to content such as texts and images, audio files and videos, the primary goal of which is to reach potential customers through the use of content.

Second: Email marketing: It is a way to get potential customers with interest in the services provided, and it is used to attract new customers and communicate with them. Statistics indicate that from 93% of users who choose email marketing 44% of them make purchases through email.

Third: Social Media Platform Marketing: The main goal of social media marketing is to familiarize itself with the services provided both through content display and through advertising.

Paid Digital Ads:

Qidiu Marketing;

App Marketing;

Commission Marketing;

SMS Marketing;

Marketing using influencers;

Augmented Virtual Reality Marketing.

Using artificial intelligence in digital marketing:

AI-enabled searches: Individuals who want to acquire goods or services need an AI operation.

Visual Search: AI facilitates product search through product image as it is a modern orientation that enables individuals to get product information accurately through color, size and quality.

Voice aid technology: which allows individuals to speak only without resorting to writing and is a fun experience that makes interaction easier for an individual in the search process.

Conversation robots: used to answer customers' questions and build automated simulation software that interacts with humans through the use of decision support systems, neural networks and various subfields of artificial intelligence to access rapid response to client requirements especially with accelerated development in all fields, through which costs are reduced and client satisfaction is achieved.

Automated presentation of product lists: By obtaining detailed information from various websites that are relevant to the desired product, create content for accurate descriptions commensurate with the customer's flexible trends that facilitate online shopping.

Provide free recommendations and guidance to the customer through pop-ups and advertisements When the customer acquires a particular product, he/she subsequently receives all accessories that suit his/her performance.

Use of non-stop packaging and processing AI machines and robots that reduce material costs and losses (Bouزيد, 2022)

AI Applications in Digital Marketing:

- Up Grow: A platform founded in 2017 that provides diverse services for accessions that seek to grow and increase sales aimed at improving the digital performance of the business by offering innovative digital marketing strategies including:

- Search engine optimization
- Social Media Management: By Creating Content
- Data Analysis
- It helps companies show up on the Internet
- Genius.AI: An advanced AI platform that provides many tools that help perform marketing tasks, make them automated and simple, easy to use and support multiple languages, this platform helps to intensify sales and marketing efforts by targeting the public through promotional campaigns,

This app integrates with social media platforms such as Facebook and Instagram, allowing it to manage communications by displaying the user's products and brand. It also includes an AI-enabled customer relationship management system that allows for feedback and follow-up tasks.

In general, Genius.AI can make use of multiple features. It focuses on direct sales, web marketing and supports brand image and increased sales by targeting customers without the need for extensive marketing knowledge.

-Market Muse: This app is effective in analyzing and creating high quality strategic content using artificial intelligence technology that helps organizations and digital website owners improve their visibility in search engine ranks from the features offered by this app:

-Analyze topics by presenting topics related to keywords and presenting comprehensive concepts of content.

-Content enhancement suggests modifications in content posted online compared to other content

-Select keywords that help to target

-Content Quality Analysis

This application can be said to help formulate effective marketing strategies and provide valuable content to the target audience

Ad Creative AI application: This app is based on improving advertising performance by generating attractive advertising texts and designs that meet customers' needs of high quality, supports marketing goals, provides reports on advertising performance and offers suggestions for improving performance.

This app is easy to use where the marketer selects the advertising target and then selects the target group, and then lifts the torch or content of the organization on the app that immediately designs the ad

□SEMrush: One of the most prominent digital marketing tools used to analyze website performance, improve search engines, study competition and improve marketing strategies. The most important features of this app are:

□Analysis of the most searched keywords

□Analyze competitors through the tools that this app has to know the technologies that competitors use.

□Scans the website to see problems that may affect its ranking in search sites

□Provide tools to improve existing content and strategies for creating and managing new content on social media sites

□Offers daily website order knowledge service

Using artificial intelligence in digital marketing:

Data Analysis:

Recommendations for products

Chatbots

Sentiment Analysis

Targeted Advertising

6. Field study:

In this part of the study, we will try to drop theoretical contents on field reality by highlighting the role of artificial intelligence in digital marketing: The application of technologies such as machine learning, graphic analysis, predictive AI to understand customer behavior and improve marketing campaigns. We have selected a service company that has used AI technologies in its digital marketing and is a company in the field of e-learning and consulting services.

We analyzed the impact of AI on digital marketing performance by measuring sales change, increasing customer interaction, improving audience targeting strategies, and then in the last phase we assessed the effectiveness of the technology tools used: smart chat software (Chatbots), predictive customization of content, and graphic analysis.

7. Study methodology:

Data collection: Data will be collected before and after the application of AI technologies from the service company specializing in e-education and consulting services.

oSecondary data: analysis of sales reports, web reports, advertising campaign analyses, customer interaction.

- Data analysis: AI tools will be used to analyze customers' data and behaviour patterns.

- oUsing technologies such as Google Analytics, advanced CRM platforms, and graphic analysis techniques.

8. Technics used raw data:

interviews with company employees and marketing officials.

- Predictive AI: Like systems that predict customer behavior based on previous data.

- Chatbots: To improve real-time communication with customers.

- Automated content customization: provide customized content to each customer based on their behavior.

- Big Data Analysis: to understand customer behaviour patterns and to analyze trends

- Expected results: Expected results after data collection were as follows:

- Increased interaction with advertising campaigns. Provided by e-Learning Platform and Consulting Services

- Improve conversion rates and increase sales.

- Enhance the customer experience by providing a more personalized service.

The following table shows the comparison of data before and after the application of artificial intelligence:

Table 1: shows change in sales

Indicator	Before applying AI	After the application of AI
Rate of interaction with campaigns	10%	25%
Conversion rate	3%	8%
Customer satisfaction ratio	75%	90%

Source: Statista Report 2023

Through the table we note that the percentage of sales increased in varying proportions before and after the use of AI. This proves the effectiveness of using AI technologies in influencing the increase in sales for e-learning platform services and consulting services

Now we will show the evolution of sales in the months before and after the application of AI technologies.

Table 2: Customer Analysis by Categories

Customer Category	Before applying AI	After the application of AI
new customers	5%	15%
Loyal Clients	45%	50%
Leaked Customers	10%	10%

Source: Statista Report 2023

Through the table we note that the customer category has risen significantly before and after the use of AI. This proves the effectiveness of using AI technologies in increasing the turnout of new customers on the e-learning platform used for the latest AI technologies and services. In return, it was a decrease in the leakage of customers from the educational platform.

We will provide data on the use of AI in digital marketing as follows and according to each of the reports:

According to a study conducted by McKinsey & Company in 2023, 35% of companies using artificial intelligence technologies saw a 25% increase in the efficiency of marketing campaigns. This data indicates the impact of artificial intelligence on improving the efficiency of marketing campaigns and expanding interaction with customers.

According to a study by Gartner in 2022, 70% of major companies in the service sector have adopted AI tools to improve customization in marketing. These data support the idea that customizing ad messages via AI increases interaction and attracts customers more effectively.

Data on the impact of artificial intelligence on customers' experience

- A study from Salesforce in 2023 showed that 60% of customers prefer to engage with companies that use artificial intelligence to improve customer interaction, such as providing instant responses via Chatbots. This study demonstrated the importance of delivering a premium user experience using artificial intelligence to improve clients' interaction with servers

Data on the effectiveness of various AI tools

According to research from Forrester Research (2023), 65% of companies in the service sector that used automated education to analyze customer behavior have seen an increase in the ability to identify marketing opportunities by up to 30%.

This helps artificial intelligence detect marketing opportunities that may not be visible through traditional analysis, enhancing companies' ability to target potential customers more accurately

Data on improving revenues through artificial intelligence

- A study by PwC in 2023 showed that 45% of companies that incorporated artificial intelligence into digital marketing strategies increased their revenues by up to 20% in the first year. This study suggested that the application of AI technologies could improve financial performance, especially in service sectors that rely on intense customer interaction.

Data on the challenges of using artificial intelligence in marketing

According to Harvard Business Review (2022), 40% of companies that adopted AI technologies in marketing faced challenges related to data integration and employee training in the use of smart tools. This data shows the obstacles companies may face in adopting AI technologies, requiring careful planning to implement the technology and ensure that teams are ready.

Statistics on the use of artificial intelligence in advertising campaigns

- A report from Statista in 2023 showed that 75% of companies using artificial intelligence to improve digital advertising campaigns experienced a 50% improvement in the effectiveness of targeted advertising. This helps artificial intelligence improve the effectiveness of advertising campaigns by analyzing customers' behaviour in real time, leading to improved targeting strategies.

Data on Returns on Investment (ROI)

- According to a report from Deloitte in 2023, 50% of companies that used artificial intelligence to market products and services in the service sector recorded an improvement in return on investment (ROI) by 15-20%. These data supported the idea that investment in artificial intelligence could improve long-term returns in the service sector.

Data on artificial intelligence in content customization

- According to a report from Content Marketing Institute in 2022, 80% of companies that used AI to customize content achieved a 25% increase in the rate of interaction compared to companies that did not use these tools.

In addition to these supporting data, which shows a more comprehensive perspective on how AI can enhance digital marketing in the service sector, including its impact on operational effectiveness, client interaction and financial improvement

We will summarize the highlights previously presented in the following table:

Table 3: shows the comparison of performance in the marketing of services before/after the use of artificial intelligence

Indicator	Before applying AI	After the application of AI	Percentage
Interaction with advertising	15%	40%	167%
Increased sales	8%	20%	150%
Improve customer satisfaction	78%	92%	18%
Content Personalization	10%	60%	500%

Source: Content Marketing Institute report in 2022 years

It is noteworthy that the customization of content was after the application of AI in a high and striking manner and was at 500% this confirms that AI-generated content has a high turnout compared to what it used to offer content in the usual methods prior to the advent of AI.

9. Conclusion:

Through this paper we tried to test the hypothesis of using AI technologies in digital marketing within the service sector, and we concluded the validity of the hypothesis. The study demonstrated that AI represents the future of digital marketing, contributing to improving the efficiency of marketing processes, enhancing the customer experience, and increasing the return on investment.

Projections suggest that the proportion of companies that will integrate AI into their

marketing strategies will see a significant increase by 2025. Global AI spending in marketing is expected to reach \$50 billion annually, underscoring the growing importance of these technologies for competitiveness and sustainable growth in the service sector.

Following the detailed presentation of this previous paper, the experience of using AI technologies in digital marketing within the service sector was studied.

- AI has proven its ability to improve audience targeting and customer behavior analysis, which has contributed to increasing the efficiency of marketing campaigns and reducing costs.
- The use of tools such as conversation robots and natural language processing has resulted in faster and more personalized interaction, enhancing customer satisfaction and loyalty.
- Applying predictive analyses and custom recommendations helped companies achieve a higher return on investment by boosting transfer rates and customer retention.
- Expectations show that AI will become a key element in digital marketing strategies, with many companies in the service sector showing increased interest in applying these technologies.
- With global spending on AI technologies in marketing expected to rise to \$50 billion a year in the coming years, this is expected to boost economic growth and increase opportunities for innovative companies.
- AI helps digital marketing, helping to improve organizations' marketing strategy and increase their productivity.

Through the above, the following suggestions can be made:

- The need to invest in digital transformation by urging companies in the service sector to adopt artificial intelligence as a key part of their strategies.
- Enhancing training by providing training programs to develop the skills of AI and digital marketing workers.
- Launch government initiatives by supporting SMEs to adopt AI technologies through stimulus policies.
- Promote research by encouraging more studies on the relationship between AI and digital marketing in the service sector.

10. Bibliography List:

1. Margaret, R. (2023). Artificial Intelligence (AI). Retrieved 11 22, 2024, from <https://www-techopedia-com.translate.goog/definition/190/artificial-intelligence>
2. Tawfiq, n. M.L. ' (s.d.). Marketing Assets (éd. Wael Publishing and Distribution House). Consulté le 2005
3. Hassan Bozian. (2023). Using artificial intelligence in marketing are examples of some global brands. Journal of Economics, Management and Commercial Sciences (16), pp. 29-16.
4. Sofian Bouzid. (2022). Using AI applications in e-marketing. Journal of Industrial Economics in Electronic Marketing, 12 (1), pp. 486-469.
5. Fugitive, y. a. (2012). E-marketing.
6. Mohammed, M. p. (2020). The impact of digital marketing on the customer's perceived value. 40, 53-112.
7. Noria, b. N ' (2020). Electronic marketing as an input to achieving competitive advantage in Algerian economic institutions. University of Oran/Algeri
8. <https://bakkah.com/ar/knowledge-center>
- 9 Research and Information Centre, Artificial Intelligence, p. 14.
10. Saudi Data and Artificial Intelligence Authority (Sadaya)
11. World Artificial Intelligence Summit
12. The role of Sadaya in Vision 2030
13. Mehdi Hanna, Reality and Challenges of Artificial Intelligence, 2024
14. <https://hotelsplatform.com/ar/blog/the-most-important-mobile-applications-for-hajj-and-umrah> Consulté le 05/1/2025
15. <https://travel.linastore.me> Consulté le 4/02/2025.