

The impact of Chatbot intelligence on digital marketing An applied study of models(e bay, Esty)

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Abstract:

Through our study, we aim to identify the applications and technologies used by intelligent chatbots that are suitable for the field of digital marketing, especially since the world is experiencing a technological explosion and tremendous progress in digital transformation and information revolution. In response to the question posed, and therefore we reached a set of results, the most prominent of which is that the intelligence of a chatbot today is a great challenge and an indispensable necessity for institutions of all shapes and types, through which it guarantees distinguished service to customers, continuity and survival in the markets

Keywords: chatbots, artificial intelligence, digital marketing, digital adaptation

Introduction:

The world has witnessed a great progress in recent years due to the transition to the digital economy. The world has interacted with the developments that have produced many modern applications that have had a significant impact on daily practices, such as the Internet of Things (IoT), Big Data, and Artificial Intelligence (AI). These technologies have also had a significant impact on the way businesses operate. They have helped businesses to provide modern digital solutions that have enabled them to attract and retain customers more efficiently than traditional methods, which have helped them to gain a competitive advantage. Chatbots are one of the most important technologies used in the field

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of AI that affect marketing activity The impact of artificial intelligence (AI) on digital marketing has been significant, as AI has enabled businesses to reach customers, understand their behavior, and predict their future behavior. This has allowed businesses to better satisfy customer needs and stand out from the competition.

The success of any business depends on its marketing strategy, and each business should take into account how to develop marketing plans that focus on implementing strategies that rely on digital transformation technologies and AI solutions in general.

Therefore, the main research problem revolves around the following question:

- What is the impact of chatbots intelligence on digital marketing strategies?

Research Objectives

This article aims to define the concept of artificial intelligence in general and digital marketing, to learn about the application of chatbots in the field of marketing and to highlight their importance and the solutions they offer to institutions in winning customers and establishing long-term relationships that achieve value creation, excellence, and leadership.

For this purpose, the research was divided into five axes:

THE FIRST TOPIC: Concepts about digital marketing, artificial intelligence in general, and chatbots in particular.

THE SECOND TOPIC: Stages of digital marketing.

THE THIRD TOPIC: Application of chatbots in digital marketing.

THE FOURTH TOPIC: Concrete examples of the uses of the chatbots application in digital marketing.

THE FIFTH TOPIC: An applied study of EBAY / ESTY models

• Research Methodology

This research is based on a descriptive analytical approach by attempting to study and identify the applications, techniques, types, and impact of chatbots or chat bots on digital marketing to become familiar with different aspects of the topic.

THE FIRST TOPIC :Concepts about digital marketing, artificial intelligence in general, and chatbots in particular.

FIRST REQUIREMENT :Digital marketing is powerful tools that can help businesses achieve a variety of marketing goals, such as increasing brand awareness, attracting new customers, and generating sales.

Here are some definitions of digital marketing:

- All the efforts made by the organization to inform buyers, communicate with them, promote and sell their products through channels.
- The marketing side of digital business, including all the organization's communications to promote and sell its products digitally.
- Using digital technologies to create integrated, honest, and measurable communications that help to win customers and build deeper relationships with them and maintain them.
- Through the previous definitions, we see that there are many different perspectives on how to define digital marketing. However, we can conclude that it is all those efforts that organizations undertake in order to achieve the desires and needs of customers to gain satisfaction through the use of the internet. It is based on three principles that form the cornerstone for it, which are³ :

FIRSTLY: Immediacy:

³ - Barakham Kemoush, Scheherazade Nassib, The Inevitability of Artificial Intelligence in Digital Marketing, The International Virtual Forum: Big Data and the Digital Economy as a Mechanism for Achieving Economic Take-off in Developing Countries, Opportunities, Challenges, and Prospects, Martyr Hama University hamma Lakhdar el-oued, June 18, 2021, p. 04

Organizations need to respond to online messages and interact with communities as quickly as possible. This is to keep customers interested and engaged, as the internet changes rapidly.

SECONDLY: Personalization:

Online customers are no longer anonymous individuals from a large target audience. They are individuals who personally want to get the products. This provides a wealth of personal information that can be used to attract new customers and win their loyalty.

The second requirement: The concept of artificial intelligence:

The term artificial intelligence (AI) refers to systems or devices that mimic human intelligence to perform tasks and can improve themselves based on the information they collect. It is more related to the ability to think super and analyze data than to a specific form or function. AI is used in a number of tasks, including⁴ :

FIRSTLY: chatbots can be used to process natural language to understand customers and allow them to ask questions and get information. Chatbots can also learn over time to add more value to customer interactions.

Secondly: Understand customer issues faster and provide more efficient answers.

AI practitioners use it to analyze important information from a large set of text data to improve scheduling.

Artificial intelligence (AI) is simply a term that describes how a computer program or machine can imitate different types of human behavior and thinking, such as movement and speech, and the ability to implement the acquired intelligence to perform different tasks with minimal human intervention. Experts define artificial intelligence as the science of making things smart, and it includes robots and natural language.

⁴ - Bouzid Sofiane, Employing Artificial Intelligence Applications in Digital Marketing, Journal of Industrial Economics, Abdel Hamid Ibn Badis University, Mostaganem, Algeria, Vol.12 Issue 01 2022, p. 498

Third requirement: Artificial intelligence characteristics

These systems can be described as intelligent, and some of the most important characteristics include:

First, knowledge representation by symbols: This is the first characteristic of artificial intelligence (AI) programs used by institutions, as they generally deal with non-numerical symbols, unlike what is known and accepted in most computers that deal with numerical quantities and numbers.

Second:= the ability to represent knowledge: Unlike statistical programs, AI programs contain a method of representing information that uses a special structure to describe knowledge. This structure includes facts, the relationships between these facts, and the rules that link these relationships within the institution in which it is applied.

Third:, the use of the experimental optimistic method (sing of experience): One of the important qualities in the field of AI is that it focuses on adequate solutions and does not confirm optimal or accurate solutions as is the case with current traditional programs.

Fourth:, the ability to deal with incomplete information: Since AI programs have the ability to find some solutions even if the information is not fully available at the time the solution is required, and the consequences of incomplete information lead to less realistic or less worthy conclusions.

Fifth: Learn ability: The ability to learn is one of the most important qualities that a smart agent can have. This quality can help it achieve its goals and improve its life.

The fourth requirement: the concept of Chatbot applications

Chatbots are emerging digital tools that offer customers convenient, personalized, and unique assistance. Others have defined chatbot technology as a term for a program that allows human-machine interaction using different languages, meaning that chatbots can have conversations with humans via voice or text. Filipezyk and Arsovski add that chatbots are a valuable tool that enables organizations to communicate interactively with customers and manage

knowledge with them. It has also been defined as a computer program that simulates human language with the help of a text-based dialogue system.

Based on the above, chatbots intelligence can be defined as: a program that has been developed through artificial intelligence activities, can have conversations with customers using different languages, and provides an unlimited number of customer contacts, which gives the customer flexibility in operations and the organization a competitive advantage that distinguishes it from other organizations.

The second topic: the stages of digital marketing

Arthur D. Little Consulting Firm presented a model of four basic stages that contribute to the effectiveness of digital marketing. These stages are as follows:⁵

The first requirement: the preparation stage

In this stage, the needs and desires of the consumer are identified, the target markets are defined, and the nature of the competition is determined. This can only be done by quickly obtaining the necessary information and data using a marketing research methodology. This helps the organization to launch products and services The second requirement: the communication phase that are suitable for the Internet and that achieve its goals.

The second requirement: the communication phase

Sure, here is the translation of the text you provided:⁶

In this stage, the organization achieves the process of contacting the customer to introduce him to the new products that are being launched on the internet. This stage consists of four elements:

1. Attention-grabbing stage: The organization uses several tools and means to achieve this stage, such as advertising and email.

⁵ - Abdel-Razzak Barakat, Al-Jilali Hafi, Investment in Chatbots, An Applied Study, Bibliovia Journal for Library and Information Studies, University of Oran.1, Issue 3, p. 14

⁶ - Dr. Maryem Balata and Dr. Asia Bright, E-marketing mechanisms through social networking sites, an analytical perspective, Skikda University Blog Journal, Vol09 Issue 01 p. 800

2. Information provision stage: The organization provides the customer with the information he needs to form a personal opinion about the new product.
3. Desire arousal stage: In order to produce this stage, the presentation process must be effective and the use of multimedia technology is preferred.
4. Action and behavior stage: If the consumer is convinced of the product offered online, he will make the actual purchase decision.

The third requirement: Transaction phase

This phase refers to the exchange process between the seller and the buyer. The organization must provide the products and services, while the buyer must provide the required price. There are many payment methods that the buyer can use, but the most popular are credit cards online.

The fourth requirement: the after-sales phase: after sales phase

The marketing process does not stop at gaining and attracting new customers, but it is also necessary to retain them, and the organization should use all digital means to achieve this, the most important of which are:

- Virtual communities and chat rooms
- Email communication and providing customers with the latest product information
- Providing a list of frequently asked questions
- Support and update services

The third topic: the application of (chatbots) in digital marketing ✓

Chatbots have gained a strong and growing interest in the customer service field. Chatbots can be used to handle many routine inquiries that typically make up most service requests. Chatbots can also target a larger customer base and are available 24/7. Additionally, chatbots never need to take a vacation, get angry, or get tired.

- According to McAfee & Brynjolfsson, the first step of listening and understanding will be the most difficult part of customer service. The renewed interest in chatbots is also partly driven by the evolution within digital marketing and digital services to integrate natural language interfaces. Chatbots have gradually become a regular function in customer service platforms in banks, consulting, and industry. Human-like

Conversation allows chatbots to give customers the opportunity to write questions and, in return, get meaningful answers to these questions in everyday language.

It is true that chatbots are useful in other areas besides customer service. In the field of healthcare, they can be used to answer medical questions, provide emotional support, and offer guidance on treatment. In the field of education, they can be used to provide students with individual lessons, help students learn new skills, and assess student progress.

The first requirement: List-based chatbots ⁷

are a type of chatbot that follows a rule-based model. This means that they are based on a list of pre-defined answers, which are called upon in response to a pre-defined sequence of prompts.

List-based chatbots are typically designed to perform specific tasks, such as providing information or completing transactions. They can also be used to answer general questions, but they are typically limited in the amount of information they can provide.

The second requirement: chatbots based on keyword recognition chatbots:

These conversation robots identify specific keywords in order to achieve the desired result. They listen to what users enter and respond accordingly. With the help of artificial intelligence and a customized list of keywords, the robot determines the appropriate response for the user using There are a number of things that can be done to improve the accuracy of chatbots when dealing with

⁷- Dr.. Samira Ahmed Fahmi Abdel-Ghany, Chatbots and their uses in information institutions, an exploratory and analytical study, Scientific Journal of Libraries, Documents and Information, Cairo University, No.15, p. 298.

keyword repetition. One thing that can be done is to improve the grammar rules that the chatbot uses. This can be done by training the chatbot on a larger dataset of text. It can also be done by improving the way that the chatbot analyzes text.

The third requirement: contextual chatbots:

Contextual chatbots are a type of chatbot that uses machine learning techniques to understand the context of a conversation and provide more relevant responses. They can be used in a variety of applications, including customer service, education, and entertainment.

Contextual chatbots work by analyzing a sequence of words and phrases that the user utters. They then use this information to determine the user's intent and provide a response that matches those intents. For example, if a user asks a chatbots how to get to a certain location, the chatbot will use information such as the user's current location and the time of day to provide a more relevant answer.

The fourth topic: concrete models for the uses of the chatbot application in digital marketing:

The first requirement : the Royal Dutch Airlines Company: "The Royal Dutch Airlines Company was launched:" KLM Royal Dutch Airlines launched a chatbots called Bleu Bot on Face book Messenger. The main function of Bleu Bot is to help travelers book their tickets, track their ticket status, and change their flight schedules. The company built Bleu Bot to help the support team, which was handling over 16,000 requests weekly in the first 6 months of operation. Bleu Bot has sent 2 million messages to over 500,000 customers.

The second requirement: Starbucks Model

Starbucks' five-year plan, launched in 2016, focuses heavily on digital transformation. The chatbots for the Starbucks chain is integrated into the chain's Barista app as one of the activities of this plan. Through the application, users can place orders through direct voice commands, for the chatbot to pass the commands to the nearest coffee shop that the user can reach to pick up their

order. Certainly, this form of ordering is much better than waiting in the morning queues at Starbucks stores to get your favorite drink.

The third requirement: E BAY Model

eBay Chatbot is the latest and most popular e-commerce chatbot. It was designed to help Google, which means you can use it with Google Home or on your phone. You can ask it to buy anything in the world at a very low price. Chatbots can be a great support for employees to perform relatively basic and repetitive tasks very quickly, cost-effectively, and easily implemented, maintained, and used. The biggest challenge that needs more attention is the conversation ability or "personality" of your chatbot to increase or maintain your brand and customers.

The fifth Topic :Applied Study model (e bay , Esty)

We conducted an applied study on a sample of 100 individuals in the Tebessa state to choose the best chat bot model between eBay and Etsy. We reached the following conclusions

Table parsing

The descriptive statistics table for the sample shows that eBay appeared 58 times, while Etsy appeared 43 times. Four of the appearances were for Alibaba Express and Amazon, which were mentioned in another section of the survey.

- This is clearly shown in the graph for eBay, which has the highest viewing rate of over 50%.
- A table that determines which application individuals prefer.

Whichever of the applications do you prefer when making an electronic purchase :e bay, Esty, or another

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	E BAY	58	55.2	55.2	55.2
	ESTY	43	41.0	41.0	96.2
	others	4	3.8	3.8	100.0
	Total	105	100.0	100.0	

- Source : Spss outputs version 26

Single sample test

Valeur de test = 0						
	t	ddl	Sig. (bilatéral)	Différence moyenne	Intervalle de confiance de la différence à 95 %	
					Inférieur	Supérieur
Whichever of the applications do you prefer when making an electronic purchase : eBay, Esty, or another	26.537	104	.000	1.48571	1.3747	1.5967



Source : Spss outputs version 26

Sample test results:

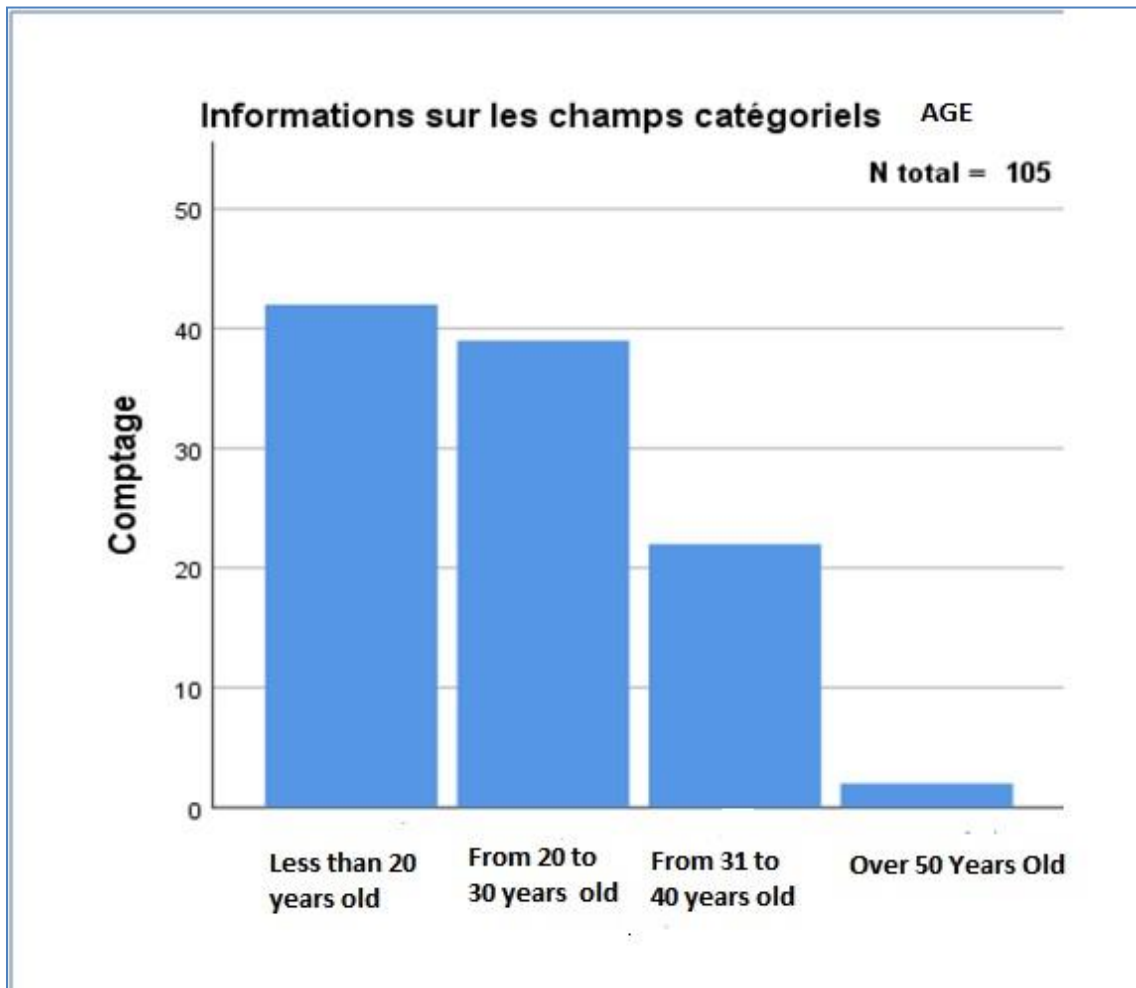
The sample appears to be independent and normally distributed, with a significant value of less than 5% and a confidence level of 95%, where SIG 0.000 is less than 5%.

Report statistics for : gender / sexe

Groupe	Différentiel lié au prix	Coefficient de dispersion	Coefficient de variation Médiane centrée
E BAY	1.219	.483	65.3%
ESTY	1.260	.699	99.3%
OTHERS	1.264	.417	69.4%
Global	1.255	.477	62.7%

Source : Spss outputs version 26

The response rate table summarizes the results by decimal order, in descending order (top 10%, 20%, etc.). The cumulative response rate is the aggregated percentage of positive responses for the current row and previous rows. Since the results are displayed in descending order of response rate, this is the aggregated response rate for the current decimal category and all decimal categories with higher response rates. Because the decimal category ranking is included in the new dataset, you can easily identify the postal codes that correspond to a specific cumulative response rate. The field in the new dataset that defines the decimal category ranking is called the rank, where 1 = top 10%, 2 = top 20%, etc.



"The charts also show that women are the most frequent users of artificial intelligence applications and that the age group that uses these applications the most is the one under 20 years old or between 20 and 30 years old.

Conclusion

Chatbots intelligence has attracted a lot of attention in recent years due to the developments in its techniques, which have made it an integral part of digital marketing. Institutions of all shapes are now well aware of the need to use it as soon as possible, as chatbots applications can make marketing methods more intelligent, effective, and customer-friendly.

In this research paper, we have provided a comprehensive overview of chatbot intelligence, its applications, techniques, and impact on digital marketing. We

have also discussed its most important models used in the world today. We have found that major companies such as Amazon, Facebook, and Google all rely on chatbot applications in their marketing strategies within the field of artificial intelligence.

We have drawn several conclusions and recommendations from these institutions that have not hesitated to take advantage of chatbot applications. These are as follows:

- Chatbots applications are not exclusive to advanced and large institutions. They can be used by anyone who has a computer or Smartphone connected to the internet.
- Chatbots can help in digital marketing by identifying and accurately defining customer needs and wants, as well as by identifying ways to gain customer satisfaction.
- Chatbots intelligence can help automate marketing operations and activities that rely on information technology. This is considered one of the essential systems that contribute to the analysis and processing of data more quickly and accurately, thus facilitating decision-making processes.

As for the recommendations, they are as follows:

- Increase interest in chatbot intelligence in various fields of life, especially digital marketing, by providing the latest means and resources that contribute to the development of digital marketing.
- Organize courses and seminars on the importance of chatbot applications in digital marketing.
- Encourage research in the field of artificial intelligence in general.
- Work on developing digital marketing applications and platforms in Algeria

List of references

- Baltah, M., & Brigit, A. (2020). The mechanisms of electronic marketing through social media: An analytical perspective. Journal of the Blog, Skikda University, Volume 9, Issue 1.
- Barakate, A. R., & Hafi, G. (2021). Investing in interactive chatbots: An applied study. Journal of Bibliophily for Library and Information Studies, University of Oran 1, Issue 3.
- Bouzidi, S. (2020). The use of artificial intelligence applications in electronic marketing. Journal of Industrial Economics Khazartekh, University of Abdelhamid Ben Badis, Mostaganem, Algeria, Volume 12, Issue 1.
- Kemosh, B., & Nassib, S. (2021). The inevitability of artificial intelligence in digital marketing. International Virtual Conference Big Data and the Digital Economy as a Mechanism to Achieve Economic Take-off in Developing Countries "Opportunities Challenges Growth".
- Hafez, M. (2021). Testing the effectiveness of factors affecting customer intention to use chatbots: A case study of the cellular telecommunications sector. Master's thesis in business administration, Virtual Syrian University.
- Abdelghani, S. A. F. (2022). Chatbots and their uses in information institutions: An exploratory analytical study. Scientific Journal of Libraries, Documentation and Information, Cairo University, Issue 15.
- Barakate, A. R., & Hafi, G. (2022). Investing in chatbots: An applied study. Journal of Bibliophily for Library and Information Studies, University of Oran 1, Issue 3.