# Artificial Intelligence and Its role in Supporting Marketing

**Hameed Abdullah Aloufi[a], Muhammad Ali Al Atif[b], Adel Habib Allah Abdul Aziz[c]**

[a,b,c]Department of Information Science - College of Arts and Humanities

King Abdulaziz University - Jeddah - KSA

**Abstract:**

After being just an imagination of science fiction writers, the artificial intelligence has greatly expanded and is taking more and more important roles in various and varied practices and fields in a way that it may completely change the course of human history.  In fact, the artificial intelligence technologies have entered many fields such as health and education. Moreover, they have played a prominent role in changing the form of business administration in general and marketing. This study aimed at identifying the effect of using artificial intelligence applications in support of various marketing processes using the methodology of the critical evaluation of the related research, studies, and literature. The study concluded that artificial intelligence has a prominent and axial role in the transformation of electronic transactions between services and goods producers and consumers and in analyzing their needs. In other words, it is a strategic shaping of the marketing and business future models. It has also a major role in increasing efficiency, saving time, and making marketing decision more feasible and accessible to customer database management. The study recommended the use and application of artificial intelligence tools and technologies in social media, in improving research engines and in the marketing digital development.

**Keywords:** artificial intelligence, marketing, advertising, customer relationships, management, innovation, content marketing.

## 1. Introduction:

During the recent years, the digital transformation of marketing and especially retail activities has become very important vital to stay competitive in the increasingly dynamic markets. New technologies allow increased sales growth, costs reduction, globally operating, and continuously and directly interacting with customers [8]. Generally, marketing is the process of promoting sales of a company's products and services. To be successful, marketers need to understand their customers and learn to interact with them. Therefore, marketing can include many different activities that help a company to maintain customer relationships. [16]

After the many revolutions that human beings undertook to achieve self-development, especially the industrial revolution, they worked in the second half of the previous century to direct their revolution towards knowledge based on technological and cognitive developments. This prompted them to seek assistance, thus moving from a simple machine that preserves and arranges information and then present it to them into creating a system that simulates human intelligence through its ability to learn, memorize, deduce, think, and perhaps reach solutions before them. This is called artificial intelligence which is considered one of the most important aspects of modern technology, as it is the fruit of decades in which human beings have invested as much knowledge and money as possible to reach the creation of an artificial mind that thinks with them, assists them, and substitutes them in some tasks [1].

In confirmation of the above, the results of study [17] made it clear that marketing partners should use and adopt artificial intelligence systems with considering minimizing the risks of privacy and confidentiality. At the same time, they have to work more on understanding the needs and trends of customers. In addition, the results of study [7] indicated that strong artificial intelligence is making its way in digital marketing, especially in the fields of visual recognition and voice search.

The importance of artificial intelligence is evident in that it represents a large part of society's interest both in promotion and in facilitating and developing ways of life. This contributes to providing a decent life for citizens, raising the standard of living, and achieving the expected performance in all sectors, including the marketing sector, which was evident through the goals of the Kingdom of Saudi Arabia's vision 2030. Therefore, we find institutions and organizations working hard to implement many different applications of artificial intelligence because of the importance and benefit of this technology in societies daily life at all levels. This, in its turn, led to the strengthening of research and studying efforts to understand, engage in, and contribute to its development.

The role of artificial intelligence applications has increased in various areas of life, including supporting marketing operations, so the current study seeks to shed light on the role of artificial intelligence applications in supporting marketing operations. Accordingly, the research problem can be stated through the following question:

***What is the role of artificial intelligence applications in supporting marketing operations?***

When tracing the related topic literature, it became clear that it abounds with many definitions of the concept of artificial intelligence, some of which are issued by organizations and some of them are individual attempts. The following is a presentation of some of those definitions of artificial intelligence [2]:

o The Information Technology Industry Council defines artificial intelligence as a group of technologies capable of learning, using logic, adapting, and performing tasks in ways that are inspired by the human mind.
o It is the automation of activities related to human thinking such as decision-making, problem-solving, learning, and others.
o It is the study of how to make computers do the tasks better than humans.

   o  It is the ability of the computer program to solve a problem and make a decision in a situation based on a description of this situation. The program finds the method to follow in solving the problem or reaching a decision by referring to the many different inferential processes that fed into the program. Artificial intelligence science aims at understanding the nature of human intelligence and simulate intelligent human behavior through computer programs.

All previous definitions agree that artificial intelligence is a technology capable of learning, perception, understanding, reasoning, prediction, and then decision-making support, which explains their name as smart machines.

Artificial intelligence tries to deduce the best solutions from a person's attempt to solve new problems encountered in his daily life, and here are some of the smartest applications of artificial intelligence [3]:

   o  Robot Sophia: The first robot in the world to become a legitimate citizen who has Saudi nationality and has qualities like human beings. She can express her feelings, has a sense of humor, in addition to her classic design, she has a slender nose, a wonderful smile, and very expressive eyes that change color with light.

   o  Self-driving cars: One of the first car brands launched a self-driving vehicle without a driver, which is guided by artificial intelligence technologies. Audi, Cadillac, and Volvo are currently developing their own model.

   o  The super doctor: able to save human lives, as doctors can diagnose serious diseases before it is too late, through artificial intelligence and deep machine learning, as it analyzes images and faces to diagnose any possible early signs using X-rays.

   o  Energy saving: there are currently houses equipped with artificial intelligence control that are able to reduce energy consumption by controlling smart sockets and automatic lighting sensors.

   o  Home security: with algorithms that know facial features, the house with the artificial intelligence system creates an index of the individuals who live in it, and known through your contacts and home visits, to help it distinguish between family members, guests, and visitors. Through this technology, there will be a significant reduction in attempts to steal and enter the house. So, with these security systems in addition to motion detectors, sensors, and security cameras, it will be possible to detect a potential breach, and even request emergency service.

   o  Life on other planets: NASA has also used smart technologies to search for life on other planets. The devices they send, known as (Rovers), can explore the topography and components of Mars with detail and accuracy.

As for marketing, it has many definitions, including the American Marketing Association (A.M.A) definition of marketing as carrying out various business activities to create a direct flow of goods and services from the producer to the consumer or user. E-marketing is defined as the optimal use of digital technologies, including information and communication technologies, to activate the productivity of marketing and its operations represented in the organizational functions, currencies and activities directed at identifying the needs of the target markets and estimating the goods and services to customers and stakeholders in the organization.[9]

Internet marketing is also one of the most important areas that benefit from automation and artificial intelligence, as machines have demonstrated capabilities - surpassing the human potential - especially by making use of the vast data on the Internet to guide consumers' decisions in purchasing. There are five basic elements to focus on when considering any marketing campaign aiming at attracting new customers on the Internet: [4]

- o Marketing channel: It is the platform through which the marketing campaign is implemented, such as Google, Facebook and other sites. The choice of any of these sites depends on the type of audience you want to target, and the main "target" of this audience. For instance, the audience who searches for the product on Google has a completely different goal from those who browse Facebook without direct intent to search for the product. Artificial intelligence can automate the selection of marketing channels for a campaign based on the goals of previous campaigns, and the selection of these channels for future campaigns can be improved based on the results achieved.
- o Targeting: A great marketing channel can be chosen, but targeting is what allows reaching the specific audience interested in the business to be marketed. In order to target the audience interested in the business, it is necessary to define the targeting criteria that will be used in the marketing channel to reach this audience.
- o Place of the ad: Each marketing channel provides a set of options for the location of the advertisement, such as that the ad appears on the right of the page, or occupies a full page, and other options. Each location achieves different results, even if it is for the same advertisement, and artificial intelligence can determine the best places to advertise for each campaign based on previous data, by conducting several tests for new campaigns in various places.
- o Creative design: Creative design is what the audience sees at the end, which motivates the audience to click to reach the site where the advertisement is coming from. Artificial intelligence can easily design banners for the marketing campaign by using the images and text on the advertiser's website. It is also possible to conduct tests on designs and select the best design through several sites specialized in it, and this whole process is done without human intervention.
- o Pricing: AI can help optimize the cost of the marketing campaign based on the price the advertiser sets and is willing to pay. For example, if the campaign is to take place on the search network, artificial intelligence can help in constantly adjusting pricing bids based on the number of visitors in different channels. Artificial intelligence is able to analyze various data in the coming time, in order to give proposals for developing the campaign, and to implement decisions automatically, while controlling spending and improving the budget.

## 2. Previous studies:

Table No (1) presents a number of previous studies related to artificial intelligence and its role in supporting marketing and a clarification of the main objectives and the most important findings and recommendations.

**Table 1: Previous studies on artificial intelligence and its role in supporting marketing**

| # | Study title | Study year | Main objectives | Main results and recommendations |
|---|---|---|---|---|
| 1 | A Strategic Framework for Artificial Intelligence in Marketing | 2020 | Developing a three-stage framework for strategic marketing planning, integrating many advantages of artificial intelligence (AI): mechanical artificial intelligence to automate repetitive marketing functions and activities, thinking about artificial intelligence to process data to reach decisions, and a sense of artificial intelligence to analyze interactions and humans | -The most disruptive aspect of AI is that it replaces the ability of human thinking and proves this.<br>- One of the most revolutionary features of modern AI thinking is its ability to personalize by automatically analyzing big data. |
| 2 | Artificial Intelligence (AI) in Strategic Marketing Decision Making: A Research Agenda | 2020 | The study aimed at reviewing the literature on the applications of artificial intelligence (AI) in strategic situations and determining the required research in the field of applying artificial intelligence to strategic marketing decisions. | There are strong repercussions for all companies, especially large companies in competitive industries, where the failure to deploy artificial intelligence in the face of competition from companies that have deployed artificial intelligence to improve their decision-making process may be dangerous. |

| 3 | Transforming marketing with artificial intelligence | 2020 | Provide comprehensive details on the benefits of applying AI in marketing, and how AI is reshaping marketing | AI Marketing is in its early stage and it is expected to reshape marketing strategies and business models. In addition, some market research topics may become unimportant, as machines will assume these roles and advanced jobs will be created. |
| 4 | Understanding artificial intelligence and its role in marketing | 2020 | Analyzing the role of artificial intelligence in marketing and that this study be an introduction to those in the field of marketing with an explanation of some applications of artificial intelligence in marketing. | -The skill and ability of marketing personnel to implement and optimally manage artificial intelligence solutions will be an important skill. -Marketing professionals should coordinate their efforts in order to achieve added value and better serve the customer through artificial intelligence applications. |
| 5 | The Impact of Artificial Intelligence in Marketing: The Perspective of Marketing Professionals in Pakistan | 2019 | The research aims at finding out the impact of artificial intelligence on marketing by including the perspective of marketing professionals in Pakistan | - The main influencing factors in the integration of artificial intelligence in the field of marketing are competitive pressure, media interest, digital maturity, and customers. - Increase efficiency and save time in marketing functions, improve conversion rates, better understand customer information, make marketing decision more feasible, increase return on investment, insights, improved service and customer satisfaction. |

| 6 | Artificial intelligence as an aid in the marketing process | 2019 | The study aimed at presenting a research agenda for the application of artificial intelligence in marketing practices and future trends and their impact on the future of marketing practices. | It determined that future research should be done in the areas of key algorithms, realistic interaction with customers, and autonomous and robust machines that go beyond human intelligence as well as potential ethical problems. |
|---|---|---|---|---|
| 7 | The Silent Giant of Marketing: How Artificial Intelligence revolutionizes digital marketing | 2019 | The study aimed at determining the impacts that AI brings to digital marketing | - Strong AI is making its way into digital marketing, especially in the fields of visual recognition and voice search.<br>-The study recommended the use of artificial intelligence tools for social media, search engine optimization and email marketing, in addition to content marketing. |
| 8 | How will artificial intelligence change the future of marketing | 2019 | This study combines three axes: levels of artificial intelligence, types of marketing tasks and robots in one methodology. It also explains some of the issues resulting from AI applications, such as privacy and ethical values. | - Artificial intelligence has an impact and a role on marketing strategies and also on customer behavior.<br>-More research and studies should be done on the impact and role of artificial intelligence on the themes of privacy and ethical values. |
| 9 | Artificial Intelligence in Advertising - How AI is used by marketing personnel in their journey with customers | 2018 | The study aimed at discussing the role of artificial intelligence in analyzing and managing social media data in order to better understand the client's needs. | -In the future, there will be new ways to obtain customer data through data mining and artificial intelligence techniques.<br>-Artificial intelligence will have an important role in information privacy. |

| 10 | Applying Artificial Intelligence to Screen Marketing: A Case Study of an Artificial Intelligence Technology Company | 2016 | The study provided a framework for a multi-screen marketing platform through a comprehensive analysis of theory and practice, and the model provides practical insights and strategies to help marketers successfully achieve business goals. | - Businesses can use artificial intelligence in conjunction with voice recognition technology to answer consumers' phone calls.<br>-As programs advance, the evolution and perception of virtual customer service agents will change drastically. |

## 4. Study methodology:

The descriptive analytical documentary approach was used, which is based on referring to documents and literature from research, articles, books, etc. The study treated them with description and analysis to extract conclusions and indications that have relevance to answering the study question related the subject of artificial intelligence and its role in supporting marketing.

## 5. Results and discussion:

By analyzing the previous studies shown in Table (1), all studies emphasized the importance of using artificial intelligence applications in many areas of life, including marketing, and we will discuss the studies in some detail:

1. In study [11] entitled "a strategic framework for artificial intelligence in marketing", the authors developed a three-stage framework for strategic marketing planning as shown in Figure (1), integrating many advantages of artificial intelligence (AI):
   - Mechanical Artificial Intelligence to automate repetitive marketing functions and activities.
   - Thinking about artificial intelligence to process data to reach decisions.

- Feelings with artificial intelligence to analyze human interactions and emotions.

**Figure -1: Artificial Intelligence and Strategic Marketing Decisions [11]**
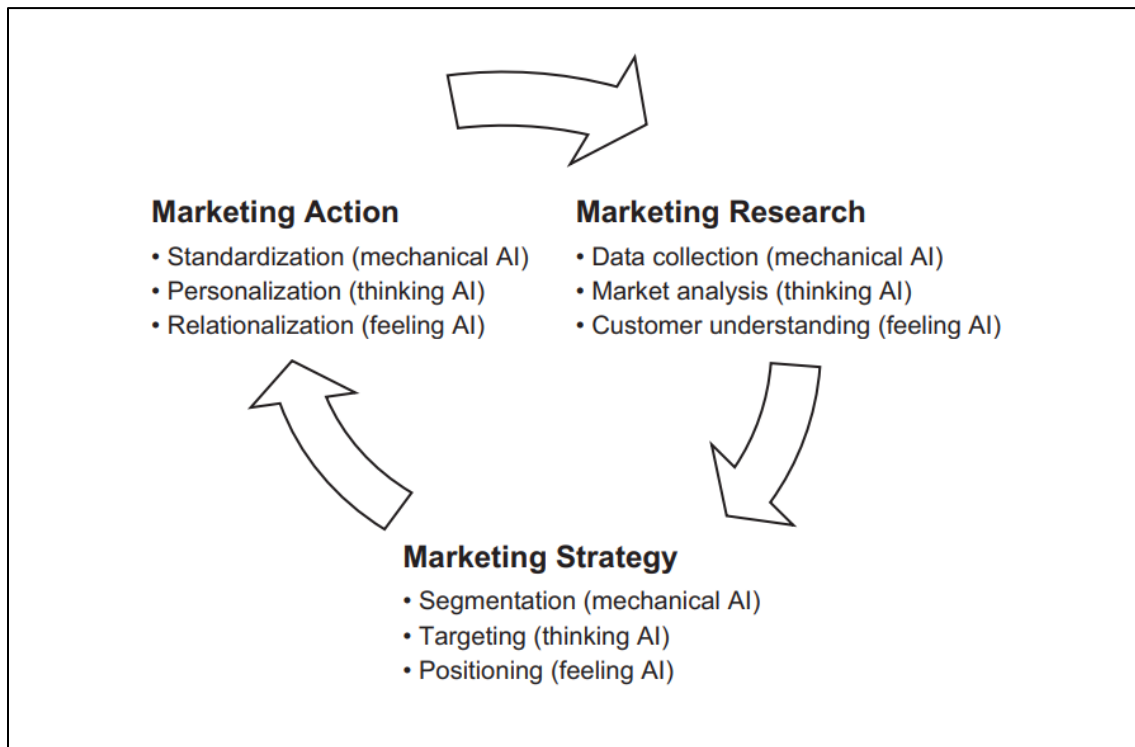


The framework also defined the ways in which AI intelligence can be used in marketing research, marketing strategy (STP), and marketing actions (4Ps / 4Cs). It outlines the strategic roles that AI can play in marketing, and points out the limitations of current AI, to help marketers use AI wisely. Despite the clear features of artificial intelligence, there are some limitations, which are:

o That the current mechanical AI has the strong ability to automatically collect and integrate multiple sources of data, but data contexts are often lost, which creates modeling problems, especially for emotional data.

o Current thinking in AI, although powerful, may not be neutral and transparent, which may lead to biased recommendations or have unintended consequences.

o Still no real machines can recognize, act on, and react to human emotions appropriately. The alternative use of artificial intelligence that is both thoughtful and mechanical to sense AI may lead to some unintended consequences.

This research was supported and funded by the Ministry of Science and Technology, Taiwan.

2. In study [10] entitled "Artificial Intelligence (AI) in Strategic Marketing Decision Making: A Research Agenda" the authors have followed the descriptive analytical documentary approach by reviewing the literature on the applications of artificial intelligence (AI) in strategic situations and determining the required research in the field of applying artificial intelligence to strategic marketing decisions. Moreover, marketing experts, who were invited to contribute via the article, were also consulted.

Artificial intelligence users fall into three groups:
- o Those who are in the proof-of-concept stage (80-85% of companies), with a low success rate, and a low return on their AI investment, and their efforts are usually isolated within a department or team, often with IT leadership, and without any connection with business necessity and it is hard to expand.
- o Those who have participated in the strategic expansion (15-20% of companies), having gone beyond proof-of-concept, with a higher AI success rate, with an AI strategy and operating model linked to the company's business goals, an experimental mindset, and their efforts supported by a larger multi- dimensions team.
- o (5% at most) who made their use of AI, creating a culture of AI, and a clear corporate vision based on strategy and competitive advantage that is resistant to isolated applications. They understand the importance of business-critical data i.e., identifying financial, marketing, consumer, and master data as a priority, investing in data structuring and management, data quality, data management, and cloud data governance frameworks, with clear operating models generating data against its consumption, integrating internal and external data sets as a normative practice, and understand the importance of using more diverse data sets to support initiatives.

The research cited two case studies:
- o A liquor company that uses artificial intelligence to develop more accurate forecast models, improve consumer and customer segments, improve sales, and deploy advanced analytical capabilities to more than a hundred global data sets, including sales and forecasting data, social media, trade spending, and customers.
- o A small chain store that uses artificial intelligence in pricing to match customer demand around the world, using virtual agents to interact with global category management teams to drive the adoption of the new pricing approach, supported by multidisciplinary teams with skills in areas such as data engineering, visualization, data quality, and human-centered design.

3. In study [13] entitled "Transforming Marketing with Artificial Intelligence", the two researchers presented the full concept of using artificial intelligence in marketing. They also provided comprehensive details on the benefits of applying artificial intelligence in marketing, how artificial intelligence is reshaping marketing, and the need for artificial intelligence in marketing that is evident from real-world examples from different companies. This paper also included a section devoted to implementing various AIM strategies. The researchers comprehensively studied the implications of AIM technology throughout the customer's life cycle. It also showed that marketers could understand customer behavior, generate customer insights, and reinforce four elements, which are customer targeting and lifetime value, customer engagement, customer experience, and customer loyalty.

4. Study [5] entitled "Understanding Artificial Intelligence and its Role in Marketing" analyzed the role of Artificial Intelligence in Marketing. It presented its content to those in the field of Marketing with an explanation of some applications of Artificial Intelligence in Marketing. The study showed that artificial intelligence has a major role in raising efficiency and productivity in various fields, including marketing, but this concept is not universally agreed

upon (there is no single concept and definition agreed upon by all). Therefore, with the development of this technology, it was necessary for those working in the field of marketing to have some basic skills to apply and manage this technology effectively and make the most of it. There are many developments in the field of marketing because of the use of this technology, especially in the field of customer benefit. For example, specialized advertising programs that follow and define customer behavior and based on that the commodity is designed and made, whether as a service or as a product. The study showed that there is a great diversity in the applications of artificial intelligence, but all of them aimed at making computers contain and perform all that human intelligence can do in terms of business tasks. Artificial intelligence has been divided into two parts:

o   Artificial General Intelligence (AGI): It is also known as strong artificial intelligence. In general, this type can perform any tasks and actions that human intelligence performs.
o   Narrow Artificial Intelligence: known also as weak artificial intelligence, and this type can do some specific tasks and work, not all tasks, as it is in the aforementioned type.

Based on this general division, the study pointed out at (3) levels of artificial intelligence application in marketing, which are:

o   *Low participation:* It is through third-party solutions, which do not require large resources (financial, effort, time) and are on tasks and small-sized businesses and content. An example of this is search tasks from the user side, such as using the Google Image Search feature.
o   *Medium participation:* This level includes some medium-term engagement and interaction that does not reach the tasks and actions related to the strategies. An example for this is Customized Chabot chat rooms, which are used in customer services.
o   *High participation:* which covers advanced technologies and deals with tasks, works and projects related to strategies and the like. These solutions are custom designed and built based on specific huge needs. This technology plays a major role in efficiency and performance. As a clear example we can cite Artificial intelligence systems and technologies that were used in designing and building an application such as Google.

The study concluded that the skill and ability of marketing personnel to implement and best manage artificial intelligence solutions will be important skills in the next stage. Marketing professionals should coordinate their efforts in order to achieve added value and better serve the customer through artificial intelligence applications.

5.  Study [12] entitled "The Impact of Artificial Intelligence on Marketing: The Perspective of Marketing Professionals in Pakistan" aimed at finding out the impact of artificial intelligence in marketing by including the perspective of marketing professionals in Pakistan. A comprehensive review of the literature that provided a detailed understanding of artificial intelligence and its use in marketing. A qualitative research method was used which involved semi-structured interviews with different marketing specialists belonging to different Pakistani companies. The sample size was ten marketing professionals.

The results of the study shed light on the factors that contribute to the integration of artificial intelligence in marketing, the benefits, the challenges of the integration of artificial intelligence in marketing, the previous and subsequent marketing strategy of your company, the ethical aspects, and the use of artificial intelligence in the field of marketing. The research also included integrating artificial intelligence into marketing functions to improve business performance and thus achieve profitability and competitive advantage. The study showed that the main influencing factors in the integration of artificial intelligence in the field of marketing are competitive pressure, media interest, digital maturity, and customers.

6. Study [14] entitled "artificial intelligence as an aid in the marketing process" relied on a systematic review of the literature. It is noted that the researcher focused on promotion, advertising, customer relationship management (CRM) and innovation. The main goal is to determine how artificial intelligence can improve and support marketing practices. Therefore, the current use of artificial intelligence tools in marketing was mentioned, and the development of trends and their implications for future practices were considered. The study stressed that future research should be done in the areas of key algorithms, realistic interaction with customers, autonomous and robust machines that go beyond human intelligence as well as potential ethical problems.

7. Study [7] entitled "The Silent Giant of Marketing: How Artificial Intelligence Is Revolutionizing Digital Marketing" (a PhD thesis) used the qualitative research. The researcher's goal is to understand and explain why things happen the way they do instead of predicting and spreading existing data. The study of different levels of artificial intelligence has shown that weak AI has been playing a role in digital marketing activities for several years now. The research also indicated that robust AI is making its way into digital marketing, especially in the fields of visual recognition and voice search. The researcher examined two main types of machine learning. He argues that supervised learning is more common than unsupervised learning, and it is very difficult to distinguish between them.

The researcher confirms that machine-learning capabilities are able to carry out repetitive tasks and thus allow marketers to save their time to tasks that machines cannot perform. Reinforcement learning is more powerful and can help professionals to complete tasks that require more creativity. The research also demonstrated that well-trained algorithms with the help of machine learning are able to work just as marketing professionals do. Therefore, with the right amount of data, machine-learning technology is a huge advantage for any organization in any department. Artificial intelligence tools can determine whether marketers will be able to communicate desired emotions with the posted content or not. Artificial intelligence tools provide the advantage of creating more personalized posts / ads on social media, allowing marketers to select the right influencers to match the company's brand, and one example of a useful AI tool is the Chabot that allows companies to communicate with customers without human interaction.

On the other hand, while algorithms have improved over time, there are instances where many people use a device in which the algorithms do not display true user behavior. Another challenge is that there is a lack of knowledge among the marketing community. However, the

research suggests that this challenge can be easily overcome if organizations are willing to invest more resources in AI.

8. Study [6] entitled "How artificial intelligence will change the future of marketing" combines three axes, which are levels of artificial intelligence, types of marketing tasks and robots in one methodology. It also explains some of the issues resulting from AI applications, such as privacy and ethical values. With regard to levels of artificial intelligence, the research conducted a comparison between task automation and context awareness. The first type are standard applications or that depend on rules and foundations, as they are not based on logic but rather require consistency. On the other hand, awareness of context continues to develop, and many capabilities and abilities are added to it. This type requires "learn to learn" algorithms and exceeds human capabilities and abilities.

As for the types of tasks, they are due to the use and application of artificial intelligence programs to analyze digital data as opposed to analyzing non-digital data (texts, voices, etc.). All types of data are important data for decision-making but analyzing and dealing with digital data is easier than analyzing and dealing with non-digital data. Most AI applications currently analyze and deal with text, images, sounds and various types of non-digital data. However, the capabilities of these systems in understanding and recognizing non-digital data remain more challenging and limited compared to digital data. Therefore, it is important and necessary in the future to consolidate and develop this side in order to get better benefit from artificial intelligence techniques.

As for the applications of artificial intelligence in the field of robotics, it is one of the promising areas that need more studies and research. Currently, these technologies are limited in specific areas and in a certain number of tasks and actions (the narrow and predetermined field), as this field requires advanced technologies and sciences that allow the robot to move freely and provide a real space for it to perform the tasks and actions of human intelligence.

The study concluded that artificial intelligence has an impact and a role on marketing strategies and also on customer behavior, and that more research and studies must be done on the impact and role of artificial intelligence on the aspects of privacy and ethical values.

9. Study [17] entitled "Artificial Intelligence in Advertising - How Artificial Intelligence is used by Marketing Personnel in their Journey with Customers" aimed at discussing the role of Artificial Intelligence in analyzing and managing social media data in order to better understand customer needs. The study indicated that marketing personnel should use and adopt artificial intelligence systems with the importance of minimizing the risks of privacy and confidentiality. At the same time, they have to work more on understanding the needs and trends of customers. It is noticed that artificial intelligence systems deal with two types of data, namely:

   o *Structured Data:* such as purchase process entry, website browsing history, and the like. Artificial intelligence, with the power of accounting devices, performs complex operations and calculations on huge amounts of data.

   o *Unstructured Data:* According to the study, 80% of the approximately 2.5 billion gigabytes of daily data are unstructured data and come in the form of written texts,

pictures, and conversations. The ability of artificial intelligence to process this amount and this diversity of big data is what distinguishes it from other technologies.

It is important and necessary for those who work in marketing to be aware of how the decision-making process is carried out by the customer. This is what this study stressed through the following steps:

o The beginning is by the identification and determination of the needs. Advertising relied on mechanisms such as market research and data mining in order to understand and determine the characteristics, features, and behavior of customers in order to identify the need.

o The initial options that can be identified through the use of advertising for artificial intelligence tools, for example Google Awards help not only with keywords, but also terms and synonyms, recurring customer processes and any other types of big data. After that, Google can list possible options related to customer data to target these options based on certain foundations.

o Evaluation of options: After narrowing the available options, the role of marketing is to instill confidence in the customer to complete the decision-making, and artificial intelligence has three methods for that, which are:

  - Through machine learning, where marketing personnel are able to predict customer purchases and needs. As some algorithms have been created in databases that contain huge data for customers, their behavior, character, interests, and other data, and then the appropriate advertising is done.

  - Through machine learning, images, sound, and natural languages, content related to the customer's behavior is created and can be modified easily when the customer's behavior changes.

  - Marketing personnel use what is called Emotion AI in order to understand and know what customers are talking about and how they feel openly about their products for example on social media platforms.

o Purchase: Based on the evaluation and decision of customers regarding the value of the commodity, its cost, and the extent of their willingness in the cost that can be paid by them, the publicity works to move them out this stage (thinking and evaluation) to the practical stage by strengthening the depiction of their need for the product compared to other competing products. Artificial intelligence can change - accelerate the decision-making process through techniques such as ordering goods through voice or text, for example the Intelligent Purchasing System.

Post-purchase: At this stage the customer evaluates his experience in purchasing the commodity and the extent of his satisfaction, and the role of marketing here is to confirm the concept and positive feeling among customers through the use of some artificial intelligence applications such as Chatbot, where customers are communicated and shared their experience in acquiring the commodity.

The study concluded that in the future, there will be new means of obtaining customer data through data mining and artificial intelligence techniques that are more effective than the current methods, and the privacy aspect of customer data is also taken into account in these new applications.

10. In study [15] entitled "Applying Artificial Intelligence to Screen Marketing: A Case Study of an Artificial Intelligence Technology Company" the researchers built a framework for a multi-screen marketing platform, allowing companies to help marketers provide targeted and customized ads. The core components of the framework include Integrated Inventory Management, Integrated Advertising Management, Integrated Analytics, and the benefits of a multi-screen marketing system. The template provides practical insights and strategies to help marketers successfully achieve business goals, and to help companies effectively utilize the opportunity for multi-screen advertising. The study also adopted a case study for the artificial intelligence technology company to examine how it is making it easier for companies to use artificial intelligence to grow and succeed in the multi-screen era.

*We confirm that study [1] is similar to study [2]* in that artificial intelligence has the ability to customize by automatically analyzing big data and improving the decision-making process in marketing.

*Study [4] and study [5]* had similarities between them highlighting the increase in efficiency and time savings in marketing and customer service functions better than during artificial intelligence applications.

*Study [13] focused on understanding customer behavior*, generating customer insights, and promoting four elements: customer targeting and lifetime value, customer engagement, customer experience, and customer loyalty. This is considered a strength point. Besides, study [15] built a framework for a multi-screen marketing platform, allowing companies to help marketers provide targeted and customized ads, which is considered a good helper in the marketing process.

*It is clear from previous studies* that they did not address the ethical aspect and privacy, which is very important for marketers and customers alike.

## 6. Findings and recommendations:

Through this research, the researchers sought to discover the role of AI applications in supporting marketing and marketers in organizations. The researchers reached several results that can be summarized in the following points:

- Artificial intelligence in the field of marketing has been one of the most prominent trends that have witnessed a major transformation, and this is evident in the transformation of electronic transactions between producers of services and goods and consumers.
- Artificial intelligence supports marketing with algorithms, programs, and consumer needs analysis.
- AI Marketing is shaping future marketing strategies and business models.
- There is a clear contrast that AI marketing has a major role in increasing efficiency, saving time, better understanding of customer information, and making the marketing decision more feasible.
- Marketing personnel can harness the power of technology to deliver a persuasive message to their customers, starting with managing the means of attracting the customer, evaluating

the likelihood of purchase, collecting the extracted information, and ending with managing the customer database.

Artificial intelligence is playing a clear role in most areas of life, including marketing, and through the results that have been highlighted, we present the following recommendations:

- The use of artificial intelligence tools for social media, SEO and marketing, as well as interest in content marketing.
- Marketing managers should apply artificial intelligence technology in order to achieve digital development in the preferred areas of marketing.

## 7. Conclusion:

This scientific paper dealt with the role of artificial intelligence applications in supporting marketing and marketers in organizations and that it has a clear role in most areas of life. It also presented a critical evaluation of a number of previous studies on the subject of artificial intelligence, stressed the similarities between these studies, and shed light on their most prominent results. The paper also recommended the importance of using artificial intelligence tools for social media, search engine optimization and marketing, as well as interest in content marketing and the application of technology in order to reach digital development in the fields of marketing. Through this paper, we proposed to carry out future studies to use, improve and develop the methods used to reach more accurate results in this field.

## References:

**Al-Ghamdi, Samia Fadel and Al-Frani, Lina Ahmed (2020)** The Reality of Using Artificial Intelligence Applications in Special Education Schools in Jeddah from the Teachers 'Perspective and the Trend Toward it. International Journal of Educational and Psychological Studies.

**Bin Othman, Farida (2020)** Artificial Intelligence: A Legal Approach. Kasidi University of Ouargla: Faculty of Law and Political Science, Policy and Law Book.

**Dirar, Khadija Muhammad (2019)** The Ethics of Artificial Intelligence and Robotics: An Analytical Study. Egyptian Association for Library, Information and Archives: International Journal of Library and Information Sciences.

**Argaam, 5 Ways Artificial Intelligence Can Improve Marketing Strategy. Argaam** [Online] 11 7, 2017. https://www.argaam.com/.

**Abbass, Ansar and Iqbal, Samia (2020)** Understanding Artificial Intelligence and its Role in Marketing, BSSJ, Volume 5, Issue 1, 20-26.

**Davenport, T., Guha, A., Grewal, D and Bressgott, T. (2019)** How Artificial Intelligence will change the Future of Marketing, JAMS.

**Guoda Mozeryte, (2019)**, The Silent Giant of Marketing: How Artificial Intelligence is Revolutionising Digital Marketing, Bachelor's Thesis Degree Program in International Business.

**Ianenko, M., Ianenko, M., Huhlaev, D., & Martynenko, O. (2018).** Digital transformation of trade: problems and prospects of marketing. IOP Conference Series: Materials Science and Engineering ,, 497, 5. Retrieved from https://iopscience.iop.org/article/10.1088/1757- 899X / 497/1 / 012118

**Megarthy, Jerome, and Perreawit, William (Basic Marketing)** 11thed, Erwin, Inc, Boston 1993.

**Merlin Stone, Eleni Aravopoulou, Yuksel Ekinci, Geraint Evans, Matt Hobbs, Ashraf Labib, Paul Laughlin, Jon Machtynger, Liz Machtynger, (2020)**, intelligence (AI) in strategic marketing decision-making: a research agenda. Published by Emerald Publishing Limited

**Ming-Hui Huang & Roland T. Rust (2020)**, A strategic framework for artificial intelligence in marketing, Journal of the Academy of Marketing Science. https://doi.org/10.1007/s11747-020-00749-9.

**Muhammad Zafeer Shahid & Gang Li (2019)**, Impact of Artificial Intelligence in Marketing: A Perspective of Marketing Professionals of Pakistan. Publisher: Global Journals.

**Olson, Christi; Levy, Jennifer (2020)**, Transforming marketing with artificial intelligence, Publisher: Henry Stewart Publications

**Ritter, Alina Isabel (2019)** Artificial Intelligence as Enabler in the Marketing Process: A Research Agenda.

**Te Fu Chen1, Tsai-Fong Tan and Chieh-Heng Ko, (2016)** Application of Artificial Intelligence to Cross-Screen Marketing: A Case Study of AI Technology Company, 2nd International Conference on Artificial Intelligence and Industr ial Engineering.

**Twin, A. (2019, June 25).** Marketing. Retrieved June 29, 2019, from Investopedia: https://www.investopedia.com/terms/m/marketing.asp

**West, Douglas (2018)** Artificial Intelligence in Advertising - How Marketers Can Leverage Artificial Intelligence Along the Consumer Journey, Journal of Advertising Research.