

Artificial Intelligence- Revolutionizing Advertising Strategy of the E-Commerce Landscape.

Dr Madhu Kumar K
Assistant Professor,
PES University,
Bengaluru – 560085

Abstract:

In research, business, education, medicine, and the automobile industry, artificial intelligence, or AI, is becoming more and more popular. It has now made its way into marketing & advertising also. AI's rapid development opens exciting opportunities in marketing and research. The goal of AI in marketing is to predict the next purchase decision and improve the consumer journey. Three key elements of artificial intelligence are machine learning, big data, and potent solutions. These components reveal the power of AI in e-commerce - Artificial intelligence is transforming retail and e-commerce through purchasing recommendations, voice-enabled shopping assistants, personalized shopping experiences, robotic warehouse pickers, facial recognition payment methods, anti-counterfeit tools and more. Using the concept of big data, marketers can aggregate and segment vast amounts of data with less manual labor. The content will be delivered to the customers at the ideal moment thanks to this segmented data. Developing strong solutions suggests that we live in a contemporary era where machines are capable of thinking and comprehending in the same ways as people. By providing consumers with satisfactory responses, machines can easily interpret consumer behavior based on data availability. Global practitioners are making every effort to integrate marketing functions into AI systems.

Keywords— *E-commerce, Artificial Intelligence, Advertising, Shopping experience, Chatbots.*

INTRODUCTION:

The boom of artificial intelligence is apparent in almost every sector, including the eCommerce industry. In 2022, 35% of companies used artificial intelligence to support their business, a 4% increase from 2021. "Identifying, anticipating, and profitably satisfying customer requirements is the management process known as marketing." Artificial intelligence endeavors to comprehend human intellect and create sentient beings. Artificial intelligence has been incorporated into nearly all major fields in recent years, including business, science, engineering, medicine, education, and entertainment. Leveraging artificial intelligence in eCommerce is increasingly popular among retailers who want to outpace competitors and remain in tune with their consumers.

AI in E- Commerce:

AI in eCommerce refers to the incorporation of artificial intelligence technologies into online shopping platforms and operations. It leverages algorithms and data-driven insights to improve

user experiences, optimize business processes, boost sales, and fulfill many other essential eCommerce functions and operations. Delving deeper, there are specific branches of artificial intelligence that play pivotal roles in fine-tuning various aspects of eCommerce operations. These comprise:

- ✓ Machine learning tailor's product suggestions based on a user's browsing and buying patterns.
- ✓ Deep learning is instrumental in voice and image recognition features.
- ✓ Natural language processing powers chatbots to assist online shoppers and address queries.
- ✓ Data mining assists in highlighting popular products or emerging preferences based on customer data.
- ✓ Computer vision enhances visual interactions on an eCommerce platform.
- ✓ Predictive analytics aids businesses in inventory planning and targeted promotions.
- ✓ Advertisers aim to leverage AI to maximize the results of significant investments in AI to enhance the marketing impact across digital channels, products, media, and content.
- ✓ Algorithms are used by sales organizations to suggest content, resulting in ongoing sales performance.
- ✓ Artificial Intelligence (AI) is utilized in customer service to manage customer relationships through automation, sentiment analysis, Natural Language Processing (NLP), and personalization.

The use of artificial intelligence in marketing has both benefits and drawbacks.

A. Benefits

- ❖ AI simplifies marketing initiatives by recognizing user behavior and anticipating customer needs. Artificial intelligence can help us get rid of time-consuming, boring tasks, freeing up the marketing and sales team to work on more productive projects.

B. Negative aspects

- ❖ Artificial Intelligence may appear indifferent to customers as it solely relies on logic when making decisions. Consumers would still rather communicate with people in person.

Artificial intelligence may not be a new technology, but its rapid development in recent years has gained the attention of various industries. eCommerce is only one of them.

1. Amazon.com's Prime Air uses drones to automate the shipping and delivery of goods to customers.
2. Dominos is attempting to use robots and autonomous cars to deliver pizza to customers.
3. Red Balloon leverages Albert's marketing platform to draw in new clients.
4. Macy's "On Call" is an in-store personal assistant that assists customers with general inquiries by utilizing Natural Language Processing (NLP).
5. Lexus markets its products using AI apps. They used IBM Watson to write the scripts for the TV commercials. Additionally, they employed Affective for affective analytics, which deciphers viewers' emotions from their vocal and facial expressions while they watch their TV ads.
6. Replika is a chatbot that uses a machine learning algorithm to mimic users' communication styles to provide emotional support.

To date, the most compelling AI use cases in eCommerce include enhancing customer service, optimizing pricing and logistics, managing stock and warehouses, detecting fraud, segmenting customers, predicting churn, and generating product descriptions.

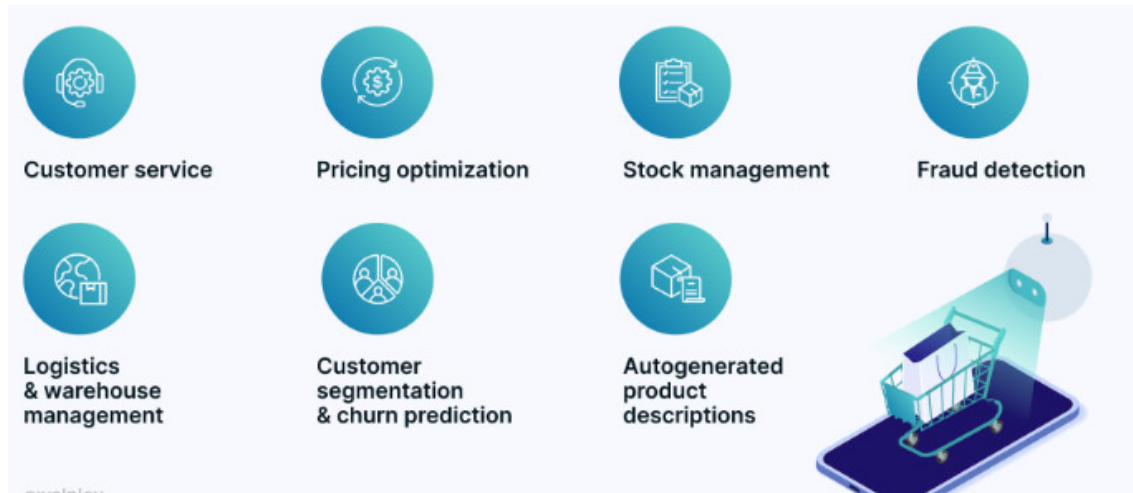


Fig :1 Artificial Intelligence uses in E-commerce

Digital or E -Marketing Mix

Marketers are familiar with the Marketing Mix of the 4Ps or 7Ps, which provides a great framework for reviewing tactics to offer products and services to a company. It's a universal framework which can be usefully applied to businesses of all sizes. As explained in our free Smart Insights guide to marketing models, it was developed by Jerome McCarthy in 1960, but can still be used as a simple review of strategic marketing options.

The advent of the Internet and digital marketing offers new opportunities to 're-mix' the mix as part of E-marketing strategy development which is known as the 'E-marketing mix'.

II. BACKGROUND

Over the past 20 years, technology has improved and assimilated into our daily lives, producing enormous amounts of data from our smartphones every day. This information will assist marketers in expanding their use of AI and big data research techniques. Additionally, having a smartphone made it simple for people to connect with others, handle problems, and register with other businesses.

With 3.5 billion mobile devices globally connected to the internet in 2018, there is an abundance of data available. Furthermore, over a 12-month period, Google's web search engine generates about 1.2 trillion queries, or 40,000 queries every second. Large volumes of data kept in data centers gave rise to the term "big data."

While personalization isn't new, AI makes designing a personalized shopping experience easier and faster.

AI-powered recommendation engines like Granify and Boomtrain let you analyze hundreds of customer data from various channels in seconds. When integrated with eCommerce websites,

these tools can automate product recommendations and call-to-action messages to reduce cart abandonment rates.

Similarly, virtual assistants like Mona and Save Your Wardrobe base their recommendations on individual customer queries. Often taking the form of mobile apps, virtual assistants conduct targeted marketing by providing deals and products relevant to customer preferences.

Every bit of information is gathered by big data, from business transactions to grocery and movie ticket purchases. Every information category is divided for the purpose of examining customer purchasing choices.

Worldwide, there is a growing need for mobile phones. There are 4.6 billion smartphone users worldwide. Of them, between one and two billion make use of the internet. AI is widely used in modern technology, which is clearly defined by people's need for smartphones and the internet.

III. LITERATURE REVIEW

Machines are used to demonstrate artificial intelligence (AI), which developed from human intelligence. Artificial intelligence (AI) refers to computer systems capable of performing complex tasks that historically only a human could do, such as reasoning, making decisions, or solving problems.

Today, the term “AI” describes a wide range of technologies that power many of the services and goods we use every day – from apps that recommend tv shows to chatbots that provide customer support in real time. Artificially intelligent systems rely heavily on data ingestion because they handle vast volumes of data. These intelligent systems consider the data according to their requirements and analysis. For instance, companies like Google and Amazon have massive amounts of data that are challenging for humans to evaluate. In addition, a multitude of people's addresses are stored by Artificially Intelligent systems from various sources.

Utilizing AI in Marketing:

Most marketing companies and customers were able to resolve their problems or frequently ask customer queries through chatbots that used Natural Language Processing (NLP) and AI. The developers will be able to make wise decisions because AI and ML algorithms will process the data effectively. AI applications can filter results based on an analysis of a user's likes and dislikes, habits, frequently purchased items, and interests.

CRM (customer relationship management) features are supported by the Artificial Intelligence User Interface (AIUI). Smart retail stores were created by combining AI and IoT with traditional retail spaces. Smart retail stores have improved the supply chain and made shopping easier for customers. The development of AI, which can track the five senses (smell, taste, vision, touch, and hearing), has been brought up by Nazim Sha and Rajeswari.

Planning and Strategy

Plan how to optimize AI for audience segmentation and customer personalization. When you use AI-driven recommendation engines on e-commerce platforms, product suggestions are based on individual preferences and purchase history. The customer experience is vastly improved as a result. Furthermore, a variety of industries, including retail and tourism, banking

and finance, and art marketing, can benefit from the use of algorithms like machine learning and text mining. Furthermore, methods like causal forecast, data optimization, and machine learning can be used to reduce the number of targeted customers.

Product Management

Customer satisfaction is achieved using Artificial Intelligence-based marketing analytics tools to design products that meet customer needs and are appropriate. Furthermore, topic modeling supports system capability innovation and design. Weight preferences are attributes that customers assign when they search for products. This helps in comprehending the systems that recommend products and coordinating marketing tactics for effective product management. By enabling people to explore new places, deep learning can help people find their areas of interest. Additionally, businesses will be able to tailor their offerings to the needs of their customers thanks to the application of artificial intelligence.

Pricing Management

The product's ultimate price is determined by several factors. First, the process of setting the price will be more difficult because real-time price changes will be contingent on changes in demand. Secondly, by employing a multiarmed bandit algorithm, the price adjustment can be dynamically determined by the real-time scenarios. Third, e-commerce portals will frequently employ price-changing tactics. By using Bayesian inference in the machine learning algorithm, the price points can be swiftly changed. Eventually, the cost will be the same as that of the rival.

Place Management

Product availability and access are the two primary building blocks of the marketing mix, and they both improve customer satisfaction. Product distribution is dependent on several factors, including networked relationships, inventory management, warehousing, logistics, and transportation issues, most of which are mechanical and redundant. Artificial Intelligence will offer the best solution for place management by enabling drone delivery, robot packaging, and Internet of Things (IoT) for order tracking and refilling.

Promotion Management

Search engine optimization, media planning, media scheduling, advertising campaign management, and the transition from physical to digital promotion strategies are all necessary for promotion management. Social media and digital marketing penetration campaigns are to blame for the global digital revolution. The customer controls the choice of content, location, and timing in this ever-evolving technological world. AI provides a tailored message based on the interests and profiles of its clients.

IV. METHODOLOGY

The guidelines provided by Rowley and Slack (2004) are applied in this article's literature review. The following sections provide a description of the literature review's five-stage methodology.

Bibliometric Database Selection

Web of Science (WOS) and Scopus are chosen as the two most reliable bibliometric databases. Yong-Hak (2013) claims that Scopus has more than 20,000 peer-reviewed journals from

various publishers, offering a wider range of content.

Search Strategy (Defining Keywords)

"Marketing" and "Artificial Intelligence" would be the first search terms for this subject. Machine learning, natural language processing (NLP), deep learning, and other terms are synonyms for the term artificial intelligence and are used with Boolean operators such as 'AND' and 'OR'. The Boolean operator 'AND' represents the intersection of a set of articles, while the operator 'OR' denotes a universal group of articles encompassing artificial intelligence and marketing.

Inclusion and Exclusion criteria for results

One can apply the inclusion and exclusion criteria to search results. The search results are restricted to journal articles that convey "Certified Knowledge" to fulfill the research objective.

Data Analysis Plan

Structures Data Analysis has three phases. The first stage involves data analysis for the performance of scientific actors in the field of study, with an emphasis on the most pertinent authors and sources. Citations and citation index are used in bibliometric analysis to assess scientific actors' performance. Co-occurrence and co-citation analysis are the focus of stage two's conceptual and intelligent network analysis. The third stage of marketing analysis focuses on emerging trends and potential avenues for AI research.

Identification of research gaps and their future directions

The relevant articles on artificial intelligence in marketing are reviewed to comprehend methodological and theoretical developments as well as emerging research themes. The common theme or idea in passages or images is analyzed and identified using thematic coding in qualitative data analysis. To the thematic framework's outcome, this data is indexed into categories.

V. FINDINGS & DISCUSSION

A survey was conducted to find out the impact of AI on online shopping preference.

The table below to clearly comprehend the various findings of the survey:

Percentage of survey respondents	Preferences of survey respondents
51%	Look for competitive pricing when they compare several brands
67%	Will likely shop from the same place again if free delivery is provided
47%	Like to check online for the best prices
57%	Will come back to an online retailer if it provides a free returns policy
50%	Will purchase if the site is mobile friendly and user-friendly

51%	Would use the site if it works properly on smartphones
47%	Would use a particular ecommerce site if it loads fast
39%	Are fine with companies who use personal information for recommending products and services
48%	Do not shop from companies that do not have cash-on-delivery options
34%	Are of the opinion that online shopping is eco-friendlier than shopping at a physical store
67%	Are fine with ecommerce companies using technologies such as AI

A. Marketing Implications

The authors compiled examples of synthesized examples of how AI reflects the marketing mix and conducted an analysis based on the implications of AI in marketing. Table 1 presents the conclusions as a result. Every case determines how AI affects every component of the marketing mix. This discovery is important for expanding the range of marketing initiatives influenced by AI, and it will benefit practitioners. AI can be implemented in the marketing mix program's "product" and "promotion" sections.

Table 1: Impact of Artificial Intelligence on Digital Marketing Mix Areas

E-Product	E- Price	E- Promotion	E- Place
Introduction of unique product & services	Price & cost-effective strategy for both business and customer.	Creating new & fresh experience	Virtual purchase
Building Additional value		Minimized disappointment	Retailing automation
Customized		Creating the wow facet and delivering benefits.	New Distribution channels
Services exceeding product category		Impact on the customer	Convenient shopping
Automatic recommendations		Customize communication	24/7 chatbot service
		Learning process elimination in product categories	Effective sales process
	Chatbot customer support		
		e- sales process	

According to the analysis, marketing is impacted by AI initiatives in both directions. The consumer benefits from changes, on the one hand. However, the entirety of the marketing initiatives pursued have an impact on novel solutions.

B. Influence of AI on Consumers

From the perspective of the consumer, the Internet has greatly benefited them. While it has reduced shopping times, suggested appropriate products, and personalized customer service, artificial intelligence has advanced the field and created new avenues for marketing. The following examples make it abundantly evident that using AI in marketing provides a comprehensive overview of the benefits that consumers are receiving from the technology.

Increased Convenience

Payments are made automatically, and shopping hours are faster and more flexible. The quality of search engines is superior. There will always be customer service.

Hyper-Personality

Mass-scale hyper-personalization is gaining customers' experience, and after a sale is made, the product gains more value.

Customer-based relationship:

By improving consumer-brand interactions, we can lessen the likelihood of post-purchase dissonance. This eliminates the need for learning through categories and comparing the products to one another by enabling virtual testing.

C. The Influences of Artificial Intelligence on e- Marketing:

Artificial Intelligence has a great influence on e- marketing procedures as they are currently implemented, and marketing teams should adopt new methods for completing their tasks.

- ✓ **Elimination of laborious and time-consuming tasks:**
Artificial intelligence will assist in automating repetitive tasks such as data collection and analysis, image processing, and search.
- ✓ **Significant effects of strategic and creative endeavors**
The competitive advantage will be built through the strategic and creative tasks carried out with accurate analyses utilizing AI.
- ✓ **Innovative Designs**
The customer is receiving their values with AI's assistance, and design is helping to discover more creative solutions.
- ✓ **Getting additional skills for the marketing team**
With AI's assistance, the marketing team can understand the most recent technological possibilities. Furthermore, AI enables the marketing team to incorporate data science expertise.
- ✓ **Untapped marketing ecosystem:**
Artificial intelligence's complexity grows the function of businesses developing smart solutions. The present state of AI expansion makes it necessary to create a new model that combines AI entities with machine learning instruments.

VI. CONCLUSION

The study validates that artificial intelligence is utilized in numerous marketing domains. Text recognition, voice recognition, image recognition, autonomous vehicles, and robots are the five areas of artificial intelligence that the marketing solutions based on it benefited from. Among

all of these, marketing made extensive use of decision-making, text recognition, and image recognition. Nonetheless, voice recognition models are rarely used in real-world scenarios and are mostly created by large tech companies such as Amazon, Apple, Microsoft, and Google. Similarly, autonomous cars and robots have far greater ties to Business 4.0 than innovative model in the e- marketing mix.

The investigation and samples presented suggest that the use of AI in marketing has improved consumer quality of life. Consequently, the marketing company gains from the use of AI. The customer benefits from hyper-personalized solutions, flexible shopping, round-the-clock customer support, and a multitude of options that help them avoid making the wrong decision in addition to significant time savings.

The operations of marketing organizations are impacted by each of these modifications. In essence, it entails adding new personnel to marketing departments who possess expertise in data science, artificial intelligence, and solution design and implementation. Moreover, the new model of cooperation achieved a synergistic effect between AI and other functions by managing the advanced entities that provide AI solutions.

Based on the research, five distinct types of artificial intelligence are employed in marketing practices; thus, AI is present across all areas of the marketing mix. But according to Jarek (2022), AI is frequently applied as a one-off, so more investigation is required to determine how AI fits into the market, particularly in other industries.

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