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Role of Artificial Intelligence (AI) In Indian E-Commerce Industries

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ABSTRACT

Artificial intelligence is more than just a new technology used for its "cool factor". AI implementation has the ability to have a wide-ranging impact on your organization's business processes. At its heart, artificial intelligence is a collection of several technologies capable of executing tasks that require human intelligence. When applied to typical corporate tasks, these technologies can learn, act, and execute at human-like levels of intelligence. It is utilized to replicate human intelligence in machines, which saves us time and money when conducting business. Artificial intelligence has grown in popularity as information and communication technology has advanced. Companies in today's e-commerce industry primarily seek to influence client behaviour in favour of specific products and brands. The use of artificial intelligence as an innovative tool in the sphere of e-commerce may appear to be a favourable development. The article focuses on the fundamentals of e-commerce and artificial intelligence, as well as their advantages. The goal is also to assess the significance of artificial intelligence and its application in the context of e-commerce using available studies on the subject.

Keywords: *Artificial intelligence, Machine learning, E-commerce, industries, communication technology*

1.1 Introduction

Artificial intelligence (AI) has made significant progress in recent years, yet most people are still unsure what it is. To begin, you must first define AI. "Artificial Intelligence" refers to a machine's ability to mimic intelligent human behaviour. Machine autonomy refers to machines' ability to respond to their surroundings with minimal human intervention. Artificial intelligence is more than simply one thing. It is a collection of many technologies that collaborate to accomplish specified objectives. These computer systems automate human tasks by learning from previous experiences and establishing criteria. Web search engines, computer vision, and natural language processing are some of the most common uses of AI.

- Data mining involves gathering both current and historical data to make predictions.
- Machine learning uses algorithms to address problems based on past experience or examples.
- Over the last few years, AI technology has grown into a strong tool for increasing sales and optimizing operations. Many small ecommerce enterprises now use AI-enabled technology.

Artificial intelligence (AI) is a branch of computer science that focuses on tackling cognitive issues associated with human intellect, including as learning, problem solving, and pattern recognition. Artificial intelligence, frequently shortened as "AI," may connote robotics or futuristic settings. However, AI extends far beyond the automatons of science fiction and into the non-fiction of present advanced computer science.

Professor Pedro Domingos, a well-known researcher in this field, describes "five tribes" of machine learning: symbolists, with roots in logic and philosophy; connectionists, from neuroscience; revolutionaries, from evolutionary biology; Bayesians, from statistics and probability; and analogizers, from psychology.

Bayesians have recently been effective in extending the study in a number of fields under the moniker "machine learning" due to breakthroughs in the efficiency of statistical calculation. Similarly, breakthroughs in network computation have led to connectionists developing a subject known as "deep learning". Machine learning (ML) and deep learning (DL) are two computer science topics that stem from the study of artificial intelligence.

Is AI Bringing Change to the Ecommerce Industry?

Artificial intelligence is more than just a new technology used for its "cool factor." AI implementation has the ability to have a wide-ranging impact on your organization's business processes. Understanding the components of artificial intelligence is helpful in determining how AI may affect your organization. The scope of AI is broad, encompassing data mining, natural language processing, and machine learning. Over the last few years, AI technology has grown into a strong tool for increasing sales and optimizing operations. Many small ecommerce enterprises now use AI-enabled technology.

1.2 Objectives of the study:

- To study the role of Artificial Intelligence in Ecommerce Companies.
- To understand the Concept and use of Artificial Intelligence in Ecommerce Companies.
- To assess the Futuristic Approach of Artificial Intelligence in Ecommerce Companies.

1.3 Reason for Using Artificial Intelligence in Ecommerce Companies

Following are the reason ecommerce companies are using Artificial Intelligence.

- **More targeted marketing and advertising:** Personalization is a high priority for surveyed retailers, but only 15% say they have fully applied it across channels. Stand out from the crowd by sending more personalized messages and engaging in one-on-one interactions with your customers. Advances in AI and machine learning have enabled deep customization approaches to tailor content to each user. By analyzing large amounts of data from purchase histories and other customer interactions, you can pinpoint exactly what your customers want and deliver the message that will resonate the best.
- **Increased customer retention:** Delivering tailored marketing and advertising messages to its customers helps boost retention. According to McKinsey's omnichannel personalization research, Omni channel personalization initiatives have the potential to increase revenue and retention by 10-15%. The research reads: "A major piece of personalization is generating superior data and insights on clients, an asset that also provides extra value across the value, according to our research, personalization offers a higher ROI than typical mass marketing.
- **Seamless automation:** purpose of automation is to complete a task with as little human interaction as feasible. This might include everything from scheduling emails in a CRM or marketing application to utilizing Zapier to automate tasks and leveraging advanced technology to assist with hiring. However, in terms of future ecommerce developments, robotics and machine learning are among the most often discussed now. AI can be quite useful in automating the tedious chores that keep your online store running smoothly. AI allows you to automate things like product recommendations, loyalty discounts, low-level assistance, and more.
- **Efficient sales process:** AI can help you establish a more effective sales process by gathering client data, automating follow-up abandoned cart questions, and more. You may help clients progress through the funnel by having them interact with chatbots for simple questions.

1.4 AI Use Cases in Ecommerce

There are several AI use cases in ecommerce, and you are undoubtedly familiar with many of them; yet, you may be unaware that the technology underneath them is related to AI. Here are the six most common:

- **Personalized product recommendations:** It's now easier than ever to collect and process customer information regarding their online buying experience. Artificial intelligence is being utilized to provide personalized product recommendations based on previous customer behavior and similar customers. Machine learning is used by websites that recommend things based on your previous purchases. Retailers utilize machine learning to collect, evaluate, and apply data to provide a tailored experience, launch a marketing campaign, optimize pricing, and produce customer insights. Machine learning will eventually demand less and less assistance from data scientists for common ecommerce applications.
- **Pricing optimization:** AI-enabled dynamic pricing is an approach for adjusting your product's price based on supply and demand. With the correct data, today's systems can forecast when and what to discount, dynamically determining the minimum discount required to complete the transaction.
- **Enhanced customer service:** You may create the impression of higher-touch customer care with virtual assistants and chatbot technology. While these bots are not entirely self-sufficient, they can handle simple transactions, allowing human support personnel to focus on more difficult issues. Virtual agents also offer the advantage of being available 24 hours a day, seven days a week, allowing you to answer low-level concerns and difficulties without keeping your consumer waiting.
- **Customer segmentation:** Ecommerce companies may now better understand their customers and identify new trends thanks to increased access to company and customer data, as well as computing capacity. According to Accenture, "AI systems can explore highly complex and varied options for customer engagement very quickly, and continuously optimize their performance as more data becomes available." This means that marketers may define parameters and let AI optimize and learn to reach precision."
- **Smart logistics:** According to an Emerging Tech Brew analysis, "Machine learning's predictive powers shine in logistics, helping to forecast transit times, demand levels, and shipment delays." Smart logistics, also known as intelligent logistics, is the use of real-time information from sensors, RFID tags, and other sources to manage inventory and estimate demand. Machine learning systems improve over time, allowing them to make more accurate predictions for their supply chain and logistics operations.
- **Sales and demand forecasting:** Particularly during and after COVID-19, you'll want to base your inventory planning on both real-time and historical data. That is exactly what artificial intelligence can help you do. According to a recent McKinsey analysis, investing in real-time customer analytics will remain critical for monitoring and reacting to fluctuations in consumer demand, which may be used for pricing optimization or targeted marketing.

1.5 Role of Artificial Intelligence in E-commerce

Today, e-commerce is one of the industries that makes the most of artificial intelligence by growing a large client base, attempting to understand customer wants, doing real-time research, developing final solutions, and engaging in a variety of other activities.

- **Artificial Intelligence Use in E-commerce:** Artificial intelligence can take many forms. Software artificial intelligence encompasses virtual assistants, image analysis software, search engines, and speech and facial recognition systems. Robots, self-propelled vehicles, and drones are examples of material technologies that incorporate artificial intelligence.
- **Artificial Intelligence Assistants—Chatbots:** The electronic commerce Customers can use the website 24 hours a day, seven days a week, and virtual assistants/chatbots give 24-hour customer assistance. The chatbot's principal job is to automatically answer consumer questions, reply to simple voice commands, and make product recommendations via a natural language processing system. Chatbots are also a form of software application that employs artificial intelligence to communicate

with customers via text or speech media when they are visiting a certain website or application. Chatbots can reply to customer questions and requests, assisting consumers in finding acceptable products, checking order progress, comparing products, and processing payments. In the event of a complaint or a question, they will direct clients to the customer support personnel, who will take over.

- **Recommendations Tool:** Using an artificial intelligence algorithm, it is able to perform statistical programming, forecasting, and analysis of consumer behavior, as well as anticipate which products are likely to attract customers. The system captures essential product information based on recent searches by potential customers. The recommendation tool then provides appropriate choices for the browser and shows information that will assist clients in rapidly finding the product.

- **Visual and Voice Search:** Artificial intelligence can be used to implement visual and audio searches on websites. Image and sound processing techniques form the foundation of visual and audio searches. Customers do not need to enter keywords while searching for a product; instead, they can use an image or their voice. In a visual search, a potential consumer enters a picture or photo rather than typing in text. The customer selects an object or phrase, or uploads a picture, which is recognized by the search engine and displayed in the search results. Voice search enables users to enter information using spoken language. The system displays the results after transcribing a speech query. Voice search uses advanced natural voice detection and processing technology. The user is subsequently presented with either a spoken response or related results in the form of text or images.

- **Customer Relationship Management:** Customers are an essential component of an e-commerce firm. Previously, firms relied on people to handle client connections. Artificial intelligence (AI) technologies are becoming increasingly popular. Artificial intelligence can forecast how customers will act when shopping, which products they will select, and how the organization can create and maintain the greatest possible relationship with them. A corporation can use artificial intelligence to gather information on customer satisfaction and carefully plan how to respond to client demands and requirements at all times and in any situation. Artificial intelligence enables people to create a balanced environment in which humans and machines collaborate to maximize profits and sales.

1.6 Perspective of Artificial Intelligence in E-commerce

Human intelligence appears to be limited while executing specific jobs in e-commerce. This is particularly relevant to demand forecasts and supply chain systems. Artificial intelligence appears to be a beneficial tool in these challenging situations for organizations. According to Shankar, artificial intelligence increases e-commerce profitability by utilizing all available resources and improving personalized recommendations and payments. It also enhances customer relationship management, supply chain management, and inventory optimization.

Artificial intelligence technologies have been integrated into marketing and retail, with big data analysis being used to create individualized consumer profiles and forecast client purchasing behaviours. Understanding and Predicting Consumer Demand Integrated supply chains are more crucial than ever, and artificial intelligence technology is expected to be a critical component. The eventual acceptance of artificial intelligence is critical for its development and application. Using such technology, dealers can match product information with information that consumers need, ensuring efficient consumption of items or services. Artificial intelligence enables e-commerce to keep up with shifting market trends and client demands.

According to Juniper research, the demand for artificial intelligence will rise between 2019 and 2023, with chatbots performing around 22 billion interactions, up from 2.6 billion today. This report identifies a new trend: corporations are substantially investing in artificial intelligence to better trend analysis, logistics planning, and inventory management.

Scientists believe that in the future, the link between artificial intelligence and humans will strengthen—a departure from the traditionally accepted belief that AI will replace humans. Companies that enter the market in the future are expected to prioritize creating value through integrated collaboration

between the human workforce and artificial intelligence solutions. A crucial step toward success is to form partnerships in which artificial intelligence works and predicts while humans explain and decide on necessary measures.

Artificial intelligence has enormous potential, but several challenges must be overcome before it can be fully implemented. Shankar suggests investigating the effects of the accidental influence of artificial intelligence on customers. Luo et al. suggest that research should focus on enhancing bots and reducing their flaws, which could boost customer confidence. They also recommend that organizations focus on streamlining the usage of artificial intelligence in social networking. Moriarty have suggested that the relationship between artificial intelligence and virtual reality applications should be investigated further. According to Tousignant, Kumar and Trakru identify potential e-commerce dangers and obstacles that limit the efficiency and efficacy of artificial intelligence in accomplishing corporate objectives. As a result, it is critical to constantly investigate new possibilities and prospects in light of evolving consumer demands in e-commerce. Based on full knowledge, professionals and researchers will be able to create priorities and tasks to manage investments in crucial elements of artificial intelligence, including for e-business more efficiently.

1.7 Conclusion

The purpose of this study was to discuss the fundamentals of e-commerce and artificial intelligence, as well as their roles in Indian e-commerce Industries. The study also provides insight into evaluating the value of artificial intelligence and its future use in the context of e-commerce based on extant research. In today's world of commerce and digital technologies, e-commerce is critical. People use the Internet on a daily basis; they are open to trying new products and companies, but they are also critical and demanding. In this scenario, e-commerce looks to be an appropriate solution to meet their needs. Many business scientists and specialists are interested in how artificial intelligence can be used in e-commerce. Previous research has emphasized the need for additional research to help create knowledge and methods for applying artificial intelligence in e-commerce industries. Artificial intelligence is expected to be employed more frequently in the context of electronic commerce, eventually becoming a fundamental part of all such businesses.

1.8 Research Gap

This study is only focuses on theoretical aspect of the artificial intelligence uses in Indian E-Commerce Industries. Other industries are also there to study in future. There is a further room for future study that is investigating the interaction between artificial intelligence and online assessments. To help further research on the use of artificial intelligence in the business sector, it is vital to assess the effectiveness of artificial intelligence in a multidisciplinary setting.

References

- Artificial Intelligence By Example: Develop Machine Intelligence From Scratch Using Real Artificial Intelligence Use Cases Paperback By Denis Rothman (Author)
- Artificial Intelligence Third Edition Paperback By Kevin Knight (Author), Elaine Rich (Author), Shivashankar B. Nair (Author)
- Artificial Intelligence: A New SynthesisBook By Nils John Nilsson
- Bughin J, Seong J, Manyika J, Chui M, Joshi R Notes from the ai frontier: modeling the impact of AI on the world economy, https://www.mckinsey.com/featured-insights/artificial-intelligence/ notes-from-the-ai-frontier-modeling-the-impact-of-ai-on-the-world-economy. Last accessed 10 Jul 2021
- Davenport TH, Ronanki R (2018) Artificial intelligence for the real world. Harv Bus Rev 96:108–116
- https://Www.Investopedia.Com/Terms/A/Artificial-Intelligence-Ai.Asp
- https://www.Oracle.Com/In/Artificial-Intelligence/
- Kar R, Haldar R (2016) Applying chatbots to the internet of things: opportunities and architectural elements. Int J Adv Comput Sci Appl 7(11):147–154
- Khrais L (2020) Role of artificial intelligence in shaping consumer demand in e-commerce. Future Internet 12(12)

- Kumar T, Trakru M (2019) The colossal impact of artificial intelligence in e-commerce: statistics and facts. Int Res J Eng Technol 6(5):570–572
- Makridakis S (2018) Forecasting the impact of artificial intelligence, Part 3 of 4: The potential effects of AI on businesses, manufacturing, and commerce. Foresight: Int J Appl Forecast 49:18–27
- Pee L, Pan SL, Cui L (2019) Artificial intelligence in healthcare robots: a social informatics study of knowledge embodiment. J Am Soc Inf Sci 70:351–369
- Russell SJ, Norvig P (2016) Artificial intelligence: a modern approach, 3rd ed, Pearson, Essex
- Soni N, Sharma EK, Singh N, Kapoor A Impact of artificial intelligence on businesses: from research, innovation, market deployment to future shifts in business models, https://arxiv.org/ abs/1905.02092. Last accessed 12 Jul 2021
- Soni VD (2020) Emerging roles of artificial intelligence in ecommerce. Int J Trend Sci Res Develop 4(5):223–225
- Soni VD Challenges and solution for artificial intelligence in cybersecurity of the USA, https:// ssrn.com/abstract=3624487. Last accessed 11 Jul 2021
- Tousignant L Robots learned how to write fake Yelp reviews like a human, https://nypost. com/2017/08/31/robots-learned-how-to-write-fake-yelp-reviews-like-a-human/. Last accessed 11 Jul 2021
- Ying W, Pee LG, Jia S (2018) Social informatics of intelligent manufacturing ecosystems: a case study of KuteSmart. Int J Inf Manage 42:102–105
- Yoon M, Baek J (2016) Paideia education for learners' competencies in the age of Artificial intelligence-the google DeepMind challenge match. Int J Multi Ubiquitous Eng 11:309–318
- Zhang C, Yang L (2021) Study on artificial intelligence: the state of the art and future prospects. J Indus Inf Integr 23
- Zhang D, Pee LG, Cui L(2021) Artificial intelligence in e-commerce fulfillment: a case study of resource orchestration at Alibaba's Smart Warehouse. Int J Inf Manage 57