# IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE AND ITS IMPACT ON E-COMMERCE

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## ABSTRACT

With huge data and sophisticated algorithms to analyze that data, it is now possible to optimize e-commerce business using Artificial intelligence. Artificial intelligence can provide several benefits to e-commerce organizations such as automated processes, targeted potential customers, improved sales and lot more.AI has the power to investigate a huge amount of data and to make accurate decisions for the organizations. Platforms like E-commerce websites are adopting AI technology to investigate and identify the purchasing behavior of their customers and to serve them better. This paper mainly focuses on the application of AI and its impact on e-commerce websites.

KEYWORDS: Artificial Intelligence, E-commerce, Recommendation Engines, Chatbots, Image Search.

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## Introduction

Artificial intelligence is not a newly discovered word or new area of research for the researchers in the field of computer science. The term AI was initially coined by John McCarthy at the Dartmouth Conference in 1956. Artificial Intelligence means the intelligence manifested by electronic devices or machines in such a way that they emulate the behavior of humans in a potential way. The AI systems act and behave as a human being in order to solve real-world problems and to assist people to improve their daily routine tasks. Now the question here is if AI has been here for over half a century, why has it suddenly gained so much popularity?

The main reasons for the present demand for AI are:

- more computation power
- availability of huge data
- sophisticated algorithms
- broad investment

AI is expanding at such a rapid pace in terms of field of study and as an economy that the universities, governments, startups and tech giants are all investing in it and getting tremendous positive results.

## Types of Artificial Intelligence

Artificial intelligence can be categorized in the following way.



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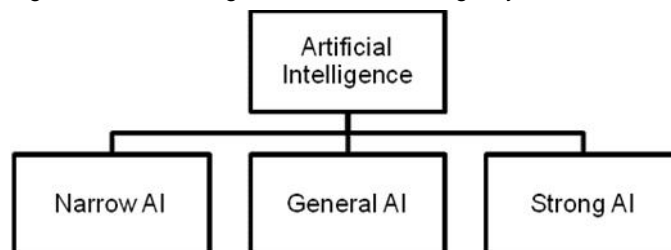
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The above AI classification is based on capabilities on machines. It includes the following:

- **Weak AI / Narrow AI:** Weak AI or Narrow AI is limited to a narrow area where the machines perform incredibly well in their dedicated task for which they are trained. Such machines lack human consciousness and can't perform well beyond their limits. A few examples of Narrow AI are playing chess, Apple Siri, IBM's Watson supercomputer, buying suggestions on e-commerce sites, speech recognition and many more.
- **General AI:** The concept of General AI is to implement cognitive abilities of human into machines. Such machines can do any intellectual job as efficiently and smartly as humans. At present, there are no such systems developed which could categorize under general AI and many kinds of researches are going on around the world to develop such systems.
- **Strong AI:** The motivation behind strong AI is to develop machines with high-level intelligence that can transcend the intelligence level of humans. The features of such machines consist of learning, reasoning, planning, judgment ability, creativity, general wisdom and communication on its own.

**E-commerce**

E-commerce stands for electronic commerce where activities like buying and selling of goods, fund transfer, the transaction of goods and services happen over the internet. E-commerce is all about doing business on the internet with the help of information technology like Electronic fund transfer and Electronic Data Interchange. World Wide Web, tablets and Smartphones are those platforms that made the concept of e-commerce a big success in the global economy. There are four main models of E-commerce. The foundation of these models is based on the parties participating in the transactions. The models are as follows:

- **Business to Consumer (B2C):** All types of transactions that occur between business organizations and customers come under this model. For example, if a person wants to buy a mobile from an online retailer then he must visit the website of the retailer and browse the mobile catalog provided there and can place an order for any mobile of his choice. The company will then ship the product to the customer.
- **Business to Business (B2B):** This model includes business to business transactions. Customer doesn't exist in these transactions and the participants are retailers, wholesalers, and manufacturers. Buying and selling of products and goods occur in between business organizations.
- **Customer to Business (C2B):** In this model, the transaction occurs between customer and business organization. The customer plays the role of the seller and the business organization plays the role of the buyer.
- **Customer to Customer (C2C):** This model includes transactions between customers. Customers can directly sell goods and services to other customers. OLX website is the best example of this model where registered customers can sell their products with each other.

  Few examples of E-commerce:
  - Amazon
  - Flipkart
  - Myntra
  - Snapdeal
  - Olx
  - eBay
  - Quikr

**Implementation of Artificial Intelligence in E-commerce**

Many E-Commerce websites are maintaining their competitive advantages by integrating Artificial Intelligence in customer services and the retail game. Whether it is product recommendation, warehouse management, product search or providing cyber security during the payment process AI has proved to be the game changer while solving the problems across the board. The most popular artificial intelligence applications in the field of e-commerce are discussed below point to point.
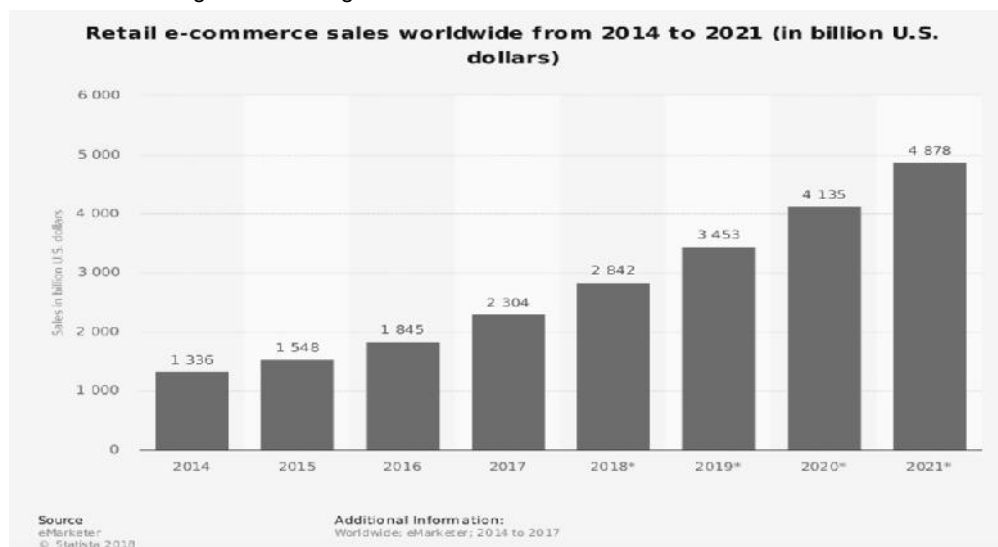
- **Image Search**: Image search or visual search helps a customer to search for any product by taking and uploading photo related to that particular product. Many e-commerce website apps are using image search instead of keyword search in order to make searching more simple and

flexible for the customer. Customer can use the mobile camera to point towards the item they want to buy while accessing the ecommerce websites. Google Images, Alibaba, eBay and Pinterest are one of those well-known platforms that integrate this latest AI searching technique.

- **Chatbots**: In order to improve customer support services many e-commerce websites incorporate Chatbots as a latest AI technology. Chatbots are taken as the next big thing for e-commerce user experience. Chatbot is software embedded into the e-commerce websites that basically act as conversational agent and responsible to simulate the conversation between customer and machine via texting or auditory methods. Chatbots offer 24/7 customer service and improve shopping experiences of the customer hence improve sales of e-commerce websites.

- **Recommendation Engines**: Product recommendation do miracle when it comes to providing dedicated service to every client. An effective product recommendation engine offers marketers the ability to investigate client information, and use the results of that analysis to formc correct, personalized customer profiles. The recommendation engines generate content that is based on analysis of what a customer generally wants and search for. Collaborative filtering is the technique that is used in recommendation engines for the personalized recommendations.

- **Inventory Management**: The inventory management is one of the most critical area of e-commerce. To enhance the supply chain management various e-commerce websites like Amazon is implementing Machine learning to optimize the whole process of inventory management. A simple e-commerce website contain thousands of product categories and to maintain the inventory for all those categories on daily basis is not an easy task for a human. AI based inventory management tools generate automatic notification to inform organization to reorder the stock and use logistics to forecast demand and to plan inventory orders.

**Impact of Artificial Intelligence on E-commerce**

The rising technologies in the realm of Artificial intelligence and machine learning have huge potential to transform the lifestyle and living standards of humans as well as the business models of organizations everywhere the globe. With more computation power and huge data generated at an immeasurable pace from various sources like social media, IoT devices, etc., it becomes possible for organizations to implement AT in their daily aspects. The adoption of AI by numerous sectors is influenced by, among different factors, technical and restrictive challenges. However, business implications are the most important determinant. The retail sector has been one of the first adopters of AI solutions; with applications such as enhancing user expertise by providing individualized suggestions, preference-based browsing, and image-based product search. AI brings growth in the sales to the next level. This paper focuses on the impact of use of AI in e-commerce. The following data shows how AI in e-commerce is boosting the sales in general.



Retail e-commerce sales worldwide from 2014 to 2021 (in billion U.S. dollars)

| Year | Sales (in billion U.S. dollars) |
|------|-------------------------------|
| 2014 | 1 336 |
| 2015 | 1 548 |
| 2016 | 1 845 |
| 2017 | 2 304 |
| 2018* | 2 842 |
| 2019* | 3 453 |
| 2020* | 4 135 |
| 2021* | 4 878 |

Source
eMarketer
© Statista 2018

Additional Information:
Worldwide; eMarketer; 2014 to 2017

**Conclusion**

It is estimated that 85% of the customer interaction will be done without the involvement of human being by 2020. Many e-commerce websites are implementing Artificial Intelligence to analyze the user behavior and make prediction over that. AI helps e-commerce organizations to optimize the inventory management to keep pace with demand and supply.

**References**

~      Abdul Gaffar Khan, "Electronic Commerce: A Study on Benefits and Challenges in an Emergency Economy", Global journal of management and business research: economics and commerce, Vol. 16 Issue 1 Version 1.0 Year 2016, Online ISSN: 2249-4588 & Print ISSN: 0975-5853.

~      Dr. Kiran S Nair, "Impact of e-commerce on global business and opportunities-a conceptual study", International Journal of Advanced Engineering and Management Research, Vol. 2 Issue 2, 2017, ISSN: 2456-3676.

~      Rajneesh Shahjee, "The impact of electronic commerce on business organization", An International Peer Reviewed & Referred Scholarly research journal for interdisciplinary studies, ISSN: 2278-8808.

~      Shyna K and Vishal M (2017). "A Study on Artificial Intelligence in Ecommerce", International Journal of Advances in Engineering & Scientific Research, Volume 4,(Issue 4, Jun-2017), pp 62. ISSN: 2349 –3607 (Online), ISSN: 2349 –4824 (Print).

~      Yashoda Kiran Lingam, "The role of Artificial Intelligence (AI) in making accurate stock decisions in E-commerce industry", International Journal of Advance Research, Ideas and Innovations in Technology, Vol. 4 Issue 3, ISSN: 2454-132X.

~      https://amasty.com/blog/global-e-commerce-trends-and-statistics-2017-2018/#ARTIFICIAL_ INTELLIGENCE_TO_BLOSSOM

~      https://hackernoon.com/role-of-artificial-intelligence-in-e-commerce-404cad38e1a

~      https://www.emarketer.com/content/us-voice-assistant-users-2019

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