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A Critical analysis of Artificial Intelligence in E-commerce

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Abstract: This is the era of Artificial Intelligence. The impact of Artificial Intelligence is greater in almost all the fields. Artificial Intelligence technology has been adopted in the E-commerce industry as well. There is a great impact on society when it is surrounded by technology. Artificial intelligence helps in searching, sorting and also finding the relevant data. Today all e-commerce sites like Flipkart, Amazon, eBay use this technology. Artificial intelligence is really taking over the world.

In this paper I have presented a critical analysis of Artificial Intelligence in e-commerce, here I intend to present meaning, advantages and disadvantages of Artificial Intelligence, its components, and also some of the relevant issues which is worth discussing in the present contemporary era about the position of law relating to Artificial Intelligence in India and also the competition law perspective of Artificial intelligence technology which is procured in e-commerce.

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Introduction: With the advent of the technology there are several new technologies that are emerging in the field of science and technology. Artificial Intelligence is also one of them. Artificial Intelligence is the branch of the Computer which is concerned with making the computer behave like humans. Artificial Intelligence means it is the capacity of the machine to think, perceive, learn, problem solving and decision-making capacity of the machine. This new technology of Artificial Intelligence is now almost used in all the fields like healthcare, education, finance, media and entertainment, telecom etc. E-commerce websites use this technology to a greater extent. The use of the Artificial Intelligence technology in the e-commerce industry helps the e-commerce websites in making more profit and also make more customers further retain them for further purchase by giving an amazing experience of shopping

in the e-commerce websites. Artificial intelligence technology which is used in the e-commerce websites which enables the customers to purchase the products and also causes the personalised sales, it can be observed that by use of this technology in the e-commerce websites causes the breach of privacy of the customers who shop in the online e-commerce websites. As of now there is no particular legislation to regulate Artificial Intelligence in India and the Information Technology Act, 2000 seems to be insufficient to regulate Artificial Intelligence in India. When there is no particular legislation, the next step would be finding the reports of the Government in the given area. Therefore, referring to the discussion paper by the NITI Aayog “National Strategy for Artificial Intelligence #AIFORALL” in 2019 would be relevant. Indian Government is in the phase, where it is promoting the technology and has identified five sectors where the Artificial Technology can be further looked in a deeper prospective like healthcare, agriculture, education, smart cities and infrastructure and transportation. In E-commerce websites what becomes more important is that inventory management. Therefore, with the use of Artificial Intelligence in E-commerce websites, enables the e-commerce websites the following advantages:

- a. Artificial Intelligence will enable to optimise the resources
- b. Artificial Intelligence will enable the required amount of stock that should be refilled of each item.
- c. Artificial Intelligence will enable the e-commerce websites to track the daily sales record.

Artificial Intelligence is entering our lives slowly. Now there is no sector where we can't say that the Artificial Intelligence technology is not used.

Basically, there are two types of Artificial Intelligence:

1. Weak Artificial Intelligence:

In weak Artificial Intelligence, the said machine will act like human. The machine with the weak Artificial Intelligence has the capacity and performs the function of thinking, moving, talking provided that they are programmed so. For example, in the chess games which we play in our phones has the ability to only to play, it does not possess the ability to think like humans. The chess game will be programmed such way so as to make the smart moves and by this it can compete the people.

2. Strong Artificial Intelligence:

In strong Artificial Intelligence, the machine will be actually having the capacity to think like human and also make decisions, the machines will be programmed in such way as to the mind of the human beings. For example, Artificial Intelligence of “WATSON” supercomputer which is invented by the IBM. But the strong Artificial Intelligence doesn't really exist now, it is assumed to in picture by 2030-2045.

Keywords: E-commerce, Artificial Intelligence, privacy, competition Act, NITI Aayog.

I. Artificial Intelligence in E-commerce

E-commerce is the way that provides purchasing and selling of various products on the internet platform¹. In the modern-day people refer to purchasing more online than stepping out of the house. E-commerce websites which are plenty in number like Amazon, flipkart etc provide a wide range of choice to the buyers they also provide a door step delivery and also other attached services like return exchange of the products etc. therefore, majority of the people prefer to do online shopping. These E-commerce websites in the modern time use different technologies in their websites so has to cause more beneficial and personalised sales for the buyer². In the current era one of the main technologies used and procured by the e-commerce websites is Artificial Intelligence technology. Artificial Intelligence is self-learning algorithms that can cause and create personalized shopping experiences for online buyers. With this it also helps to understand customer requirements, behaviour and provide better customer service³. By the use of Artificial Intelligence technology in E-commerce websites have following advantages:

- Artificial intelligence helps the e-commerce businesses to get closer to their customers⁴.
- Artificial Intelligence helps to build better consumer experience
- Prediction of the consumer behaviour and study what consumers prefer buying.
- artificial intelligence also helps in supply chain management.

¹DrN Gawali, Artificial Intelligence in E-commerce, 28 IJME, 15-17 (2019)

²Shyna Kakkar, Vishal Monga, A Study on Artificial Intelligence in E-commerce, 4, IJAESR, 62-68 (2017)

³Unnati Dhavare, Umesh Kulkarni, Natural Language Processing using Artificial Intelligence, IJETTCS, 4, (2015)

⁴Avneet Pannu, Artificial Intelligence and its application in different areas, IJCIT, 4 (2015)

- Artificial intelligence provides the voice search option for the consumers.⁵
- Filters the fake reviews⁶

Further it is also expected that the Indian e-commerce industries will grow to US\$200 billion by 2026 which may be due to the increasing use of internet and smartphones. Using Artificial Intelligence and also with its machine learning algorithms, the online shopping experience has been personalised for every customer. They predict buyer behaviours based on past searches and orders and recommend products that would be most interesting to the customers⁷.

II. Components of Artificial Intelligence:

The key Areas of AI has been divided into three parts: Data Mining, NLP, and ML⁸. These three areas help the E-commerce industry to grow more. With the help of Data - Mining it will be possible for mining more amount of data namely Current data (OLTP) and historical data (OLAP) which helps in the future prediction of data. Next component of the AI is NLP which stands for Natural Language Processing which will help in the interaction of the computer and humans with each other in the natural language⁹. The last key element of the AI includes the MI which means Machine Learning, this is an extraordinary domain of the AI which helps the machine to program in such a way as be an example that will use examples or the past experiences to the given problem.

AI helps to perform all the manual tasks very efficiently and also quickly. AI technology by looking into and doing all the manual jobs by itself will allow the e-commerce entity to concentrate more on the strategic level of business. The introduction of the AI and ML technology in the e-commerce industries is not only a cost effective one and also the time complexity in such a way that now it would be enough to do constructive tasks rather than the respective tasks.

⁵Kumar Tapan and Pooja Aneja, "Tools and Techniques of Machine Learning Paradigm: A study and Analysis.

⁶Tapan Kumar, The Colossal Impact of Artificial Intelligence in E-commerce: Statistics and Facts, 06, IRJET, 570-572, (2019)

⁷Ibid, 570

⁸Ibid, 571

⁹Ibid

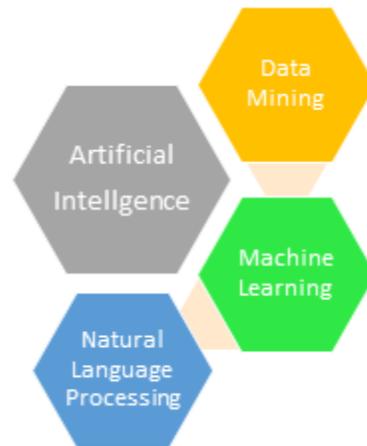


Figure No. 1: Components of AI

III. Application of AI into the E-commerce:

It is difficult to uncover all the hidden applications of AI into the E-commerce domain in this paper but have tried to highlight some of them which is widely used:

I. **Visual Voice search:** consumers who use e-commerce usually search for the product by the visual or voice search. It is also anticipated by 2021 due the fame of the voice search tool in the e-commerce industry will increase the revenue of e-commerce because of its popularity. People usually use google mic and voice recognition for the purpose of voice search.

II. **AI assistants and chatbots:** with the help of the AI assistants and the chatbots, it will help the buyers to respond to their inquiries. One of the popular tools in this segment is virtual assistants. It also performs the function of giving good suggestions to the given problem. Product recommendation is also used through NLP. eBay and Alibaba are some of the best examples for the same.

III. **Smart Logistics:** with the help of Artificial Intelligence technology, it enables the e-commerce website to maintain the logistics smartly. It will also help in the management of warehouses and the delivery process¹⁰. example Amazon.com, Fliplart.com etc.

IV. **Recommendation Engine:** one of the important features of the Artificial Intelligence technology is that it is able to predict the buyer's behaviour on the websites. Training data sets and the algorithm is used to predict and give recommendations to the buyers. Amazon and Flipkart are the best examples that can be quotes here.

¹⁰Ibid,572

IV. Artificial intelligence and law governing Artificial Intelligence:

As of now there is no particular law to regulate Artificial Intelligence in India. With the extensive and the over exploitation of this technology in almost all the fields as now made governing authorities to make it has a national relevance. There is urgent need for the Government to regulate by taking into consideration the development, funding activity and the overuse of Artificial Intelligence technology.

When we have a

close look towards the activity of the Government it is in the stage of making promotion, development and application of Artificial Intelligence.

The government is also spending its work for making proper regulation to regulate the Artificial intelligence in India, the following can be looked into as part of Government actions towards regulating the artificial intelligence in India:

I. **NITI Aayog Report**, the following are some of the important suggestions;

- To build an attractive IP regime for the Artificial Intelligence and also setting of a task force which will comprise of two important body i.e., the Ministry of Corporate Affairs and Department of Industrial Policy and promotion, which will examine and also will issue proper notification for the purpose of modifications to any existing IP laws¹¹.
- Setting up a data privacy legal network for the purpose of protection of human rights and privacy. And creating of the sector wise guidelines for regulating and covering privacy, security and ethics¹².

II. **Ministry of Electronics and Information Technology** made four committee namely;

- a. Committee A on platform and data on Artificial Intelligence.
- b. Committee B on leveraging Artificial Intelligence for identifying national missions in key sectors.
- c. Committee C on mapping technological capabilities, key policy enablers required across sectors, skilling, reskill.
- d. Committee on cyber security, safety, legal and ethical issues in 2018

¹¹Discussion Paper, National Strategy for Artificial Intelligence, June 2018

¹²Ibid

These committees have been set up by the Ministry of Electronics and Information Technology for the purpose of developing a legal and regulatory framework to Artificial Intelligence.

V. Artificial intelligence and Competition Law:

The main objectives of the Competition Act, 2002 which is seen in its preamble is that the Act seeks to prevent any adverse effect on competition, promote and sustain competition in markets, protect the interests of customers and ensure freedom of trade carried on by other participants in markets in India. the Competition Act does not allow among others the following practices among the enterprise¹³:

- a. Abuse of dominant position
- b. Anti-competitive combinations: and
- c. Anti-competitive agreements

The advent of Artificial Intelligence has evidently accorded a dominant position to some of enterprises by allowing the enterprise to analyse and also to predict the consumer behaviour patterns and also develop cost efficiencies. In the eyes of Act an enterprise is said to have a dominant position in the relevant market¹⁴ if it enjoys a position of strength which enables it to Firstly, operate independently of competitive forces prevailing in the relevant market; Secondly, affects its competitors or consumers or the relevant market in its favour¹⁵. Enjoying the dominant position is not itself wrong, but abusing its position is wrong in the perspective of the Competition Act, 2002 and there are certain enterprises that have been alleged to breach the Competition Act and abused their position¹⁶.

An example, the Competition Commission of India (CCI)¹⁷ has notes that Amazon and Flipkart have 'large repositories of data due to its unparalleled market base and market power and they analyse the data to target advertisements based on consumer preferences and

¹³ Preamble of the Competition Act of 2002

¹⁴'Relevant market' means 'the market which may be determined by the Competition Commission of India with reference to any product or geographical market or with reference to both and is defined under Section 2(r) of the Competition Act of 2002.

¹⁵Section 4 Explanation (a) the Competition Act of 2002

¹⁶AI, Machine Learning & Big-Data 2020| India <https://www.globallegalinsights.com/practice-areas/ai-machine-learning-and-big-data-laws-and-regulations/india> accessed on 01/12/2020

¹⁷Ibid

marginalised other competitors which are unable to capture the market due to lack of access of data'. Lack of such access and cost associated with the development of complex self-learning computing algorithms has resulted in creation of high entry barriers on account of network effects.

E-commerce entities essentially are following the partner of marketplace model of e-commerce that is acting as intermediaries between the sellers and the consumers, now it has been observed that now they have introduced the new system of private labels which are claimed to be given a better and a preferential treatment. It has also been alleged that these e-commerce entities use the data collected from the sale of products of third-party sellers on its market to set optimal pieces and specifications for their private label products.¹⁸

The Competition Commission of India in the order dated 20th January 2020 in Delhi *Vyapar Mahasangh v Flipkart Internet Private Limited and Amazon Sellers Services Private Limited*¹⁹, has initiated to hold an enquiry regarding the discounts, market power and the preferential listing, but the investigation is still pending and now we have to see how CCI will come up with the plans to put an end to such behaviour.

Further the CCI also has the power to regulate the merger, acquisition and amalgamation over certain monetary limits and also can prohibit 'any combination which causes or is likely to cause an appreciable adverse effect on competition within the relevant market in India.'²⁰

Although the quantum of data which could fall under the control of a single entity has not been a factor of consideration by CCI while approving a proposed combination, such non-price factors may result in repudiation of a proposed combination, keeping in mind the 'extent of barriers to entry'²¹ it might create, and the a 'likelihood that the combination would result in removal of a vigorous and effective competition or competitors in the market'²² among other factors²³.

VI. Artificial intelligence and privacy issues:

¹⁸Ibid

¹⁹Ibid

²⁰Ibid

²¹Ibid

²²Ibid

²³Ibid

Despite having so many advantages, the main disadvantage of AI technology is the privacy of the buyers. Natural language processing is the ability to understand human language by machines. Artificial intelligence has the ability to understand natural speech and is also capable of understanding each user conversation on email and telephones. This may lead to loss of privacy to the users. The meanings of the words 'confidentiality' and 'privacy' are somewhat similar, and are considered to be synonymous. Confidentiality involves a sense of 'expressed' or 'implied' contractual obligations²⁴. privacy in the technology driven world is a difficult proposition. Technology has become a kind of double-edged sword, on one hand it equips the person to safeguard privacy and on other it helps in blowing the privacy cover, one may have had²⁵.

By the use of artificial intelligence technology in the e-commerce industry, the digital footprints of the consumers are captured, who will be browsing the internet for personal reasons. It all starts from the capture of the Internet Protocol(IP) address. The computer resources are easily identifiable as they will be provided with the unique IP addresses by the Internet Service Provider (ISP). whenever a person visits any site, sends an email, or also even chats he leaves behind a distinctive IP address behind.

Thus, by understanding the behaviour pattern and individuals, the e-commerce websites will be giving him the recommendations, based on his history of search.

Example; Sometimes it happens when you have searched for some products in any e-commerce site and left it unbought, the advertisement of the same products or the similar products will be appearing in any for your social media accounts like Facebook, Instagram etc. This technology used by the E-commerce websites will amount to breach of privacy of the consumers.

Legal remedy under the Information Technology Act 2000;

Section 72 of the Information Technology Act,2000 **Penalty for breach of confidentiality and privacy.-Save as otherwise provided in this Act or any other law for the time being in force, if any person who, in pursuance of any of the powers conferred under this Act, rules or regulations made thereunder, has secured access to any electronic record, book, register, correspondence, information, document or other material without the consent of the person concerned discloses such electronic record, book, register, correspondence, information, document or other material**

²⁴Vakul and Seema Sharma, Information Technology Law and Practice,295, LexisNexis, 6th eds, 2019

²⁵S.R Myneni, Information Technology (Cyber Law), Asia Law House, 1th eds, 2019

to any other person shall be punished with imprisonment for a term which may extend to two years, or with fine which may extend to one lakh rupees, or with both²⁶.

The aforesaid section has a limited applicability. It confines itself to the acts and omissions of those persons, who have been conferred power under this Act, rules or regulations made thereunder. And this remedy seems to be insufficient.

Conclusions: It is true that by next coming year artificial intelligence technology will be ruling the entire world and also the e-commerce websites will be further enhancing the Artificial Intelligence technology in their sites for more and more profits. Not only the E-commerce websites, almost all sectors are now launching the technology of artificial intelligence in their respective fields. Therefore, it becomes part of duty on the government to implement a proper law or to amend the Information Technology Act, 2000 to include artificial intelligence in its context. The e-commerce websites are making huge and huge profits and the buyers in the online platforms are also intruded. The privacy of the buyers cannot be compromised at the rate of the profit that are gained by these e-commerce websites. The abuse of dominant positions which are alleged to done by these e-commerce companies should be taken into account by the Competition Commission of India and should also take a proper investigation in this regard.



²⁶ Section 72 of Information Technology Act, 2000