AI Ethics in Consumer Decision-making Trends in E-commerce: A Bibliometric Analysis

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Abstract

The research paper aims to examine the ethical implications of Artificial Intelligence on the consumer decision-making process in E-commerce since 2020. The study maps research trends, highlights excellence through citation analysis, and the most prolific authors, countries, and institutions in the field by analysing 123 Scopus-indexed publications using bibliometric analysis. Findings indicate an exponential rise in relevant literature, with India leading global contributions. The most cited works emphasise transparency, privacy, fair pricing, and trust as the core challenges in managing the ethics in AI. The papers have also highlighted concerns such as accountability, data manipulation, and price discrimination in AI-driven E-commerce systems. The analysis provides actionable insights for industry policymakers, recommending mechanisms to ensure consumer privacy protection, transparency, and the responsible implementation of AI.

Keywords

AI ethics, E-commerce, Consumer Decision-making, Bibliometric analysis, Transparency, Privacy, Price discrimination, India, and Scopus.

1. Introduction and Review of the Literature

The pace of technological innovation has been unprecedented over the last few years. The myriad of changes witnessed include the social media explosion, which has defined how people live their lives; the rise of artificial intelligence as both an enabler and a disabler; the quick commerce revolution in developing countries like India, revolutionizing e-commerce (an interesting takeaway for developed countries); and many more. The growth of e-commerce worldwide has been exponential. E-commerce was enabled by the ease of use of the World Wide Web, and the exchange of communication and the hyperlinks enabled the start of E-commerce, which has rapidly evolved since its inception in the late

20th century, accelerating in the late 1990s, marked by the launch of eBay (1995) and Amazon (1995). E-commerce growth was further propelled by the accessibility of websites and Apps (Applications) on mobile phones. The questions have transitioned from "Whether anyone has ever shopped online?" to "Is there anyone who has never shopped online?".

Covid-19 was a game-changer for many industries, challenging for some (such as physical stores and the travel industry) and a blessing for e-commerce, where global e-commerce transactions jumped to around $5 trillion in 2021. It was attributed to lockdowns and restrictions on physical interactions; however, the share of e-commerce transactions continued to rise even after the pandemic, reaching approximately 24.5 percent of all, retail sales by 2025 (Salesforce, 2025). The growth is propelled by customers and businesses' acceptance and adoption of online business, digital payments, and mobile as a medium of e-commerce. Today, the global e-commerce market is expected to surpass $8 trillion by 2027, cementing its place as a core driver of modern commerce.

Generative Artificial Intelligence (Gen AI) represents a new dimension that is expected to accelerate the growth of e-commerce further. As it holds true for all new technology modifiers, the impact and its ethical implications need to be monitored, researched, and discussed. Gen AI is helping consumers make quicker decisions, offering instant comparative choices and personalized search, which helps maximize return on time investment (ROTI) for consumers. Various research papers and reports have supported the fact that the use of AI in consumer decision-making is increasing rapidly, with consumers relying on AI to evaluate products and make final decisions (Naemi, 2025; Khandelwal, 2025). Industry reports by Salesforce and Capgemini indicate that using GenAI to search for products is becoming the norm rather than the exception, potentially replacing search engines. Salesforce 2025 reports point to the fact that more than 50 percent of Gen-Z users are already using AI to discover products, and 39 percent of all customers. Capgemini's report shows that nearly 60 percent of shoppers are interacting with Gen AI, such as ChatGPT, to find recommended products. (Salesforce Team, 2025).

The reliance on Gen AI to make buying decisions comes with a plethora of ethical concerns that have been discussed in the literature, and the purview of this paper is to analyze the literature in the field discussing the ethical challenges emerging from AI usage in e-commerce.

2. Objectives of the study

To explore the fascinating and evolving world of AI ethics, a journey from data to consumer decisions in e-commerce, the following Research Objectives (ROs) are being studied.

2.1. Mapping the theme, bibliometric profile by extracting the trends in publications and the most cited papers.

2.2. Excellence Analysis (analysis of the most cited papers).

2.3. Identifying the most prolific authors, along with the top contributing countries and organizations.

3. Research Methodology

The paper employs bibliometric analysis to explore the study of ethical issues in AI-driven consumer decision-making, with a particular focus on e-commerce transactions.

Bibliometric analysis is an interesting and simple technique that helps in studying an identified area of academic research by quantifying (numbers and statistics) the scholarly research in terms of the number of published papers, country-wise contribution, number of collaborations, etc. The analysis of this data helps determine which topics (within a topic) are studied or which researchers have had the most significant impact, using citation analysis. This technique helps identify highly explored areas and research gaps. Bibliometric analysis is applied to specific databases, such as Scopus, Web of Science, and PubMed, and presents the data clearly and beneficially. This technique is highly preferred when aiming to provide a clear map of scientific progress in any field to researchers, policymakers, and organisations. Based on the patterns that emerge from the papers, the research aims to study the concerns that have been mentioned, as well as those that have been overcome.

The present study focuses on the Bibliometric analysis of the Scopus database, as it is one of the largest databases with wide coverage of disciplines, high-impact journals, and global publications (Hashem, 2023; Baas, 2020). A Scopus publication is highly sought after and recognized for its rigorous standards and strict quality control.

Within the Bibliometric analysis, excellence analysis plays a vital role in summarizing the research findings of the most cited papers, providing directions for further research, and also avoiding the duplication of research in this particular field of research. The field is evolving so rapidly that the cues for future research are very important.

Table 1:- Inclusion and Exclusion Criteria for Retrieving the Dataset

Criteria Type	Inclusion Criteria	Number of Papers
Keywords	"AI" OR "Gen AI" AND "E-commerce" AND "Ethics" OR "ethical"	174
Publication Years	2020 to 2025 (PUBYEAR > 2019 AND PUBYEAR < 2026)	174
Subject Areas	All except Medicine, Energy, Agriculture, Biochemistry, and Mathematics	129
Publication Stage	Final (LIMIT-TO (PUBSTAGE, "final"))	123
Language	English	123
Date of Extraction: October 28, 2025		

Source:- Prepared by Authors with Data from Scopus Biblioshiny

4. Data Analysis

Table 1 explains that the researchers extracted the data analyzed in this paper from the Scopus database on October 28, 2025, using the keywords "AI" OR "Gen AI" AND "E-Commerce" AND ("Ethics" OR "ethical") from 2020 onwards. The first iteration yielded 174 papers. After excluding certain areas of research, 129 papers remained, which were reduced to 123 relevant papers based on their final stage of publication and publication in the English Language.

4.1. Research Objective (RO) 1: Mapping the theme bibliometric profile by extracting the trends in publications, and enlisting the most cited papers.

Table 2:- Annual Scientific Production

Year ↓	Documents ↑
2025	46
2024	63
2023	6
2022	4
2021	3

Source:- Prepared by Authors with Data from Scopus

The research sought to study the area of Artificial Intelligence ethics in E-Commerce Consumer decision making since 2010 but the extraction of the data from Scopus database reveals that the first relevant publication was in the year 2020. The growth of AI has been rapid, and so has the trend of research publications. With a humble 1,3, 4, and 6 from 2020 to 2023, the publications grew to 63 in 2024 and 46 in 2025 (till October 28, 2025). The increase in the number of publications within a year is an indication of growing interest, a widening knowledge-base, and active exploration of the research area.

The spurt of growth can be taken as an indicator of the need to conduct a bibliometric analysis based on the number of publications, rather than waiting for a few more years to conduct the research. The analysis of the data would help researchers and businesses identify and implement the findings of the studies.

Source:- Prepared by Authors with Data from Scopus
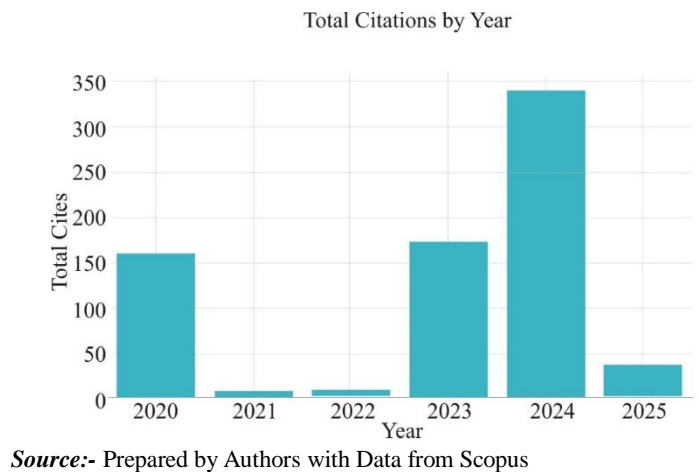
Figure 1:- Total Citations by Year

Table 3:- Year-wise Citations of the Papers

Year	Total Citations	Average Citations	Number of Papers
2020	160	160.00	1
2021	8	2.67	3
2022	9	2.25	4
2023	172	28.67	6

Year	Total Citations	Average Citations	Number of Papers
2024	340	5.40	63
2025	36	0.78	46

Source:- Prepared by Authors with Data from Biblioshiny

The bibliometric analysis yields interesting results in the citations study, making it highly skewed with 123 publications and 725 total citations, and a median citation count of 0, although the average citation is 5.89 per paper.

The year 2024 had the highest number of publications (63) with the highest total citations (340), but only an average of 5.40 citations per publication. In contrast, in 2023, the average citations were very high (28.67), with only six publications. This implies two things: the quality of the publications in 2023, and also that the 2024 publications are too recent and will take time to build citations. In 2020, one paper had the highest number of citations, 160. This skewness is likely due to this being a relatively recent area of research, and citations take time to accumulate.

4.2 Research Objective (RO) 2 - Excellence Analysis (Analysis of the most Cited Papers)

In bibliometric analysis, Excellence analysis is a blend of quantitative and qualitative methods, which identifies the most cited papers and then analyzes them. The analysis of these "excellent"/"most cited papers" helps to identify the key findings, methodologies that have worked, and research gaps, serving as benchmarks for future research in any field.

Table 4:- Excellence Analysis of Publications

S. No.	Authors	Title	Year	Source title	Cited by
1.	Khrais, L.T.	Role of artificial intelligence in shaping consumer demand in e-commerce	2020	Future Internet	160
2.	Li, K.; Lau, B.P.L.; Yuan, X.; Ni, W.; Guizani, M.; Yuen, C.	Toward Ubiquitous Semantic Metaverse: Challenges, Approaches, and Opportunities	2023	IEEE Internet of Things Journal	64

S. No.	Authors	Title	Year	Source title	Cited by
3.	Bani Ahmad, A.Y.A.B.; Naidu, T.N.; Shrivastava, G.; Gabbi, R.S.; Islam, S.; Nagaraju, K.	E-commerce Trend Analysis and Management for Industry 5.0 using User Data Analysis	2023	International Journal of Intelligent Systems and Applications in Engineering	46
4.	Singh, B.; Jain, V.; Kaunert, C.; Dutta, P.K.; Singh, G.	Privacy matters: Espousing blockchain and artificial intelligence (AI) for consumer data protection on e-commerce platforms in ethical marketing	2024		43
5.	Khennouche, F.; Elmir, Y.; Himeur, Y.; Djebari, N.; Amira, A.	Revolutionizing generative pre-traineds: Insights and challenges in deploying ChatGPT and generative chatbots for FAQs	2024	Expert Systems with Applications	43
6.	Kopalle, P.K.; Pauwels, K.; Akella, L.Y.; Gangwar, M.	Dynamic pricing: Definition, implications for managers, and future research directions	2023	Journal of Retailing	39
7.	Izadi, S.; Forouzanfar, M.	Error Correction and Adaptation in Conversational AI: A Review of Techniques and Applications in Chatbots	2024	AI (Switzerland)	33
8.	Vashishth, T.K.; Sharma, V.; Sharma, K.K.; Kumar, B.; Chaudhary, S.; Panwar, R.	Enhancing Customer Experience through AI-Enabled Content Personalization in E-commerce Marketing	2024		29

S. No.	Authors	Title	Year	Source title	Cited by
9.	Pathirannehelage, S.; Shrestha, Y.R.; Von Krogh, G.	Design principles for artificial intelligence-augmented decision making: An action design research study	2025	European Journal of Information Systems	20
10.	Ros√°rio, A.T.	Generative AI and generative pre-trained transformer applications: Challenges and opportunities	2024		17
11.	Tran, M.T.	Unlocking the AI-powered customer experience: Personalized service, enhanced engagement, and data-driven strategies for E-commerce applications	2024		16
12.	Chaudhary, M.; Gaur, L.; Singh, G.; Afaq, A.	Introduction to Explainable AI (XAI) in E-Commerce	2024	Studies in Computational Intelligence	14
13.	Fabbri, M.	Social influence for societal interest: a pro-ethical framework for improving human decision making through multi-stakeholder recommender systems	2023	Studies in Computational Intelligence	14

Source:- Prepared by Authors with Data from Scopus

In this section, the study highlights the Excellence analysis by selecting the top 10 percent most cited papers from a set of 123 papers. The threshold for excellence was set at approximately 14 citations (the 90th percentile). A total of 13 excellent papers have been cited, with the citation range of 14 to 160, and the average citation amongst these papers is 41.38.

The top 5 have been considered since the citations are not very high due to the recent publications in the area of exploration.

All these papers are discussed in detail.

The paper "Role of artificial intelligence in shaping consumer demand in e-commerce" by Khurais (2020) is by far the most cited paper with 160 citations. It is a novel and a pioneering attempt at recognising the potential of AI in influencing consumer preferences and stresses the need for managing the challenges in the ethical implementation of AI and its governance. The study utilizes Amazon's transaction data from 2018 to 2022 on an exemplary e-commerce platform to reveal how consumer behavior can be impacted by the use of AI in e-commerce and the need for transparency in AI systems.

The second most cited paper (Li, K et al., 2023) delves into all aspects of the topic being studied, specifically the role of AI ethics in e-commerce consumer decision-making. The paper examines the future of e-commerce in the context of continually advancing AI technologies, including semantic communication, intelligent surfaces, and edge intelligence. The paper emphasizes the importance of ensuring fairness, transparency, and privacy when integrating generative AI into e-commerce systems to influence customer decision-making processes. These ethical aspects are challenging to meet, as the authors also discuss the importance of respecting customer privacy and maintaining their trust. Ethical issues should not be an afterthought; they should be given due importance when designing next-generation e-commerce platforms with the help of AI.

The following most cited paper on E-commerce and Industry 5.0 (Bani, 2023) discusses in detail the enhanced role that Generative AI is expected to play in consumer decision-making in E-commerce within the next-gen Industry. Gen AI thrives on insights from the data and works around it, highlighting the ethical considerations that come with handling data while maintaining privacy and transparency. Leveraging AI to influence and help consumers make decisions is highly lucrative, but ethical considerations include maintaining that personalized recommendations do not compromise consumer trust. The paper empowers the research by focusing on making AI an enabler that helps customers make informed and fair decisions in e-commerce.

The paper, "Privacy matters: Espousing blockchain and artificial intelligence (AI) for consumer data protection on e-commerce platforms in ethical marketing" recognizes the need to protect the manipulation of e-

commerce consumers' decision-making in light of AI usage and the importance of ethical considerations. The paper proposes that blockchain and AI could be used as protective measures to manage unethical data practices. Blockchain is to be utilized to ensure tamper-proof data storage and transparency, while AI is to be employed to protect the privacy of the data through real-time monitoring. This could help in ensuring autonomy in consumer buying decisions and maintain their trust. The paper categorically discusses that AI-driven aid, in terms of recommendations and personalized content, should be used without the risk of data manipulation and privacy violation. The paper advocates that the aim of e-commerce businesses is to create a trustworthy environment where consumers are enabled, rather than coerced, to make decisions by the ethical use of data for AI.

Another highly cited paper, "Revolutionising generative pre-training: Insights and challenges in deploying ChatGPT and generative chatbots," focuses on the concern surrounding biases in AI training and advancement, which can lead to biased and inappropriate responses that affect consumer decision-making by manipulating them. This paper also discusses the importance of transparency and privacy protection, but additionally, it raises the question of accountability for AI chatbots in assisting customers with FAQs and purchasing decisions. The uniqueness of the paper lies in its emphasis on mandating the use of unbiased AI, which provides accurate information to support customers rather than manipulating them into purchasing through altered responses.

By analysing how AI-powered dynamic pricing algorithms can raise moral questions about fairness, transparency, and consumer manipulation, Kopalle's (2023) paper directly addresses e-commerce and AI ethics in consumer decision-making. The study raises concerns about how AI systems may use personal information (such as location, income, and browsing habits) to charge different customers different prices for the same goods, potentially taking advantage of weaker consumers with few options. When AI algorithms target price-sensitive consumers or manipulate pricing in critical situations, the paper emphasizes the need for ethical guidelines to prevent discriminatory pricing practices that could erode consumer trust and autonomy in decision-making. To ensure that AI-driven pricing strategies strike a balance between revenue optimisation and consumer welfare, it requires precise pricing mechanisms and robust regulatory frameworks.

4.3 Research Objective (RO) 3: Identifying the most Prolific Authors, along with the Top Contributing Countries and Organisations.

4.3.1. Contribution by Country

Based on the country affiliation shared by the authors, India has the most publications, with a significant lead of over 102 papers, followed by the United States of America (20) and China (12).

Table 5:- Contribution to Research by Country

S. No.	Country	Number of Papers
1.	India	102
2.	United States	20
3.	China	12
4.	Malaysia	8
5.	Portugal	8
6.	United Kingdom	8

Source:- Prepared by Authors with Data from Biblioshiny

Table 6:- Institutions Contributing to Research

Institution	Country	Region	Focus Area
Bennett University	India	Asia-Pacific	E-commerce AI & Metaverse
S.A. Engineering College	India	Asia-Pacific	Text-to-Image Generation
Vel Tech Rangarajan Dr. Sagunthala R&D Institute	India	Asia-Pacific	Text-to-Image Generation
Christ University	India	Asia-Pacific	Business Model Innovation
Marwadi University	India	Asia-Pacific	Big Data Analytics

Source:- Prepared by Authors with Data from Biblioshiny

Table 5 shows that India, with 102 publications leads the nations in the research publications in the field, followed by United States of America with 20 publications and China, with 12 publications.

Table 6 displays the list of institutions contributing to research in the field of focus of the paper, and all the top 5 institutes are located in India, viz., Bennet, S.A. Engineering College, Vel Tech Rangarajan, Christ, and Marvadi University.

4.3.2. Most Prolific Authors in the Field

The number of papers published by the authors in the field is relatively small, and the pace is increasing as the field of research is comparatively new. Singh, Fabbri, Gaur, and Siva have each published three works within the 2024-2025 time frame.

Table 7:- Most Prolific Authors in the AI Ethics in influencing consumers in E-commerce

Rank	Author	Public-ations	Total Citations	Average Citations	Year Range
1.	Singh, G.	3	57	19.00	2024-2025
2.	Jain, V.	2	43	21.50	2024-2024
3.	Fabbri, M.	3	23	7.67	2023-2024
4.	Tran, M.T.	2	17	8.50	2024-2024
5.	Gaur, L.	3	17	5.67	2024-2024
6.	Siva Subramanian, R.	3	15	5.00	2024-2024
7.	Chaudhary, M.	2	15	7.50	2024-2024
8.	Afaq, A.	2	15	7.50	2024-2024
9.	Sudha, L.	2	4	2.00	2024-2025
10.	Sathya, V.	2	2	1.00	2024-2024

Source:- Prepared by Authors with Data from Biblioshiny

Most of the prolific authors published in 2024. Singh, G., leads with 3 publications (57 citations), achieving the highest impact among the most prolific authors. The focus of the cited papers is AI in e-commerce and blockchain. Fabbri, M. has published threethree papers between 2023 and 2024, with an emphasis on ethics in AI recommender systems. Citations gathered by these three papers are 23.

Jain, V., with two publications in the area of blockchain and privacy in e-commerce, stands out with the highest average citations of 21.50 per paper.

2024 has been the most active year of research in the field, indicating a recent and growing interest in the field.

4.3.3. Most Prominent Journals

Table 8:- Journals with the Publishers

Rank	Journal Name	Publisher	ISSN
1.	Journal of Theoretical and Applied Electronic Commerce Search	MDPI	0718-1876
2.	Technology in Society	Elsevier	0160-791X
3.	Journal of Circuits, Systems and Computers	World Scientific	0218-1266
4.	EAI Endorsed Transactions on Internet of Things	European Alliance for Innovation	2414-1399
5.	International Journal of Interactive Mobile Technologies	IFEES	1865-7923

Source:- Prepared by Authors with Data from Biblioshiny

Table 8 presents the five journals that collectively represent the leading publications in AI ethics and consumer decision-making in e-commerce. The publications focus on research into the impact of AI on e-commerce, artificial intelligence, and emerging technologies, as well as their societal implications. The dominance of open-access publishers (MDPI and EAI) indicates a commitment to research accessibility and the wide dissemination of findings.

The researchers can focus on The Journal of Theoretical and Applied Electronic Commerce Research, Technology and Society, Journal of Circuits, Systems and Computers, EAI Endorsed Transactions on Internet of Things (European Alliance for Innovation), and the International Journal of Interactive Mobile Technologies as outlets for their research in this domain. Though the

number of publications has been one or two, they are the pioneers in the field.

5. Conclusion

The paper encapsulates the research undertaken in this relatively new yet pertinent area of research, namely AI Ethics in e-commerce consumer decision-making. The first relevant publication was in 2020; the number of publications saw a steep rise in 2024 (63) from only six publications in 2023. 2025 is also thriving, with 46 publications as of October 28, 2025. The trend is steeply upward, indicating an annual growth rate of 115 percent. The average number of citations per document is 5.894.

Research in India is leading far ahead of other nations, viz., the US, China and Malaysia. The top three institutes leading the study are also from India, namely Christ, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Amity University, and SRM Institute of Science and Technology.

Book chapters (44) are the most popular way of publishing in the field, followed by articles in journals (33) and conference papers (31). The journals, The Journal of Theoretical and Applied Electronic Commerce Research, Technology and Society, Journal of Circuits, Systems and Computers, EAI Endorsed Transactions on Internet of Things (European Alliance for Innovation) and International Journal of Interactive Mobile Technologies can be referred to first for the research in this area, since they have been the first ones to recognize the research interest in the area of ethics of AI in e-commerce customer preferences.

The most cited papers suggest that there is a straight forward need to integrate AI into the decision-making process of e-commerce customers. The papers address various aspects to consider when using AI to influence customers' choices in e-commerce. Including transparency, protecting privacy, ensuring fairness, maintaining customer trust, implementing checks to block data manipulation, assigning responsibility for the use/misuse of AI to manipulate customer choices, and avoiding discriminatory pricing.

6. Limitations and Future Research

The limitations of the study are acknowledged in this section, enabling researchers in the field to understand the way forward in this rapidly evolving field clearly.

6.1. The novelty of the topic was a limitation in terms of the first relevant paper being authored in 2020. Although we searched for results from 2010 to 2025, the analysis yielded results from 2020 to 2025, and only 123 relevant papers were found. The upward trend in publications in the area of AI ethics in e-commerce consumer decision-making is a promising sign that researchers in the future will not face any dearth in the number of papers.

6.2. Another worth noting limiting factor has been the temporary nature of the most cited papers. The temporary nature is because the latest research papers, especially those from 2025, may take some time to build citations, even though they might be excellent papers. However, even with a lesser number of citations, the most cited papers share similar concerns related to AI-driven e-commerce consumer decision-making, specifically transparency and privacy.

Researchers in the future are encouraged to monitor the number of papers being published in the field, which may increase exponentially due to the revolutionary and rapidly changing AI scenario, and perform the necessary analysis. There has been a 10-fold increase in publications from 2023 to 2024.

6.3 Scopus is the database that has been used for this paper. Although widely used and an established database, some research work may be exclusively available in Web of Science, IEEE, PubMed, or other sources. A single-database approach may have resulted in an incomplete representation of the study's topic.

For researchers who wish to conduct more extensive research in the area, it is suggested to include a multi-database approach, utilizing databases such as Scopus, Web of Science, PubMed, or any other relevant sources.

6.4 For the exclusion criteria of this paper, the authors have not included papers from Medicine, Agriculture, Energy, Biochemistry, and Mathematics; this might have removed some interdisciplinary relevant research. An all-inclusive topic research may help remove this limitation.

7. Practical Contribution to Industry and Policy Makers

Artificial Intelligence (AI) is a relatively new tool, serving as a dynamic facilitator in influencing customer choices in e-commerce. The paper points to the directions that the industry can look into:

7.1. Privacy Protection: Incorporation of AI in e-commerce has exciting outcomes, but there is a need to incorporate a mechanism of privacy protection for the customers.

7.2. Transparency: Gen AI utilizes constant training and customization, so how the customer data is being used needs to be transparent.

7.3. Avoid Data Manipulation and Price Discrimination: Data is the king and is very enticing to use it to manipulate the customers into doing what is profitable for the e-commerce company in terms of sales. Price discrimination is one such tactic being used by companies and should be discouraged.

7.4. Fixing Responsibility: The sporadic and dynamic growth of AI mandates that responsibility of any fallout or problems that may arise be fixed proactively. This would enable the responsibilities to be upstepped in AI, when any negative outcome can be traced back to the implementor.

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