

Artificial Intelligence in E-Commerce: Ethical & Legal Challenges

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Abstract

The quest for pleasure and comfort has pushed mankind to be governed by technology. Emerging technologies are revolutionizing e-commerce and influencing society. The demand for Artificial Intelligence surged during the Covid-19 pandemic, with e-commerce heavily investing in its potential to optimize the consumer experience. AI helps businesses track market trends and adjusts products based on customer demands; in short guiding our preferences. However, the lack of proper regulation has caused violations of consumer rights, including privacy breaches, ethical concerns, biased preferences, and digital autonomy issues. To prevent the complete dominance of AI in commercial sector, governments must introduce policies and laws for consumer protection and ensure a safer, more ethical digital experience. This article examines the impact of AI on the e-commerce sector, focusing on challenges related to optimization, AI autonomy, and the legal and ethical issues raised by certain e-commerce platforms. It also addresses consumer rights violations and the need for regulation. To protect consumer rights and ensure a safer future, we must develop ethical AI that supports, rather than undermines, our existence.

Keywords: *artificial intelligence; digital; e-commerce; ethical; legal; rights; technology.*

Introduction

As evidenced by the evolutionary trajectory Man has always been inventive and burgeoning and thus, with the emergence of sophisticated algorithms, machine learning, and automated decision-making has shifted from a future possibility to a current reality. *Artificial Intelligence* (AI) and related technologies have transformed our daily lives, influencing our preferences and behaviours. AI can autonomously drive vehicles, manage stock trades, translate languages, accurately recognize faces, and even formulate hypotheses for drug discovery. In e-commerce, machine learning uncovers data patterns without rigid processes, allowing algorithms to predict shifts in consumer behaviour and tailor product recommendations.

The undoubted catalyst for the said profound interweaving of technology into human life can be attributed to AI, a term coined by John McCarthy, who defines it as “the science and engineering of making intelligent machines especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable”. AI is not a new concept, with its foundations developed over the past 70 years. In 1997, IBM's Deep Blue defeated the world chess champion, marking a key milestone. In 2016, Google's AlphaGo beat top Go player Lee Sedol, further linking AI with the future. But now, we enter the exponential age of AI, its modern connotation would be that AI is “the study and design of intelligent agents where an intelligent agent is a system that perceives its environment and takes actions which maximizes its chances of successes.”

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AI can be categorized into two types: weak AI and strong AI. Weak AI, also known as Narrow AI or Artificial Narrow Intelligence (ANI), is trained to execute specific tasks. It powers many of the intelligent features we encounter today, enabling effective applications such as Apple's Siri, Amazon's Alexa, and IBM Watson. Strong AI consists of Artificial General Intelligence (AGI) and Artificial Super Intelligence (ASI). AGI is a theoretical type of AI that would possess intelligence comparable to that of humans, enabling it to have self-awareness or consciousness, solve problems, learn, and plan for the future. In contrast, ASI, also known as super intelligence, would exceed the cognitive capacities of the human brain. Examples of this concept can often be found in science fiction, such as the characters HAL or other superhuman entities.

In recent years, AI has transformed traditional business models and how consumers interact with products and services. E-commerce uses the internet and digital technologies to manage business operations and exchange information, enabling online buying and selling. It covers both external functions like marketing, payments, and logistics, and internal processes such as Supply Chain Management, Enterprise Resource Planning, Management Information Systems, Customer Relationship Management, and Human Resource Management. Essentially, e-commerce represents a significant economic and technological revolution, deriving from advancements in economic, scientific, technological, and cultural domains. Also, the growth of e-commerce alters how businesses conduct business and how consumers behave, greatly advancing the cause of world economic advancement. The issue of consumer rights and protection has emerged with technology's entry into e-commerce. When we talk about consumer welfare, we mean maximizing consumer utility while keeping in mind the limitations that consumers face when it comes to their access, income, and other factors. AI presents risks of violations of consumer rights, including privacy issues, ethical breaches, biased decisions, and digital autonomy concerns. In this backdrop, that, this paper intends to anatomise the various ethical and legal issues forwarded by AI and its regulatory framework.

Reverberations in E-Commerce: Aftermath of AI

E-commerce emerged almost concurrently with the growth of the internet and is primarily fuelled by online platforms that provide a range of services, including marketplace services, search engines, social networks, application stores, communication services, and payment systems. The COVID-19 pandemic popularized virtual shopping, leading consumers to demand faster and more seamless shopping experiences, which in turn created a substantial surge in the need for AI tools.

AI is transforming e-commerce by predicting consumer behaviour based on their purchases and when or where they were made. This allows businesses to enhance shopping experiences, boost brand competitiveness, and build customer loyalty. AI enhances e-commerce by offering precise product recommendations and personalized search results, enabling buyers to find what they want with just a few clicks. Based on the findings by *Acumen Research*, the retail AI market is projected to grow at a compound annual growth rate of 34.9% from 2020 to 2027, reaching an estimated value of \$6.76 billion.

Now, the perusal commences as to how AI is revolutionising e-commerce sector. *Firstly*, AI collects data via specialized tools namely *chatbots*, virtual assistant, voice recognition feature, augmented reality, site-pathing, visual search, product recommendation, fraud protection, predictive inventory management etc., and analyse it in a versatile manner and delivers the customers with products that complements their preference and demand. Using a natural language processing system, an AI assistant, also known as a Chabot, can automatically respond to consumer inquiries, carry out basic voice commands, and make recommendations for products.

The chat interactions found on e-commerce websites and mobile interfaces are powered by machine learning algorithms that enable personalized communication with customers. Chat-bots are instrumental in guiding consumers to find appropriate products, checking the availability of items, comparing different products, and assisting them in completing their purchases. In March 2017, Alibaba propelled Shop Xiaomi, an AI service robot, a chatbot for Taobao merchants, which can supplant a few client administrations, viably diminish work costs, optimize client encounter, make strides benefit quality, and maximize night activity recuperation, as well as offer assistance client benefit to fathom rehashed meeting issues. AI-powered visual bots let the buyers discover their wanted items by uploading a

picture and consistently discover the thing they are looking for. It has certainly expanded the engagement level that the clients presently have with the e-commerce stores.

Secondly, with the data available to it, AI realises personalisation and customisation. *AI is collecting customers' data and using it to customize their cart preferences.* Agreeing to one of the driving tech pioneers; these innovations are on the way to reshape the e-commerce industry. The Very Group effectively executed AI temperament following innovation in their machine learning chat-bot. It recognizes customers' tone in messages and alters answers based on that data. The AI framework inevitably got to be the most utilized client bolster channel of the company.

AI algorithms analyze user behavior—such as product views, considerations, and purchases—to suggest items users are likely to buy. This data guides ad planning and enables personalized sales offers. Businesses can use purchase history and preferences to tailor recommendations and messages. AI also supports facial recognition payments, removing the need for extra information. Virtual dressing rooms help consumers digitally try on clothing, where the item can be superimposed over a live image of the customer. Additionally, Augmented Reality represents a rapidly advancing tool in the realm of e-commerce wherein for example, potential car buyers can utilize these applications to explore various colour options.

Moreover, features like personalization and automation have completely changed the way customers shop and are used by numerous global brands. Take AmazonGo: Automated Offline Stores, for instance. With the presentation of its computerized checkout innovation to full-size grocery stores, these stores, do not utilize confront acknowledgment, but or maybe picture acknowledgment, which is cross-referenced with weight sensors that decide which merchandise have been taken from a rack. Nike has invested significantly in its direct-to-consumer marketing strategies which aim to foster closer relationships with customers. These efforts are largely based on the principle of personalization within the commercial sector.

Ergo, the afore-deliberations can be condensed to argue that AI causes profound influence and impact in the e-commerce industry through: (i) Personalized Product Recommendations -According to new research from Epsilon, 80% of consumers are more likely to purchase when brands provide personalized experiences; (ii) Automated Product Descriptions and Marketing Content- A study by the World Federation of Advertisers found that 55% of marketers utilizing generative AI for content creation reported enhanced performance; (iii) Demand Forecasting and Inventory Optimization - Generative AI models, trained on historical data, can more accurately predict demand patterns and seasonality compared to traditional methods and; (iv) Increased Conversion Rates and Revenue - The implementation of these AI-driven strategies leads to higher conversion rates and revenue growth.

Challenges: Legal & Ethical

Much are the boons that AI has gifted to all arenas of human life. But, as much as its ups, it brings with it much conflicts and dilemmas. The rapid growth of consumer data, improved AI accuracy, greater computing power, and advances in machine learning, computer vision, and natural language processing have led to the collection, storage, and processing of private information on an unprecedented scale. It is very profitable for e-commerce platforms to offer personalization or customization. E-commerce platforms can use data mining to understand consumer preferences and enhance marketing when users willingly share their data. However, some may illegally mine data for economic gain without consumer consent. Thus, it is essential to look into the relationship between consumers and e-commerce platforms regarding privacy protection, and governments should act appropriately to balance the interests of both.

The foremost of the issue arises with *Data Privacy*. Privacy pertains to individuals' rights regarding their personal data and information. Data privacy encompasses various rights, including the right to access and verify the validity of their data, obtain duplicates, request erasure, and control the collection of their information. Data protection addresses a set of measures utilized to give that individual information of people is handled dependably, lawfully, and transparently. AI technology requires clients to uncover data almost them, counting their location, gender, pay levels, and other sorts of information. This sort of information collection has driven to open distress and indeed subjected to risk.

Incidentally, *Data leaks* present a significant concern, as the public remains largely unaware of how personal information is exchanged between private and public entities. More importantly, the average person does not know how much personal information they are giving away to third parties or how the government and private sector are using it. A vast amount of data is collected from an increasing array of smart devices, including smartphones, GPS systems, security cameras, and AI-driven gadgets like Google Assistant and Alexa, which can record and transmit sensitive information. Harmful data leaks could occur in two contexts – (i) intentional sharing of personal information and (ii) improper safeguards.

The second concern is the *power and information asymmetry*. Employing self-learning algorithms in Big Data analysis allows businesses to obtain a comprehensive, personalized understanding of each customer's unique situation, behavioural tendencies, and personality. Based on this, businesses can apply insights from behavioural economics to tailor contracts, pricing, and advertising to individual customer profiles—often without the consumer's knowledge. This lack of awareness is due to both the proprietary nature of algorithms and the inherent traits of AI technologies, such as opacity, black-box effects, complexity, unpredictability, and semi-autonomous behaviour. AI also poses key risks such as bias and discrimination, lack of transparency, misinformation, manipulation, and security threats. The use of internet-connected voice assistants for shopping and hidden algorithms that set hotel prices illustrates AI's wide-reaching impact. These developments affect both consumers and the organizations responsible for protecting their rights.

Regulation of Challenges Posed by AI

To ensure strong consumer protection and the fair, secure, and sustainable growth of society, regulating AI is essential. However, rapid technological advancement makes effective regulation challenging. Consumers should have the right to contest significant algorithmic decisions and receive clear explanations of how AI systems affecting them work. As online shopping grows, more digital businesses emerge, increasing competition and driving marketers to develop better campaigns and new advertising methods. But controls and laws are routinely not up to date with the state of craftsmanship strategies. Without clear, inclusive controls involving all stakeholders, leaving the market to evolve on its own can lead to harmful and misleading outcomes.

People are giving away their digital footprint to websites and data collectors as they are gradually moving more and more of their life online. In spite of the fact that personalization gives extraordinary esteem to consumers it is to be noted that consumers who support getting personalized are too concerned about giving away individual data. Additionally, data collectors use techniques like stealth browser-based tracking, which can expose personal information to advertisers even after cookies are deleted. Furthermore, such systems may inadvertently disclose embarrassing information to family, friends, and colleagues.

Over-personalization is a potential problem and as algorithms have developed, the ability to recommend relevant content to each individual based on their past behaviour has become increasingly sophisticated. This procedure might result in a “filter bubble,” which describes the process of continually limiting a user's content through excessive personalization to the point where they only see the same content. When it comes to “filter bubbles”, the greatest risk posed by personalization is its ability to compel users into patterns against their will. Over personalization could take away user's greatest benefit from the Internet autonomy.

The Ethical Deliberations

Determining the ethics of an AI system is subjective and can be approached from three main areas (i) meta-ethics, which examines the origins of ethical principles and universal truths; (ii) normative ethics, which addresses whether actions are good or bad; and (iii) applied ethics, which tackles controversial issues like abortion and animal rights. Normative ethical theories typically fall into two categories: deontological, focusing on individual behaviour, and teleological, concentrating on the consequences of actions. Additionally, virtue ethics exists as a third theory, emphasizing character and virtues in ethical considerations.

Deontological ethics evaluates the morality of an action based on its inherent rightness or wrongness, rather than the consequences of the action. This theory asserts that the principle of maximizing good over evil, regardless of the

individual affected, is either not a moral standard or, at the very least, not the primary or ultimate criterion of morality. Teleology evaluates a behavior as ethical when its consequences result in a greater balance of good over evil. Both theories face criticism: deontology struggles with rule conflicts and exceptions, while teleology faces ambiguity over whose good should be prioritized.

Philosophers like Nietzsche and Hobbes advocated for ethical egoism, arguing that individuals should act to achieve the best personal outcomes. In contrast, philosophers such as Bentham, Mill, and Moore supported utilitarianism, which posits that an action is morally right only if it results in a greater balance of good consequences over bad consequences for everyone involved. To assess the ethical concerns of AI-powered personalized advertising, adopting a clear ethical framework is crucial. Hunt and Vitell recommend evaluating actions from both deontological and utilitarian perspectives, particularly rule utilitarianism. Rule utilitarianism is suitable for guiding AI development, as it relies on established rules proven to produce more good than harm. Since ethical AI implementation requires all stakeholders to follow these rules, both deontological and rule utilitarian views will be used to evaluate the morality of such actions.

The Legal Framework

AI is transforming the way that businesses interact with consumers, and in this context it becomes imperative that the consumer rights be protected and the consumer as well as technology law steps up. On the one hand, AI offers sophisticated data analysis of text and advertisements to detect false or misleading claims in online advertisements, which can help regulators identify and monitor consumer harm more easily. Regulators in this field will probably launch more investigations, impose more fines, and take more enforcement action as a result. However, by making unfair, biased, and incorrect judgments, AI could endanger customers. Additionally, it can be used to further refine and intensify dark patterns making it more challenging for them to recognize when they are being duped. Furthermore, there also arise doubts regarding the regulation of AI when it's ever-evolving.

It is apposite at this juncture to delve into the legal responses across the Globe regarding the venture of AI into e-commerce. In the UK, the Digital Markets, Competition & Consumers Act, introduced as a Bill in 2023, was officially passed by Parliament in May 2024. This Act aims to enhance consumer protection rights and improve competition regulation in digital markets. It mandates that businesses must: (i) provide specified pre-contract information to help consumers understand the contract; (ii) send clear reminder notices before a free trial or low-cost offer ends, and every six months thereafter; and (iii) allow customers to exit subscription contracts easily, without unnecessary steps.

The Act introduces new rules to tackle 'drip pricing,' where consumers see a low initial price, only to encounter additional charges during checkout. It bans traders from showing headline prices that exclude mandatory fixed or variable fees. An invitation to treat must include the total price. Additionally, Schedule 19 includes a list of automatically banned commercial practices. Paragraph 13 specifically addresses fake reviews, prohibiting: (i) the submission or commissioning of fake reviews or those that conceal incentivization; (ii) publishing reviews in misleading ways; and (iii) failing to take reasonable steps to prevent fake or misleading reviews.

In Europe, the first EU AI regulatory framework was proposed by the European Commission in April 2021. The AI Act classifies AI systems based on the level of risk they pose to users and regulates both AI providers and professional users. It applies to all types of AI across various industries, excluding those used solely for non-commercial, military, or national security research. The Act divides up non-exempt AI applications based on how likely they are to cause harm. Four categories are available: unacceptable, high, limited, and minimal. Additionally, there is a general-purpose AI category. Act exempts AI frameworks utilized for military or national security purposes or pure scientific research and development from its purview. Moreover, it bans algorithmic video surveillance as it were if it is conducted in real time. China has implemented an algorithm law disallowing AI-based suggestions competent of controlling people's contemplations, with extra shields in put to safeguard children.

In recent years, the AI governance debate has focused on ethical frameworks and foundational principles. Global organizations and international forums have shared guidelines for the responsible use of AI, while several multinational tech companies have also announced their own AI development and application standards. It is

important to highlight the judicial decision from the Netherlands. In February 2020, the District Court of The Hague issued its ruling in the case of *NCJM et al. & FNV v The State of the Netherlands* ('SyRI'). This case challenged the Dutch government's use of the System Risk Indication, an algorithm for detecting welfare fraud. The Court found that its use to predict fraud risk among claimants violated human rights law.

Moreover, various regulations and acts globally govern the use of AI, including the Rules of Civil Law on Robotics, the Intelligent Robots Development and Distribution Promotion Act in South Korea, Japan's New Robot Strategy, and the Korean Master Plan on Robotics Development. China has also issued guidance on promoting the robot industry, along with an action plan for industrial restructuring and upgrading in Guangdong Province.

The Indian Panorama

The Indian business is undergoing a fundamental transformation with the growing use of AI technologies. Over the past few years, the e-commerce sector has developed, gained traction in the Indian market due to the rapid proliferation of the digital economy. This growth has been further accelerated by COVID-19-related compulsions. The government has also launched several initiatives regarding the e-commerce sector, including: (i) the Government e-Marketplace Portal, aimed at creating an inclusive, efficient, and transparent platform for public procurement; (ii) the Open Network for Digital Commerce, which seeks to provide equal opportunities for MSMEs in the digital marketplace and democratize e-commerce; (iii) the National E-Commerce Policy; and (iv) the Consumer Protection (E-commerce) Rules 2020.

The Parliamentary Standing Committee, in its 172nd Report, highlighted the urgent need for a policy framework in areas such as AI to develop more efficient and cost-effective support systems in the domestic market. The Committee recommended that the government stimulate innovation in disruptive technologies, including AI in the logistics sector, through increased investment in research and development and by offering tax incentives to private companies involved in these initiatives. Additionally, it suggested formulating guidelines for the use of drone technology in e-commerce deliveries.

NITI Aayog, has been tasked by the government with formulating rules and regulations for the development and application of artificial intelligence. In 2018, NITI Aayog published the National Strategy for Artificial Intelligence under the #AIForAll initiative, which included guidelines for AI research and development across sectors such as healthcare, agriculture, education, smart cities and infrastructure, and smart mobility. Part 1 of the strategy, titled "Principles for Responsible AI", is divided into two categories: system considerations and societal considerations. Societal considerations focus on the impact of automation on employment and job creation, while system considerations address guiding principles for decision-making, legitimate inclusion of beneficiaries, and accountability in AI decisions. Part 2, "Operationalizing Principles for Responsible AI", outlines necessary steps for both government and private sectors, in collaboration with research institutions, to implement regulatory and policy interventions, enhance capacity building, incentivize ethical design, and establish frameworks to ensure compliance with relevant AI standards.

Various laws and regulations across sectors govern current e-commerce activities due to its cross-cutting nature. Key regulations include the FDI Policy on E-Commerce, the Foreign Exchange Management Act, 1999, the Consumer Protection Act, 2019, the Competition Act, 2002, the Central Goods and Services Tax (CGST) Act, 2017, the Finance Act, 2016 (Equalisation Levy), and the Income Tax Act, 1961 (TDS on e-commerce transactions). However, there are no specific laws or policies in India that directly regulate artificial intelligence.

A recent relevant piece of legislation is the Digital Personal Data Protection Act, 2023, which recognizes individuals' rights and aims to protect their data by requiring that the processing of personal data occurs only for lawful purposes. Given that AI relies heavily on the collection of vast amounts of data, the Act stipulates that valid consent or legitimate uses are necessary for processing a Data Principal's personal data, outlining instances that constitute legitimate interest across nine categories. Under the Act, personal data that is disclosed to the public by the Data Principal or by any other individual who is legally obligated to make such data available is exempt from the Act's provisions. Companies could take advantage of this exemption to handle enormous volumes of data sets.

The Consumer Protection (E-Commerce) Rules, 2020, established under the Consumer Protection Act, apply to the buying and selling of goods and services over digital or electronic networks, including digital products. This legislation encompasses individuals or entities that provide technologies enabling product sellers to advertise or sell goods and services to consumers. It also covers online marketplaces and auction sites. Under these rules, electronic service providers are considered product sellers and share the same duties, responsibilities, and liabilities as traditional product sellers. Unfair trade practices are defined as instances where electronic service providers disclose personal information provided in confidence by consumers.

The Rules apply to: (i) both products and services sold through automated or electronic networks; (ii) all e-commerce retail models; (iii) all e-commerce entities; (iv) all aspects of unfair trading practices across various e-commerce models; and (v) e-commerce entities offering goods or services to consumers in India, even if they are not established in the country. E-commerce companies must clearly inform customers about payment options, security, charge-backs, delivery, warranties, returns, refunds, exchanges, and the country of origin. They must acknowledge complaints within 48 hours and resolve them within a month, appointing a grievance officer for this purpose. The Rules also prohibit price manipulation for unfair profit. If a seller fails to deliver, the marketplace assumes fallback liability.

E-commerce platforms now bear greater responsibility under the Regulations, but questions remain about their scope—such as applicability to foreign entities, B2B platforms, and digital products. Ensuring consumer rights in AI requires legal frameworks based on consumer, competition, and data protection laws. Key principles include fairness, transparency, accountability, non-discrimination, and consumer welfare. They emphasize purpose limitation, data minimization, accuracy, integrity, and confidentiality, while also addressing the rights of data subjects and legitimate interests. The development of artificial intelligence technology law will be aided by a better understanding of the aforementioned concepts and regulations.

Way Forward

The risks to consumers posed by the use of AI technologies that we covered above give rise to new challenges, namely how to regulate these markets and safeguard consumers within them. The main purpose of laws and regulations up until now has been to direct people's behaviour. The subject of regulations, therefore, is human, and in the context of consumer protection policy and law, the purpose of regulations is to protect consumers (human) against unlawful behaviours by businesses (human). That leads us to the confusion of which law, and how the law would apply where machines are involved.

As research technologies advance, various AI technologies—including deep learning, voice analysis, biometrics, image recognition, video analysis, robotic automation, and text analysis—will continue to evolve and play a significant role in the future of e-commerce. Over time, with the support of AI technology, e-commerce is poised for broader development prospects, facilitating better customer relationship management and promoting sales while balancing personalization with privacy concerns.

However, there is certain scope with respect to customer enhancement in AI if properly regulated. The integration of artificial intelligence technologies into e-commerce is poised to significantly transform consumer behaviour and purchasing patterns. Since fixed benefits are a primary concern for customers, generous rewards often incentivize them to share personal information while shopping online. Moreover, e-commerce platforms can profit from data mining by leveraging customer information to enhance their AI capabilities and reduce related technical costs.

When shaping the future of AI, it's crucial to address potential ethical concerns and guide online retailers in their treatment of consumers. While new laws on privacy and data ownership are emerging, they only scratch the surface. Encouraging tech companies and AI start-ups to adopt privacy-by-design principles can support compliance with global data laws. However, relying on consumers to stay informed and advocate for themselves is unrealistic, given limited awareness of AI's risks and benefits. Effective consumer protection in the AI era requires a collaborative, interdisciplinary approach involving multiple stakeholders.

AI presents major challenges to global consumer protection, including privacy violations, algorithmic bias and discrimination, and a lack of transparency in pricing and service delivery. Addressing these issues requires a

combination of stronger corporate accountability, stricter enforcement, and greater transparency. Collaboration among consumer organizations, civil society, businesses, and policymakers is essential to develop effective solutions. Through collaboration, we can ensure that emerging technologies are designed with a strong focus on consumer security, privacy and safety.

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