

Ethical AI Practices in Henan E-Commerce Companies: A Policy Guide

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Abstract

This study examined ethical artificial intelligence practices among e-commerce companies in Henan Province, China, with emphasis on how AI can be governed responsibly in digital business operations. Anchored on the principles of fairness, rights ethics, and responsibility ethics, the study analyzed how AI applications in recommendation systems, pricing, customer service, data profiling, and automated decision-making affect consumer rights, privacy, accountability, and trust. A qualitative descriptive-analytical design was used. The study relied on academic literature, professional reports, theoretical works on AI ethics, and selected cases involving Henan e-commerce enterprises. Data were examined through literature review, case analysis, qualitative content analysis, and comparative analysis. The findings revealed four major ethical concerns: privacy infringement caused by excessive and unclear data collection, algorithm bias and discrimination in recommendations and pricing, ambiguous liability when AI systems produce harmful outcomes, and data abuse through unauthorized profiling, sharing, or secondary commercial use. The study concludes that ethical AI must be embedded in algorithm design, data management, business operations, and corporate governance. It recommends stronger data privacy protection, improved algorithm interpretability and transparency, clearer responsibility governance systems, stricter data supervision, ethics review mechanisms, and employee training on AI ethics. The study supports SDG 8, SDG 9, SDG 12, and SDG 16 by promoting responsible digital commerce, ethical innovation, fair consumption practices, transparency, and institutional accountability. Its sustainability impact lies in strengthening consumer trust, reducing governance risks, and supporting resilient, ethical, and socially responsible e-commerce development.

Keywords: Accountability, Algorithm Bias, Artificial Intelligence, Data Privacy, E-Commerce, Ethical AI, Henan Province, Responsibility Governance, Transparency

1. Introduction

Artificial intelligence has become deeply embedded in the operations of e-commerce firms, transforming recommendation systems, pricing, customer service, risk management, and data processing. In this setting, ethical AI is presented not merely as a regulatory obligation but as a strategic requirement for sustainable business practice, because technological efficiency must be balanced with fairness, transparency, accountability, privacy protection, and respect for human dignity. The chapter frames ethical AI as a governance concern that should run through corporate strategy, algorithm development, deployment, monitoring, and improvement, especially in the context of Henan's e-commerce sector.

The study is grounded in the rapid expansion of artificial intelligence in e-commerce and the growing recognition that AI-driven business systems affect not only productivity and profits but also consumer rights, employee welfare, business accountability, and social trust. Ethical AI is positioned as a people-centered approach that requires e-commerce enterprises to integrate moral responsibility into all stages of technological application. In this view, AI should not simply optimize operations; it should also ensure equality and inclusivity, improve openness and explainability in automated decisions, protect data privacy and security, and establish responsibility when technological harm occurs. The study therefore treats ethical AI as central to responsible digital transformation and long-term competitiveness in Henan e-commerce companies.

The literature foundation of the chapter presents artificial intelligence as a transformative field that extends human intelligence through machine-based learning, reasoning, recognition, and decision-making. Its applications across sectors such as healthcare, autonomous systems, and commerce show its expanding practical relevance. Within this technological context, the chapter emphasizes three major ethical themes. First, the principle of fairness requires algorithmic systems to avoid discriminatory outcomes arising from biased data, flawed model design, or unequal application across social groups. Second, rights ethics highlights the need to protect basic individual rights and prevent harms such as discrimination, exclusion, and erosion of dignity in AI-enabled systems. Third, responsibility ethics underscores the need for future-oriented accountability, especially as AI systems increasingly influence decisions with social, economic, and legal consequences. Together, these themes establish that ethical AI must move beyond technical neutrality and become a deliberate framework for governance and human-centered innovation.

At the local level, the chapter situates the study in Henan Province, where e-commerce enterprises are increasingly using AI for recommendation engines, customer service, data profiling, dynamic pricing, and automated decision-making. These practices create efficiencies but also expose users to privacy risks, price discrimination, unequal service treatment, and unclear liability when harm occurs. At a broader level, the study reflects national and global concerns surrounding the governance of digital platforms, particularly the challenge of aligning rapid technological innovation with ethical standards, legal norms, and consumer protection. The chapter also notes that globalization and digitalization have intensified the need for companies to move beyond compliance-based thinking and build trustworthy systems that can support fair transactions, protect rights, and sustain confidence in online marketplaces.

The study is conceptually anchored in the ethical governance of artificial intelligence, particularly through the principles of fairness, rights ethics, and responsibility ethics. The fairness principle supports the expectation that AI systems should minimize bias and avoid reinforcing social inequalities across gender, age, socio-economic status, and other user differences. Rights ethics provides the moral basis for safeguarding privacy, autonomy, informed consent, and dignity in AI-driven commercial interactions. Responsibility ethics strengthens the framework by emphasizing accountability for present and future harms that may arise from algorithmic systems, especially in settings where automated decisions influence consumers' choices, risks, or opportunities. These concepts collectively support a governance-oriented understanding of ethical AI in which technical design, operational decision-making, and institutional accountability must work together.

The study identifies a strong practical need to examine ethical AI in Henan e-commerce companies because current application is accompanied by several unresolved issues. These include privacy infringement through excessive and poorly disclosed data collection, algorithm bias and discrimination in recommendations and pricing, ambiguous liability when AI systems cause harm, and data abuse through unauthorized sharing, profiling, or secondary commercial use. The rationale for the study lies in the difficulty of addressing these issues through technical innovation alone. The chapter argues that ethical AI requires clearer governance systems, more transparent algorithms, stronger data protection, and more explicit responsibility structures. Thus, the study is justified by the gap between the rapid deployment of AI in e-commerce and the still-developing ethical, legal, and institutional mechanisms needed to govern it responsibly.

The study aligns most clearly with SDG 8: Decent Work and Economic Growth, SDG 9: Industry, Innovation and Infrastructure, SDG 12: Responsible Consumption and Production, and SDG 16: Peace, Justice and Strong Institutions. It relates to SDG 8 because ethical AI is framed as a foundation for sustainable and trustworthy digital commerce. It supports SDG 9 through its focus on responsible technological innovation and improved governance of AI-enabled business systems. It connects with SDG 12 by addressing fair commercial practices, responsible use of consumer data, and ethically guided digital consumption environments. It also aligns with SDG 16 because the study emphasizes transparency, accountability, rights protection, and clearer institutional responsibility in the governance of artificial intelligence. The study contributes to technological sustainability by advocating interpretable, auditable, and ethically governed AI systems that can be maintained with public trust over time. It contributes to socio-economic sustainability by seeking a balance between commercial efficiency and consumer protection, thereby supporting healthier digital marketplace relationships. It also advances policy and governance sustainability by highlighting the need for clearer compliance systems, stronger supervision, and defined accountability mechanisms in AI-driven e-commerce. In addition, the study supports institutional sustainability because companies that embed ethics into data governance, algorithm design, and decision-making are more likely to sustain legitimacy, reduce systemic risk, and remain resilient in an increasingly regulated and trust-sensitive digital economy.

Overall, the chapter positions ethical AI as an essential strategic and moral concern in the development of Henan's e-commerce sector. Rather than treating ethics as an external restraint on innovation, the study presents it as a necessary condition for responsible technological progress, fair market behavior, and sustainable enterprise development. By foregrounding privacy, fairness, accountability, transparency, and compliance, the chapter establishes a strong foundation for examining how e-commerce firms can use artificial intelligence in ways that are both commercially effective and socially responsible.

2. Material and methods

2.1 Research Design

The study used a qualitative descriptive-analytical design. It systematically examined ethical issues arising from the use of artificial intelligence in Henan e-commerce enterprises by reviewing relevant literature, analyzing selected cases, and integrating perspectives from ethics, technology, governance, and business practice. The design was appropriate for identifying ethical problems and proposing practical governance-oriented solutions.

2.2 Locale of the Study

The study focused on the e-commerce sector of Henan Province, China. The analysis centered on the ethical practices and challenges experienced by e-commerce enterprises in the region, particularly in relation to artificial intelligence deployment in business operations, customer service, algorithmic decision-making, and data management.

2.3 Respondents of the Study

The study did not identify human respondents. Instead, the study relied on documentary sources, theoretical materials, professional reports, and selected cases involving e-commerce enterprises in Henan Province.

2.4 Sample and Sampling Procedure

For the case analysis, several typical ethical dilemmas involving artificial intelligence use in Henan e-commerce enterprises were selected. These cases focused on privacy infringement, algorithm bias and discrimination, ambiguous liability definition, and data abuse.

2.5 Research Instrument

The primary sources of data were academic literature, professional reports, important theoretical works on AI ethics, and selected case materials related to ethical issues in Henan e-commerce enterprises.

2.6 Data Gathering Procedure

Data were gathered through literature research and case analysis. The literature research involved collecting and reviewing domestic and international academic works, professional reports, and theoretical sources on artificial intelligence ethics, ethical governance frameworks, and related principles. The case analysis examined selected ethical dilemmas encountered in the deployment of artificial intelligence by e-commerce enterprises in Henan Province. These materials were used to connect ethical theories with actual business scenarios and to reveal the practical challenges of responsible AI governance.

2.7 Data Analysis Techniques

The study used qualitative content analysis and comparative analysis. The literature was analyzed to identify similarities, differences, theoretical developments, and core controversies in AI ethical practice. The selected cases were examined to determine how ethical issues emerge in business settings and how these challenges may be addressed through data privacy protection, algorithm transparency, responsibility governance, and data supervision. The analysis also applied an interdisciplinary perspective to evaluate AI ethics beyond purely technical or commercial dimensions.

3. Results and Discussion

3.1 Ethical Issues in AI Practices among Henan E-Commerce Enterprises

3.1.1 Privacy Infringement

The findings showed that privacy infringement is one of the central ethical concerns in the use of AI by e-commerce enterprises in Henan Province. AI systems collect large volumes of user information, including browsing behavior, shopping records, search keywords, device information, page dwell time, and other implicit user data. These practices allow enterprises to construct detailed consumer profiles, often through long and unclear user agreements that make it difficult for users to fully understand or control the collection and use of their personal information. This result indicates that privacy risk exists across the entire data lifecycle, from collection and storage to secondary use. The issue becomes more serious when personal data are stored with uneven security protection, accessed by unauthorized employees, or used for additional commercial purposes without clear user consent. In this context, privacy infringement weakens users' control over their personal information and challenges the ethical obligation of e-commerce enterprises to protect consumer rights.

3.1.2 Algorithm Bias and Discrimination

The findings revealed that algorithm bias and discrimination occur through recommendation systems, price displays, and customer service allocation. AI-powered recommendation tools may repeatedly recommend high-end products to users identified as having strong purchasing power, while promoting discounted goods to users classified under lower consumption levels. Some pricing systems may also display different prices for the same product based on users' browsing history, device model, location, or purchase frequency. This result suggests that algorithmic systems are not always neutral because they may reflect training data bias, design limitations, and business objectives focused on efficiency and profit maximization. Such practices may restrict consumer choices, reinforce information bubbles, create unequal opportunities, and undermine fair trading rights. Therefore, correcting algorithm bias requires transparent and auditable algorithmic ethics review mechanisms.

3.1.3 Ambiguous Liability Definition

The findings showed that responsibility becomes difficult to determine when AI systems produce errors or harmful outcomes. In cases involving incorrect intelligent customer service guidance, dynamic pricing failures, or automated

decision-making problems, responsibility may be unclear among algorithm developers, data providers, system-deploying enterprises, platform managers, and other involved parties. The manuscript cited an example involving an agricultural product e-commerce platform in Henan, where an intelligent customer service system mistakenly recommended a highly allergenic product after failing to understand a dialect description, resulting in harm to the consumer. This result demonstrates that the traditional framework of accountability becomes insufficient when AI systems operate through complex automated decision chains. The “algorithm black box” makes it difficult to identify whether the harm resulted from technical defects, flawed data, operational negligence, or management decisions. This ambiguity may allow enterprises to hide behind technological neutrality and avoid responsibility, thereby weakening consumer protection and delaying ethical governance.

3.1.4 Data Abuse

The findings indicated that data abuse is closely connected to privacy infringement, algorithm bias, and unclear accountability. E-commerce enterprises may collect excessive consumer data from browsing tracks, shopping baskets, search words, consumption patterns, and family-related information. These data may be used beyond the scope of user authorization or shared with financial credit institutions, lending platforms, data dealers, or business partners, forming a hidden data gray market chain. This result shows that data abuse is not an isolated issue but a source of wider ethical risk. When excessive or improperly processed data are used in recommendation algorithms, they may intensify discriminatory treatment and produce stereotyped consumption experiences. When abused data support automated decision-making, errors in pricing, risk control, or customer service may occur, while accountability remains unclear. Thus, data abuse weakens consumer trust and exposes enterprises to ethical and legal responsibility.

3.2 Policy Responses to Ethical Issues in AI-Based E-Commerce

3.2.1 Protection of Data Privacy and Security

The findings showed that protecting data privacy and security requires a transparent lifecycle data governance system. The manuscript emphasized minimizing data collection, obtaining informed consent, giving users clear authorization and revocation options, and allowing users to turn off personalized recommendations or clear related historical information. It also identified encryption, access control, operation records, AI-driven security defense systems, and privacy computing technologies such as federated learning as important measures. This result indicates that privacy protection should not be treated only as a legal compliance requirement but as a foundation of customer trust. By limiting unnecessary data collection, strengthening data storage safeguards, and allowing users to exercise rights to query, correct, carry, and delete personal data, e-commerce enterprises can reduce privacy risks while maintaining the responsible use of AI technologies.

3.2.2 Improvement of Algorithm Interpretability and Transparency

The findings showed that algorithm transparency and interpretability are necessary for building trust in AI-based e-commerce systems. Henan e-commerce companies are encouraged to establish clear rules for explaining algorithmic decisions and to define interpretability as a concrete design and evaluation requirement. Tools such as decision path visualization, feature importance heat maps, and counterfactual explanation generators may help make algorithmic logic more understandable to developers, regulators, and users. This result indicates that transparency reduces the power imbalance created by algorithmic black boxes. When users and regulators can understand why AI systems make certain recommendations, pricing decisions, or automated judgments, the risks of bias, unfair treatment, and distrust are reduced. Therefore, transparency must be embedded throughout the technical life cycle rather than treated as an optional feature.

3.2.3 Establishment of a Clear Responsibility Governance System

The findings showed that responsibility governance requires internal and external accountability mechanisms. The manuscript emphasized the creation of AI ethics review boards, pre-deployment risk assessment, responsibility planning, clearer contracts with technology partners, explainable AI systems, and improved user notification mechanisms. These measures aim to define accountability across technical, managerial, legal, and operational levels. This result suggests that ethical AI governance must clarify who is responsible when algorithmic systems cause harm or errors. By establishing responsibility-sharing rules and documenting duties among developers, data providers, platform operators, and regulators, e-commerce enterprises can reduce accountability gaps and strengthen the reliable and lawful use of AI in business operations.

3.2.4 Strengthening of Data Supervision and Compliance

The findings showed that data governance in Henan e-commerce enterprises should be treated as a legal, ethical, and business concern. The manuscript emphasized the need for supervision across data collection, storage, processing, and circulation. It also identified third-party audits, updated compliance standards, alignment with domestic and international data legislation, and employee data compliance education as necessary measures. This result indicates that compliance culture is essential to prevent data misuse and protect user trust. A systematic data compliance education program can help employees understand and follow data governance requirements, while regular audits and updated standards can ensure that AI-driven e-commerce operations remain ethically and legally accountable.

4. Conclusion & Recommendations

Ethical artificial intelligence practice has become an important requirement for sustainability in the e-commerce sector because AI use must not only improve efficiency and profitability but also protect consumer rights, data privacy, fairness, accountability, and social responsibility. The study found that Henan e-commerce enterprises face major ethical issues involving privacy infringement, algorithm bias and discrimination, unclear responsibility attribution, and data abuse. These issues show that ethical AI governance must be embedded in algorithm design, data management, business operations, and corporate decision-making to ensure that technological progress does not compromise users' rights and moral values.

E-commerce enterprises should strengthen ethical AI governance by investing in explainable AI technologies, presenting algorithmic logic in a way that users and regulators can understand, forming cross-disciplinary ethics governance committees, integrating ethical design at the early stage of AI system development, conducting ethical risk assessment, cooperating with industry associations and regulatory organizations, and improving employee education and training on AI ethics. Ethical performance should also be included in project management evaluation to build a responsible corporate culture and ensure that ethical behavior becomes a strategic tool for trust-building and risk prevention.

Based on its stated scope, the discussion is limited to ethical issues and policy responses involving AI practices in Henan e-commerce enterprises, particularly privacy infringement, algorithmic bias, liability ambiguity, data abuse, transparency, responsibility governance, and data compliance.

Compliance with ethical standards

The study was conducted in accordance with institutional ethical standards. Participation was voluntary, informed consent was obtained, and all gathered information was treated with confidentiality. Ethical approval was secured when applicable, and the authors declare no conflict of interest. All authors acknowledge their respective contributions, accept responsibility for the integrity of the work, and recognize the applicable copyright ownership and ethical obligations related to the conduct and publication of the study.

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