

THE DEVELOPMENT OF AGI IN E-COMMERCE

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ABSTRACT

The development of Artificial General Intelligence (AGI) in e-commerce has garnered significant attention. AGI's cross-domain cognitive capabilities are revolutionizing e-commerce through personalized shopping experiences, intelligent customer service, and efficient supply chain management. However, challenges like algorithm aversion, ethical concerns, and data privacy issues persist. This special issue explores AGI's effects and challenges in e-commerce, aiming to advance understanding of its potential and address problems hindering adoption. Contributions cover topics such as AGI's impact on consumer behavior, sales performance, and employee performance, as well as strategies for responsible AGI deployment.

Keywords: Artificial general intelligence; E-commerce; Digital economy; Artificial intelligence

1. Introduction

Artificial General Intelligence (AGI) refers to the development of artificial intelligence systems that possess the ability to understand, learn, and apply knowledge across a wide range of tasks, similar to human cognitive capabilities (Fei et al., 2022). Unlike narrow AI, which is specialized for specific tasks, AGI aims to achieve a comprehensive and adaptive intelligence that can handle various complex cognitive functions. In the context of e-commerce, AGI has the potential to revolutionize the industry by enabling highly personalized shopping experiences, intelligent customer service, and efficient supply chain management. However, it also raises concerns about job displacement, privacy invasion, and the ethical implications of autonomous decision-making.

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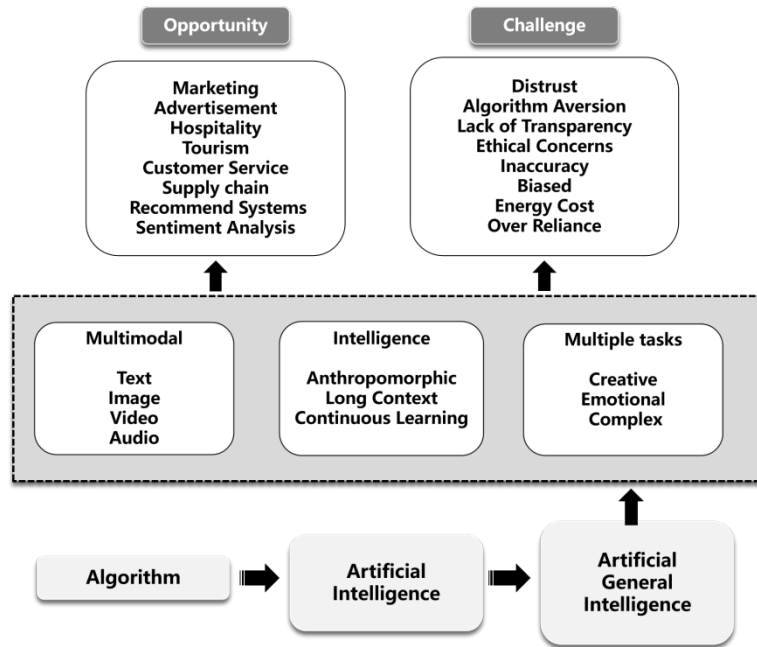


Figure 1. A framework of AGI research

AGI is revolutionizing e-commerce. In supply chain and operations management, AGI-driven tools like ChatGPT can optimize demand forecasting, logistics coordination, and solve problems in real time (Gama & Magistretti, 2025). Studies show that when organizations learn how to use these tools, they can adopt them faster and improve overall supply chain performance (Fosso Wamba et al., 2023). The case of Alibaba's smart warehouse demonstrates how AGI uses data, algorithms, and robots to automate inventory management, reduce errors, and enhance labor productivity through the collaboration between AI and human expertise (Zhang et al., 2021). In marketing, AGI enables highly personalized strategies by creating content that resonates emotionally with customers. For example, AI-generated virtual influencers with subtle emotional expressions, such as happiness or surprise, can significantly increase user engagement, especially when combined with visually appealing content (Yu et al., 2024). AGI also excels at creating ads with agentic appeals, like messages focusing on efficiency. Consumers prefer these ads because they enhance the sense of self-efficacy in completing tasks. However, for ads that require emotional storytelling, human-AI collaboration remains crucial (Chen et al., 2024). Generative AI can also deliver highly personalized marketing content, outperforming traditional digital tools in terms of relevance and efficiency (Kshetri et al., 2024). In customer service, AGI-powered digital assistants build trust and encourage purchase intent by using anthropomorphic features, which aligns with the "computers are social actors" framework (Balakrishnan & Dwivedi, 2024). By optimizing aspects like response speed and problem-solving accuracy, AI chatbots can improve customer satisfaction and loyalty. But their effectiveness depends on balancing technical capabilities with human-like interactions (Chen et al., 2022). Moreover, in industries such as hospitality and tourism, AGI tools like ChatGPT can personalize recommendations and simplify backend operations, showing their adaptability across different sectors (Dwivedi et al., 2023). A bibliometric review indicates that e-commerce AI research has long focused on recommendation systems, sentiment analysis, and personalization. Now, AGI is expected to integrate these areas into a cohesive, autonomous ecosystem (Bawack et al., 2022). Collaborative AI frameworks emphasize combining AGI's mechanical and thinking intelligence with human marketers' intelligence. This allows humans to focus on strategic and emotional tasks while AGI automates routine processes (Huang & Rust, 2022).

Deploying AGI in e-commerce presents a multitude of significant challenges. Security vulnerabilities, ethical biases in algorithmic decision-making, and privacy risks stemming from data misuse are among the major concerns (Fosso Wamba et al., 2023; Kshetri et al., 2024). These issues underscore the pressing need for robust governance and interdisciplinary solutions to ensure that innovation is carried out responsibly. A major hurdle is the general distrust of AGI tools, often referred to as "algorithm aversion." This lack of trust is evident in various sectors. For example, in the medical field, clinicians frequently resist using AI-powered tools, deeming them difficult to understand,

inconsistent in results, or even a threat to their professional expertise (Bankuoru Egala & Liang, 2024). In the context of e-commerce, consumers may reject AGI-generated recommendations if the underlying mechanisms are unclear or if they have no means to modify the suggestions. As Chang & Wang (2023) pointed out, many people avoid AI financial advisors simply because they prefer to maintain direct control over their finances. This pervasive distrust has the potential to hinder the integration of AGI, particularly in domains where human judgment is indispensable. Closely related to the trust issue are ethical concerns and a lack of transparency. AI-generated content, such as ads or product descriptions created through techniques like deepfakes, has the potential to mislead consumers (Campbell et al., 2022). When AI is used to create emotional marketing content, consumers often perceive it as less authentic, which can lead to moral discomfort and ultimately lower brand loyalty (Kirk & Givi, 2025). Even when AI provides honest advice, it may inadvertently encourage unethical behavior, such as making misleading claims (Leib et al., 2024). Although being transparent about AI usage can alleviate the problem to some extent, it fails to completely resolve the trust deficit.

Operational problems also arise due to poor data quality and insufficient training. If AGI systems rely on inaccurate data, lack proper management, or if staff members are inadequately trained, these systems will make bad decisions, thereby undermining a company's efficiency and competitiveness (Mikalef et al., 2022; Rana et al., 2022). For instance, biased AI pricing models or inventory management systems can result in lost sales opportunities and dissatisfied customers. Moreover, AGI systems trained on biased data can unknowingly lead to discrimination (Stahl & Eke, 2024). Beyond these immediate challenges, there are hidden societal and environmental costs associated with AGI deployment. Tools like ChatGPT consume substantial amounts of energy, which has a detrimental impact on the environment (Stahl & Eke, 2024). Additionally, over-reliance on AGI may lead to job losses and reduced human supervision, giving rise to "dark side" effects such as a lack of accountability (Mikalef et al., 2022). To safeguard against these long-term negative consequences, companies must proactively address these multifaceted challenges in AGI deployment.

In conclusion, the research of AGI in e-commerce is still in its early stages and holds significant potential for further exploration. While AGI promises to transform e-commerce by offering personalized shopping experiences, intelligent decision-making, and efficient operations, several challenges need to be addressed. These include algorithm aversion, ethical concerns, algorithm opacity, and content quality issues. Furthermore, several important trends will shape the future of AGI research (Kopalle et al., 2022; Loureiro et al., 2022; Madan & Ashok, 2023; Moradi & Dass, 2022; Noble & Mende, 2023). As AGI becomes more integrated into various aspects of society, trust and acceptance of it will be crucial. Developing effective human-AGI interaction models will be necessary to ensure AGI can work seamlessly alongside humans to provide optimal support (Raisch & Fomina, 2025). The application areas of AGI are also expected to expand beyond e-commerce into numerous other fields (Vishwakarma et al., 2025; Li et al., 2025). However, alongside these developments, the potential negative effects of AGI must not be ignored (Papagiannidis et al., 2025). It is crucial that these potential issues are carefully considered and addressed to ensure that AGI develops in a way that is safe and beneficial for humanity.

Through this special issue, we aim to foster research progress and promote the development of AGI in e-commerce. By encouraging researchers and practitioners to collaborate, we hope to advance our understanding of AGI's potential and address the problems that hinder its adoption. This will enable us to harness the benefits of AGI while mitigating its risks and ensuring a positive impact on the e-commerce landscape.

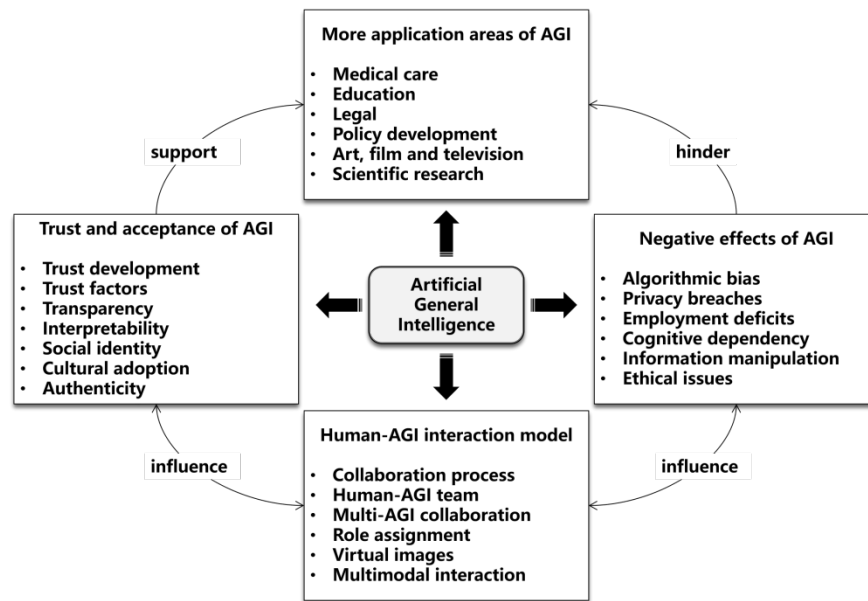


Figure 2. Future trend of AGI research

2. Development of the Special Issue

This special issue calls for a wide range of original high-quality submissions centering on AGI's impact on the e-commerce landscape. We invite authors to explore key research questions about AGI's transformative effects and challenges for the e-commerce industry. AGI has revolutionized e-commerce through applications like chatbots, smart search, personalized recommendations, and demand forecasting, enhancing efficiency and profitability (Ge et al., 2021; Luo et al., 2019; Tong et al., 2021). The emergence of ChatGPT has further demonstrated AGI's potential to reshape e-commerce (Dwivedi et al., 2023). Major e-commerce platforms, including Taobao, JD, and Amazon, are leveraging AGI applications to improve consumer experiences. For example, Amazon is using AGI to summarize product reviews, aiding faster purchase decisions, while Taobao and JD are employing digital live streamers. Additionally, the newly introduced Sora system can generate realistic scenes from text instructions, potentially revolutionizing content creation in e-commerce. The application and development of AGI in e-commerce have garnered significant attention from both academic and practitioner communities. On one hand, AGI has enhanced profitability and effectiveness by automating processes such as personalized marketing and recommendations. On the other hand, it has also raised concerns related to trust, responsibility, fairness, discrimination, privacy, ethics, and unemployment.

This special issue seeks diverse research perspectives and the latest trends of AGI in e-commerce. We are interested in novel and thought-provoking contributions that explore AGI's impact on the e-commerce industry across all levels and domains. We welcome extensive research with no restrictions regarding theory, method, or context under the following topics:

- Future trends of AGI development in e-commerce
- Case studies on the application of AGI in e-commerce
- Digital humans in e-commerce
- Impact of AGI on consumer behavior
- Impact of AGI on sale performance
- AGI-powered agents' adoption and acceptance in e-commerce
- Innovative applications and new methods of AGI in e-commerce
- Dark side of AGI in e-commerce
- Social and ethical governance of AGI
- Application of AGI in logistics operations
- Impact of AGI on consumer decisions
- Human-AGI collaboration
- Impact of AGI on employee performance
- Bias, discrimination, and fairness in AGI systems

- Transparency and explainability of AGI
- Trust and accountability of AGI
- Privacy and data breaches relevant to the usage of AGI
- Strategies for responding to AGI
- Technical design for AGI deployment

3. Content of the Special Issue

A few submissions were received, and six articles were selected for inclusion in this special issue of JECR. These articles offer insight into some of the fundamental research questions concerning AGI in e-commerce. The following section provides a concise overview of each.

The first paper titled "From Bias to Belief: A Meta-Analysis of User Trust in Chatbot Adoption and Its Antecedents" is authored by Fengyang Zhang, Yichen Li, and Dongfang Sheng. It presents a comprehensive framework to clarify the trajectory from trust establishment to user adoption intention of chatbots. Through a meta-analysis of 54 papers with 18,707 samples, the study categorizes trust antecedents based on the Heuristic Systematic Model and examines trust in both cognitive and emotional dimensions. The findings reveal that systematic factors like chatbot competence and risk correlate strongly with emotional trust, while competence and personalization link positively with cognitive trust. All heuristic factors show significant positive correlations with both cognitive and emotional trust. The study confirms the interaction between emotional and cognitive trust, showing trust significantly fosters user adoption intention. It also identifies the moderating effect of chatbot usage scenarios.

The second paper, "Can we trust AI? Exploring the effect of estimated accuracy and the actual performance of AI systems on Human-AI collaboration," is co-authored by Zhaohua Deng, Dan Song, and Richard Evans. It looks into how the estimated accuracy and actual performance of AI systems influence human-AI collaboration. The study uses a 2×2 between-subjects online experiment to explore the effects of these factors on various dependent variables, including cognitive trust, behavioral trust, complementarity, cognitive absorption, and collaboration performance. The results show that estimated accuracy determines cognitive trust, while inconsistent estimated accuracy and actual performance can lead to over-trust or distrust in AI systems, reducing collaboration performance. The study offers useful suggestions for improving collaboration performance and extends the understanding of human trust in AI systems.

The third paper, "Is the Combination Superior to the Single Recommendations? Comparing the Effects of AI, Influencer, and Their Combination on Consumers' Purchase Intentions," is authored by Lin Wang, Wenting Feng, Li Wang, and Qihua Liu. This study addresses the limitations of AI recommendations in terms of diversity and novelty by exploring the combined effect of AI and influencer recommendations on consumer decision-making. Using signaling theory and uniqueness theory, the authors conduct three laboratory experiments to compare the impacts of single AI, single influencer, and combined recommendations on purchase intentions. The results indicate that both combined and AI recommendations are more effective than influencer recommendations alone, with no significant difference between combined and AI recommendations. Combined recommendations significantly enhance purchase intentions for hedonic products compared to influencer recommendations, while no significant difference is found for utilitarian products.

The paper, authored by Hua Lu, Yuxuan Wang, Lin Ge, and Shuang Ma, is titled "Positive Effects Of Negative Disclosure: The Persuasive Power Of Negative AI-Generated Content In Shaping Consumer Product Attitude". Drawing on the source credibility theory (SCT), it delves into how displaying AI-generated negative reviews influences consumer product attitude. By analyzing data from a Chinese e-commerce platform that utilizes AI to generate product reviews, the authors employ ordinary least squares analysis to test their hypotheses. The findings reveal that AI-generated negative reviews can boost the perceived credibility of reviews and decrease perceived risk, thereby enhancing consumer attitudes toward products. This study offers valuable insights for platforms and retailers to recognize the positive impact of negative reviews and use them strategically to improve consumer trust and engagement.

The fifth paper, authored by Jiaqian Zhang, Jianshan Sun, Ying Xue, and Yezheng Liu, is titled "A Comparative Study Of Fairness In AI-Enabled And LLM-Based Recommendation Systems". This study addresses the pressing issue of gender fairness in recommendation systems within the realm of e-commerce, particularly focusing on systems powered by AGI and LLMs. The authors conduct experiments across four diverse datasets to evaluate and compare the gender fairness of eleven recommendation models from six families, using metrics such as Absolute Difference, Item Coverage, and Gini Coefficient. Their findings reveal significant disparities in recommendation accuracy and diversity between male and female users, underscoring the need for fair and unbiased AI-enabled recommendation services. This research contributes to the understanding of gender fairness across different recommendation systems and provides valuable insights for the design of recommendation systems in e-commerce platforms.

The final paper, authored by Yizhen Wei, David (Jingjun) Xu, and Kai Li, is titled "Turning The Tide: How AI Review Bot's Reply Helps Low-Follower Influencers In E-Commerce". This study explores how AI review bots influence sellers with varying follower counts, particularly focusing on novice sellers with fewer followers. Study 1 establishes a positive correlation between follower count and sales performance using platform data. Study 2 employs an experimental design to examine the moderating effect of AI review bots on this relationship and the mediating role of perceived service quality. The findings indicate that AI-generated replies can enhance the perceived service quality for low-follower sellers, increasing purchase intentions, while diminishing service quality perceptions and reducing purchase intentions for high-follower sellers. This research provides valuable insights into leveraging AI technologies to drive consumer behavior and support novice sellers in e-commerce.

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