

A Bibliometric Review of AI Technologies in Live Streaming Commerce: Current Trends and Future Directions

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Rinki Joshi ¹, Gauri Gupta ², Vaishali . ¹

¹. School of Management, Doon University, Dehradun, IND ². School of Commerce, Hemvati Nandan Bahuguna Garhwal University, Srinagar, IND

Corresponding author: Gauri Gupta, gauriresearch0502@gmail.com

Abstract

This study conducts a comprehensive bibliometric analysis to explore the intersection of Artificial Intelligence (AI) and live streaming commerce, an emerging field that has gained significant attention in recent years. As e-commerce and digital marketing continue to evolve, the integration of AI in live streaming platforms offers new opportunities to enhance consumer experiences, optimize marketing strategies, and drive sales. Through an analysis of key scholarly publications, citations, and trends in this domain, the study highlights the role of AI technologies such as machine learning and computer vision in shaping the future of live streaming commerce. This study systematically analyzes the bibliometric landscape of AI and live streaming commerce, identifying critical research gaps, key themes, and leading contributors. The findings underscore the growing importance of AI in transforming the live streaming industry, suggesting avenues for future research and practical applications that could drive innovation and competitiveness in the digital marketplace.

Categories: Digital Marketing, Marketing Communication

Keywords: artificial intelligence (ai), live streaming commerce, e-commerce, bibliometric analysis, social commerce

Introduction And Background

Live streaming commerce (LSC), or live commerce or social commerce, is an emerging e-commerce trend that combines real-time social interaction with digital marketing (Luo et al., 2023). It enhances customer engagement, product promotion, and online shopping experiences. LSC leverages Artificial Intelligence (AI) and human broadcasters to engage consumers, with AI being more effective for users experiencing high social overload (Xu and Ruan, 2023). Real-time data streaming and AI technologies like Storm and Spark Streaming enable businesses to process and analyze data instantly, improving consumer engagement and sales (Mantri, 2024). LSC allows merchants to exchange information with consumers based on their needs and provide additional customer services, creating an enjoyable shopping atmosphere (Wang et al., 2022). Streamers act as intermediaries between merchants and consumers, enhancing consumers' shopping awareness and influencing their decisions. Pioneered in countries like China, where platforms such as Taobao Live and Douyin have revolutionized shopping experiences, LSC is gaining traction worldwide. This evolution is underpinned by the integration of AI technologies, which enhance personalization, optimize user experience, and drive business analytics. As LSC continues to evolve, it presents both opportunities and challenges for businesses and researchers in the dynamic landscape of social commerce (Luo et al., 2023).

Evolution of live streaming commerce (LSC)

Although live streaming has existed since the early 1990s, it did not gain popularity until YouTube presented its first live event in 2008 (Shodipe-Dosunmu, 2023). Gradually, it was used as a medium by people to freely express themselves and showcase their talent while entertaining interested viewers, enhancing consumers' shopping awareness and influencing their decisions, providing additional information, and so on. Figure 1 shows the evolution of LSC. The following shows how live streaming evolved in commerce:

Early 2010s - Inception: The concept of live streaming commerce begins with brands experimenting with live video for product launches and promotions.

Mid 2010s - Pioneering Platforms: Platforms like Taobao Live in China (launched in 2016) begin to popularize live stream shopping.

Late 2010s - Rising Popularity in Asia: Rapid adoption of live streaming commerce in China, driven by platforms like Taobao Live and influencers (known as KOLs - Key Opinion Leaders).

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2018-2020 - Global Expansion: Western platforms like Amazon Live, Instagram Live Shopping, and Facebook Live Shopping start to embrace live streaming commerce; Introduction of interactive features such as shoppable links and live chat to engage viewers.

2020 - Pandemic Accelerates Growth: COVID-19 pandemic leads to a surge in live stream shopping as physical retail suffers; Increased adoption of live streaming commerce by brands, influencers, and consumers globally.

2021-Present - Diversification and Innovation: Expansion of live streaming commerce into various niches, including fashion, beauty, electronics, and groceries; integration of augmented reality (AR) and virtual reality (VR) to enhance shopping experiences.

AI in live streaming commerce

AI is playing an increasingly significant role in e-commerce and live commerce. AI assistants in livestream selling have been shown to increase sales, reduce product returns, and improve purchase decision quality by triggering less emotion-driven choices (Wang et al., 2023). For example, in 2020, platforms like Taobao Live and TikTok facilitated over \$150 billion in transactions, highlighting the growing impact of AI in this domain (Guo et al., 2021) (Qing and Jin, 2022). The effectiveness of AI versus human broadcasters in LSC depends on consumers' social overload levels, with AI outperforming humans for high-overload consumers (Xu and Ruan, 2023). AI applications in e-commerce extend to various processes, including sales forecasting, product recommendations, inventory management, and virtual assistants, enhancing productivity and efficiency. The technology's impact is further evident in intelligent logistics, warehouse automation, visual search, and optimal pricing strategies (Haidar, 2024). As AI continues to evolve, it is becoming essential for e-commerce companies to leverage its capabilities to gain a competitive advantage and build strong brand recognition among consumers. For instance, platforms like Amazon Live and Instagram Shops use AI to streamline customer engagement, while AI-driven tools such as predictive analytics help retailers forecast inventory needs and optimize supply chains.

Even while LSC is expanding quickly, there is not a thorough theoretical framework incorporating AI in the current research. The majority of research focuses on consumer behavior or the adoption of technology, but it does not fully examine AI's potential for decision-making, personalization, and fostering trust on live-streaming platforms (Mai et al., 2023). Thus, this research paper aims to map the bibliometric landscape of AI in LSC, along with identifying research trends, influential works, and emerging themes.

We conducted this bibliometric research over a 10-year period, from 2014 to 2024. This time period was purposefully chosen since the notion of live commerce, which is the combination of e-commerce with live broadcasting, developed and gained substantial acceptance during this time. Prior to 2014, live commerce was either nonexistent or in its early stages, with little academic or practical discourse. As a result, focusing on this decade allowed us to collect the most important and significant research that reflected

the development, trends, and dynamics of this fast-changing subject. This research paper will also try to answer the following:

What are the recent publication trends in AI and LSC research?

Which authors and institutions are leading in this field?

What are the key themes in AI-related LSC research?

What gaps exist in integrating AI technologies within LSC?

Further sections of this research paper include literature review, methodology adopted, data analysis and its results, future research areas, and finally conclusion.

Literature review

The integration of a AI in LSC has gained increasing scholarly attention in recent years. Early foundational works traced the origins of social commerce to the late 1990s, identifying evolving methods of integrating social networks and highlighting how people, management, technology, and information dimensions have shifted over time (Curty and Zhang, 2011) (Wang and Zhang, 2012). Busalim and Hussin (Busalim and Hussin, 2016) introduced a systematic literature review emphasizing that social commerce has emerged as a viable and distinct paradigm within online business. Subsequently, studies began focusing on motivational drivers in LSC. For instance, Cai et al. (Cai et al., 2018) found that hedonic motivation was linked to celebrity-based shopping, while utilitarian motivation correlated with product-based shopping. Cai and Wohn (Cai and Wohn, 2019) further explored motivations, noting that trend-setting was a common driver across LSC scenarios, though the need for community was less significant.

Research has also delved into engagement mechanisms and interactivity in live streaming platforms. Wang and Wu (Wang and Wu, 2019) highlighted how product interactivity, communication immediacy, and peer cues enhanced product evaluation and serendipity, positively influencing purchase intentions. Cheng et al. (Cheng et al., 2019) emphasized that live video streaming strategies, when product-focused, significantly boosted sales, introducing AI-based deep learning models for content optimization. In a more recent empirical study, Wang et al. (Wang et al., 2022) underscored how streamers act as influential intermediaries, shaping consumers’ decisions by delivering more information and enhancing trust. Similarly, Liu et al. (Liu et al., 2022) explored the effects of consumer interaction, social presence, and conformity in boosting purchase intent.

The role of AI has become central in newer research. Gao et al. (Gao et al., 2023) examined AI streamers and found that their ability to evoke positive emotions significantly enhanced consumer purchase intention. Yun et al. (Yun et al., 2023) observed how AI personalization, real-time behavioral analytics, and recommendation systems elevate engagement in live commerce. Xu et al. (Xu et al., 2024) expanded this by analyzing AI-powered virtual streamers and their influence on brand image through parasocial interaction. However, the risks of AI-based systems were not ignored. Peng et al. (Peng et al., 2024) identified that functional, aesthetic, and interactional failures in AI-oriented LSC platforms could lead to consumer disengagement. Likewise, Shi (Shi, 2024) emphasized both the opportunities and challenges of using AI virtual anchors in enhancing product showcasing and interactivity, with concerns around realism and data security.

Recent studies also focus on the visual and emotional influence of AI avatars. Li (Li, 2024) found that anthropomorphic AI images significantly improve brand perception and trust, positively impacting purchase decisions. Mantri (Mantri, 2024) emphasized the value of real-time data streaming and AI-driven personalization in improving consumer engagement and loyalty, despite concerns about data privacy. From a strategic standpoint, Wang (Wang, 2024) stressed how AI tools enhance brand visibility and engagement in the Chinese market, while Yan (Yan, 2024) confirmed AI’s effectiveness in supporting consumer decisions across the buyer journey. Finally, Wang and Cao (Wang and Cao, 2024) explored the interaction between LSC entrepreneurs and algorithmic systems on platforms like Douyin, noting how adaptive strategies reflect a dynamic relationship between technology and commerce.

This literature review (Table 1) highlights the current understanding of AI’s role in LSC.

Title	Publisher	Year	Findings
Social commerce: Looking back and forward (Curty and Zhang, 2011)	Conference Proceeding	2012	Social commerce activities date back to the late 1990s, and there are several methods for integrating social networks and channels
The Evolution of Social			

Commerce: The People, Management, Technology, and Information Dimensions (Wang and Zhang, 2012)	CIAS	2012	People evolved from basic social nature to deeper analyses involving psychology, culture, and economics. Management shifted from short-tail to long-tail, with concepts like niche networks, co-creation, and team-buying. Technology and Information progressed from blogs to smartphones, with information evolving to global crowdsourcing and f-commerce
Understanding social commerce: A systematic literature review and directions for further research (Busalim and Hussin, 2016)	Elsevier	2016	This paper demonstrates a new paradigm of conducting business using social media to reach customers and their networked connections, indicating that social-commerce is a viable new field of study
Utilitarian and Hedonic Motivations for Live Streaming Shopping (Cai et al., 2018)	Conference Proceeding	2018	Hedonic motivation is positively related to celebrity-based shopping intention Utilitarian motivation is positively related to product-based shopping intention The study identified eight reasons why consumers prefer live streaming shopping over regular online shopping
Understanding User Engagement Mechanisms on a Live Streaming Platform (Wang and Wu, 2019)	Springer	2019	The three user engagement mechanisms (product interactivity, communication immediacy, and peer cues) on a live streaming platform improve users' ability to evaluate products. The engagement mechanisms increase users' serendipity behavior, or their tendency to explore unexpected products. The improved product evaluation and serendipity behavior have a positive impact on users' attitude and intention to buy products on the live streaming platform
Live Streaming Commerce: Uses and Gratifications Approach to Understanding Consumers' Motivations (Cai and Wohn, 2019)	Conference proceeding	2019	Substitutability of personal examination was associated with general watching and product search scenarios for live streaming commerce. Enjoyment of interaction was associated with the internet celebrity scenario for live streaming commerce. Trend setting was associated with all live streaming commerce scenarios, but the need for community was not a significant motivation
Everyone Can Be a Star: Understanding the Role of Live Video Streaming in Online Retail (Cheng et al., 2019)	SSRN	2019	The paper explores the impact of live video streaming on online retail, highlighting that a product-oriented live streaming strategy significantly boosts sales. It also introduces a deep learning framework to identify effective live video content for e-commerce
How Live Streaming Changes Shopping Decisions in E-commerce: A Study of Live Streaming Commerce (Wang et al., 2022)	Springer	2022	LSC enables merchants to better communicate with consumers and provide more information and services, which makes consumers more willing to purchase products. Streamers, as intermediaries between merchants and consumers, use their independent identity to increase consumer awareness and influence their online shopping decisions. The study discusses the opportunities and challenges of current LSC services and provides implications for the development of LSC services and future research
Marketing by live streaming: How to interact with consumers to increase their purchase intentions (Liu et al., 2022)	Frontiers	2022	The paper does not specifically address AI in live streaming commerce. It focuses on consumer interactions in live streaming e-commerce, examining how these interactions influence social presence, consumer conformity, and ultimately, purchase intentions among consumers
How do virtual streamers affect purchase intention in the live streaming context? A presence perspective (Gao et al., 2023)	Elsevier	2023	AI streamers are emerging in live-streaming commerce, addressing the high costs and limited availability of human streamers. This paper explores how the positive emotions of AI streamers influence consumers' purchase intentions, enhancing sales performance in this growing sector
New generation commerce: The rise of live commerce (L-commerce) (Yun et al., 2023)	Elsevier	2023	The paper discusses how AI enhances live commerce (L-commerce) by personalizing user experiences, optimizing product recommendations, and analyzing consumer behavior in real-time, ultimately driving engagement and sales during live streaming events
The future of live-streaming commerce: understanding the role of AI-powered virtual streamers (Xu et al., 2024)	Emerald	2024	AI-powered virtual streamers enhance live-streaming commerce by personalizing interactions and exhibiting human-like personalities. This study reveals that these factors, along with system and content quality, positively influence brand image through parasocial interaction and experiential value
Impact of AI-Oriented Live-Streaming E-Commerce Service Failures on Consumer Disengagement—Empirical Evidence from China (Peng et al., 2024)	MDPI	2024	The paper explores AI-oriented live-streaming e-commerce, highlighting service failures such as information, functional, system, interaction, and aesthetic issues. These failures negatively impact consumer engagement, emphasizing the need for retailers to address risks in this rapidly growing sector
Research on Innovative Applications of AI Virtual Anchor Live Streaming E-commerce in the Context of Artificial Intelligence (Shi, 2024)	Hill Publishing Group	2024	AI virtual anchors enhance live streaming e-commerce by providing personalized recommendations, showcasing product features, and facilitating real-time consumer interaction. This innovative approach improves shopping experiences and marketing strategies, while also presenting challenges related to realism, technical support, and data security

Analyze the Impact, Reasons, and Optimization Strategies of the Image of AI Anchors on Consumer Purchase Intention in Live Streaming E-commerce (Li, 2024)	EWA Publishing	2024	AI has revolutionized live streaming commerce by introducing virtual anchors that replace human hosts. These anthropomorphic images enhance consumer trust and personalized experiences, significantly influencing purchase intentions through engaging interactions and tailored designs, ultimately improving brand image and commercial efficiency.
Real-Time Data Streaming and AI Enhancements: E-Commerce Live Streaming Shopping (Mantri, 2024)	CARI Journals	2024	AI enhances live streaming commerce by enabling real-time data processing, improving consumer engagement, and driving sales. It supports interactive features, influences purchasing intentions, and fosters brand loyalty, while addressing challenges like data privacy and revenue-sharing models.
Exploring E-Commerce Live-Streaming Strategy in China (Wang, 2024)	Dean & Francis Press	2024	The research highlights AI's role in live-streaming commerce, emphasizing its potential to enhance consumer engagement and brand visibility. It also discusses the implications of AI technologies in optimizing strategies and addressing challenges within the dynamic e-commerce landscape.
The Impact of E-commerce Live Streaming on Consumer Decision-Making: A Case Study of Taobao (Yan, 2024)	Dean & Francis Press	2024	The study highlights that artificial intelligence supports e-commerce live streaming through personalized recommendations and real-time interaction, enhancing consumer engagement and influencing decision-making processes during awareness, consideration, and purchase stages, ultimately impacting consumer behavior and loyalty.
Harnessing the stream: algorithmic imaginary and coping strategies for live-streaming e-commerce entrepreneurs on Douyin (Wang and Cao, 2024)	Springer	2024	The paper explores how live-streaming e-commerce entrepreneurs on Douyin interact with algorithms, viewing them as crucial for traffic acquisition and sales. Entrepreneurs adopt coping strategies to navigate algorithmic changes, reflecting a unique relationship between AI, technology, and economic activity.

TABLE 1: Literature review
(Source: Authors' computation)

Review

Methodology

Data Collection and Search Strategy

Data for this study were obtained from Scopus in October 2024. Scopus was chosen as the major database due to the fact that it is widely accepted and used in financial research (Bahoo et al., 2024) (Khan, 2022). It is an enormous and dependable archive, making it an excellent platform for doing bibliometric analyses. Bibliometric analysis, known for its systematic approach to appraising research output, can help eliminate human error and subjective bias (Ellegaard and Wallin, 2015) (Župič and Čater, 2014). This strategy is especially useful in the financial and technological sectors, where precision and objectivity are essential. Mukherjee et al. (Mukherjee et al., 2022) emphasize that bibliometric analysis has a unique opportunity to contribute significantly to both theory and practice by providing rigorous, exhaustive, and timeless insights.

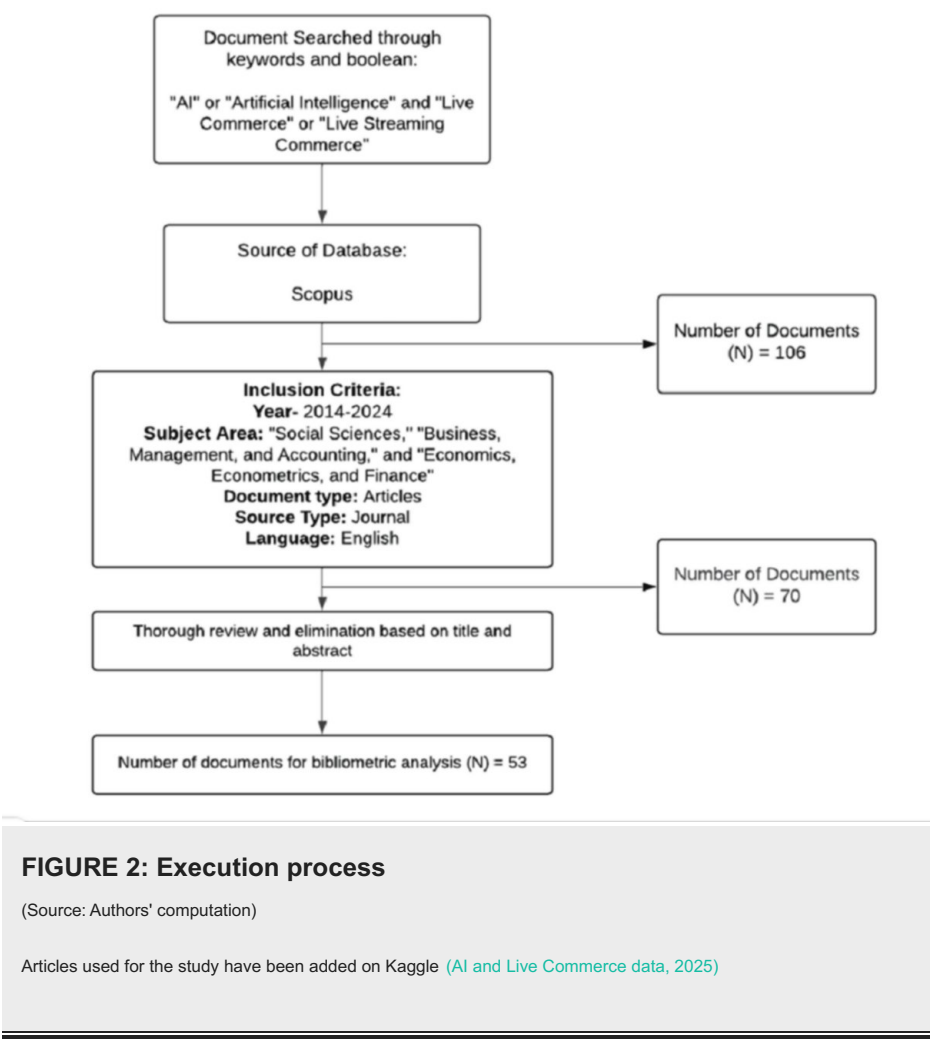
Search Strategy and Scope

When we gathered the literature, we rejected irrelevant research and used precise criteria to eliminate the less relevant studies. We utilized a topic search to find highly relevant documents. The Topic search formula, which searches titles, abstracts, and phrases, is the most utilized search scope. The study focused on research studies done between 2014 and 2024, which saw significant developments in AI and live commerce. The search terms "AI" or "Artificial Intelligence" and "Live Commerce" or "Live Streaming Commerce" were used to make sure that these phrases occurred in the paper titles, abstracts, or keywords. Quotation marks were used to limit the query and improve the precision of the search results. The authors' earlier research, major references in the area, and in-depth knowledge of the subject matter all influenced their keyword selection. This procedure entailed creating a comprehensive collection of key terminology and concepts related to the important works of recognized scholars.

Inclusion and Exclusion Criteria

To ensure the dataset's quality and relevance, the search was confined to peer-reviewed academic papers. The study examined publications categorized as "Social Sciences," "Economics, Econometrics, and Finance," "Business, Management, and Accounting." The source categories were limited to journals, with only articles considered for inclusion. We only gathered English as the language of publishing since it is extensively used in academics, including by non-English speakers. We manually screened all documents to

check the eligibility of the selected research. Two domain researchers examined the included papers' titles, abstracts, and content to confirm that the inclusion criteria were met; irrelevant publications were eliminated. Any anomalies or inconsistencies were resolved collaboratively, yielding a revised and accurate dataset. Following the initial search, 106 items were found. However, following a thorough review and the application of strict inclusion criteria, the final sample was narrowed down to 53 articles. The whole execution is shown in Figure 2.



Additional refining processes were used at the acquisition substage. Filtering options included publication date, topic area, source type, and document type. The thorough selection procedure guaranteed that the final sample included high-quality, relevant studies that met the research's goals. This methodical strategy demonstrates the study's dedication to methodological rigor, ensuring that the analysis is founded on a solid and accurate dataset. The finished dataset provides a solid platform for investigating the user experience of AI and live commerce, delivering interesting insights into this quickly growing subject.

Data analysis and results

Analysis Including Country of Publishing, Eminent Writers, Publications, and Publishing Growth

The dataset (Table 2), which covers the years 2014-2024, emphasizes current developments in the sector. With a staggering yearly growth rate of 24.57%, it has 53 documents that are derived from 47 publications, journals, and other academic sources. A strong average of 18.9 citations per document, which reflects the high relevance and influence of the studies, further supports the comparatively short average document age of 3.25 years, which suggests a concentration on current research. A significant 1,631 references are included in the dataset, indicating extensive and well-supported research. The dataset's varied content, which includes 178 author's keywords and 544 keywords plus, indicates a thorough but targeted investigation of important subjects in the area. A total of 191 writers contributed to the documents, indicating a highly collaborative academic atmosphere, according to authorship statistics. With an average of 3.77 co-authors per document, just 12 of these are single-authored, highlighting the shift

towards team-based research. International cooperation is also noteworthy, contributing to 24.53% of the total, suggesting a high level of global involvement.

Description	Results
Main information about data	
Timespan	2014:2024
Sources (Journals, Books, and so on)	47
Documents	53
Annual growth rate %	24.57
Document average age	3.25
Average citations per doc	18.92
References	1631
Document contents	
Keywords Plus (ID)	544
Author's Keywords (DE)	178
Authors	
Authors	191
Authors of single-authored docs	11
Authors collaboration	
Single-authored docs	12
Co-authors per doc	3.77
International co-authorships %	24.53
Document types	
Article	14
Conference paper	39

TABLE 2: Main information

(Source: Authors' computation through R)

Compared to journal articles (14), conference papers (39) make up more than half of the document categories, underscoring the significance of disseminating research findings in appropriate settings. Whatever is considered, the evidence points to a vibrant and quickly growing field of study that is marked by strong academic impact, worldwide engagement, and high levels of collaboration.

A Descriptive Examination of the Obtained Documents

Publication of documents by year: Figure 3, which displays data from 2014 to 2024, clearly demonstrates that research output increased throughout that time. The number of publications was low but consistent between 2014 and 2017, starting off modestly at one or two documents a year. However, there was a detectable rise that started in 2020, increased significantly in 2021, and peaked in 2022 with 10 papers. This increase is a result of increased scholarly interest and effort in this field of study throughout these years. Although a minor downturn in 2023, output was still higher than in previous years, and 2024 is showing indications of recovery with a stable number of publications. All things considered, the statistics show that the field grew quickly before tapering off, giving a clear bibliometric account of its ascent, apex, and partial decrease during the previous ten years. Another factor driving the increase in publications in this area is the increasing understanding of the importance of the relationship between AI and live commerce principles at both the macro and micro levels.

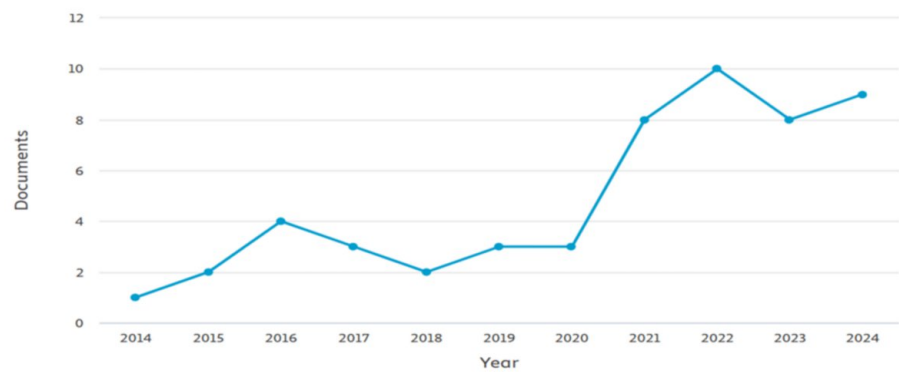


FIGURE 3: Number of documents over time of 2014-2024

(Source: Authors' computation)

Author's contributions to published documents: An examination of the documents released by the top authors (Figure 4) reveals a rather balanced contribution from important academics in this field. Authors such as Serrano W, Tang P, and Yu H have the most publications, each providing around two papers, suggesting their active participation in the study domain. Other prominent authors include Abbas JK, Abdullah NNB, and Ablanado J, all of whom have published one or two documents. The continued existence of several writers with equal production reflects a well-balanced level of scholarly activity, with no particular individual dominating the subject. This balanced distribution embodies a collaborative and varied academic community that contributes to the growth of research by offering numerous points of view and skills.

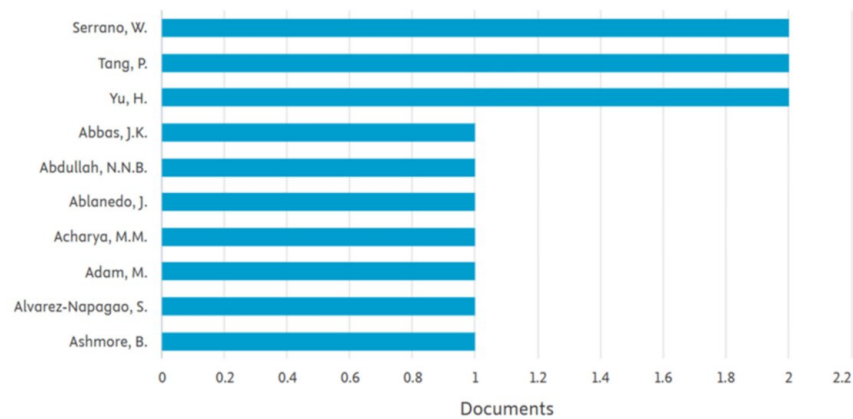


FIGURE 4: Documents published by top authors

(Source: Authors' computation)

Documents published by top countries: Figure 5 shows the number of documents published by the top 10 nations. China leads by a significant margin, with around 18 papers, suggesting its supremacy in research or publishing in this domain. The United States follows with around 12 documents that indicate its active contribution to the field. India and the United Kingdom are tightly related, with each releasing around 9 publications that represent their significant research output. Germany is next with around 6 papers, after which come Hong Kong, Malaysia, Switzerland, Greece, and Italy, each with 3 to 5 documents. This distribution demonstrates a worldwide publishing effort, with a distinct concentration of contributions from China and the United States, followed by significant involvement from other developed and rising countries.

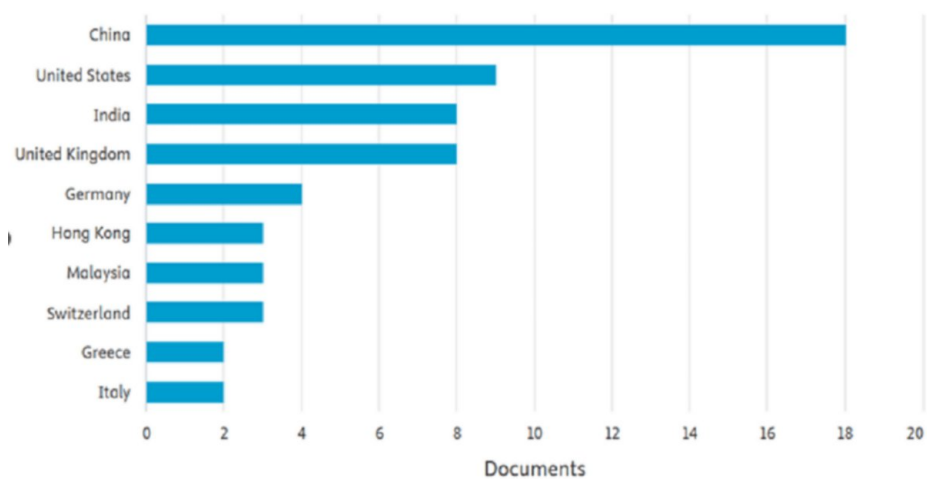


FIGURE 5: Documents published by top countries

(Source: Authors' computation)

Subject-wise collection of documents: Figure 6 illustrates the distribution of articles by topic area. Computer science dominates articles, accounting for over half (45.9%) of the total. Mathematics and engineering are similarly substantial, accounting for 14.3% of the documents, indicating their considerable presence in research. Social Sciences are in second with 8.2%, demonstrating a substantial but smaller importance. Decision Sciences (7.1%) and Business and Management (6.1%) also have a significant accountability, demonstrating the significant role of these subjects. Arts & Humanities (3.1%) and Economics (1.0%) account for a lesser proportion, suggesting lower publishing numbers in these fields. Overall, the results indicate a strong emphasis on technological and analytical subjects, notably computer science, while other topics, such as economics, receive relatively less attention.

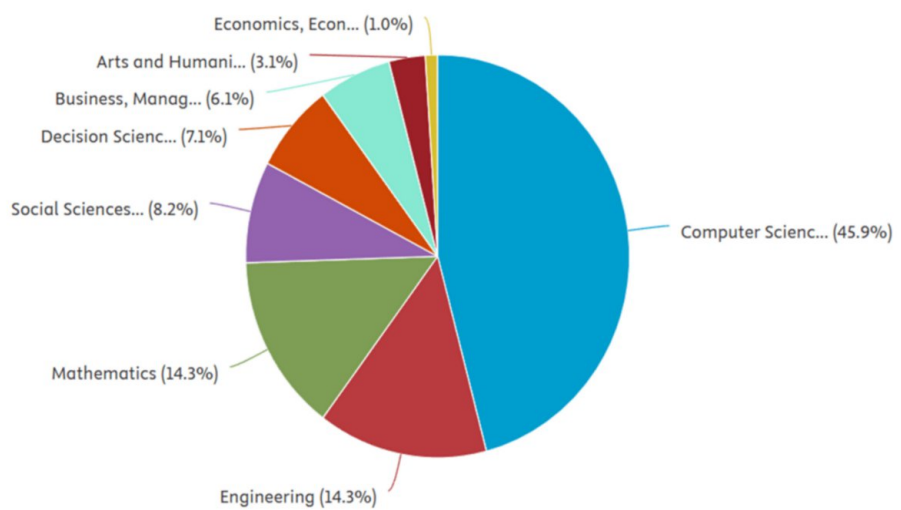


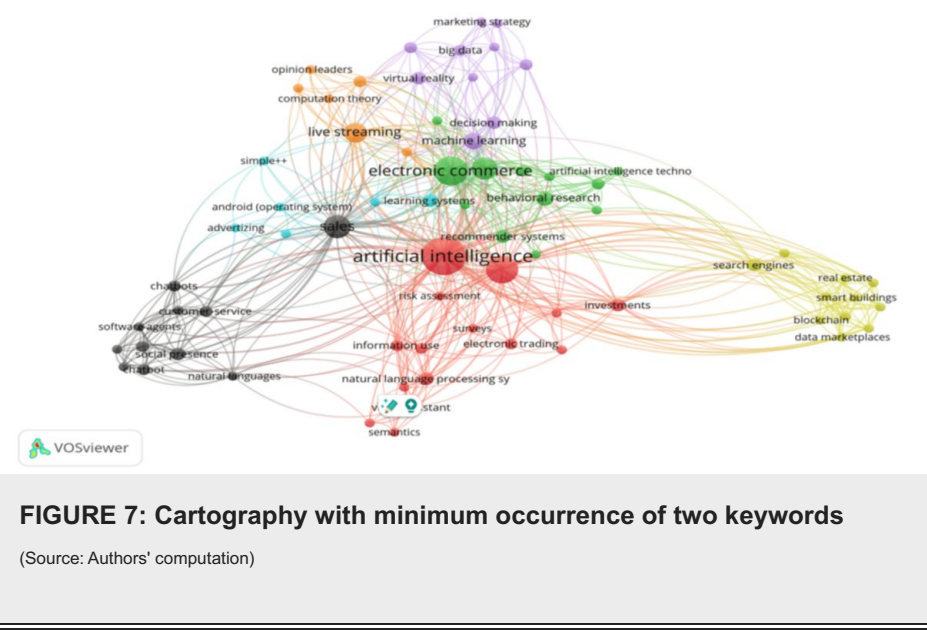
FIGURE 6: Documents classified by subject area

(Source: Authors' computation)

Performance Analysis

Keyword analysis: Figure 7, depicted in the network visualization, demonstrates the interconnection of many study fields in the field of AI. Using a minimum occurrence criterion of two keywords, the map identifies clusters representing major topics and study areas. Table 3 shows the main topics on LSC obtained in each cluster. The primary node, AI, is intimately related to subfields such as data mining, natural language processing, and recommender systems, illustrating its broad effect across disciplines. Notable clusters include electronic commerce, which is linked to behavioral research and decision-making, demonstrating the use of AI in consumer and corporate analytics. Blockchain and data markets

are other important nodes that highlight AI's contribution to the development of independent systems. Clusters of emerging technologies, such as big data and virtual reality, demonstrate profound ties to computational theory and marketing strategy, respectively. Furthermore, domains such as risk assessment, investments, and electronic trading highlight the usefulness of AI in market analysis and financial decision-making. This map highlights the variety of AI research, connecting data-driven decision-making, technology, and business.

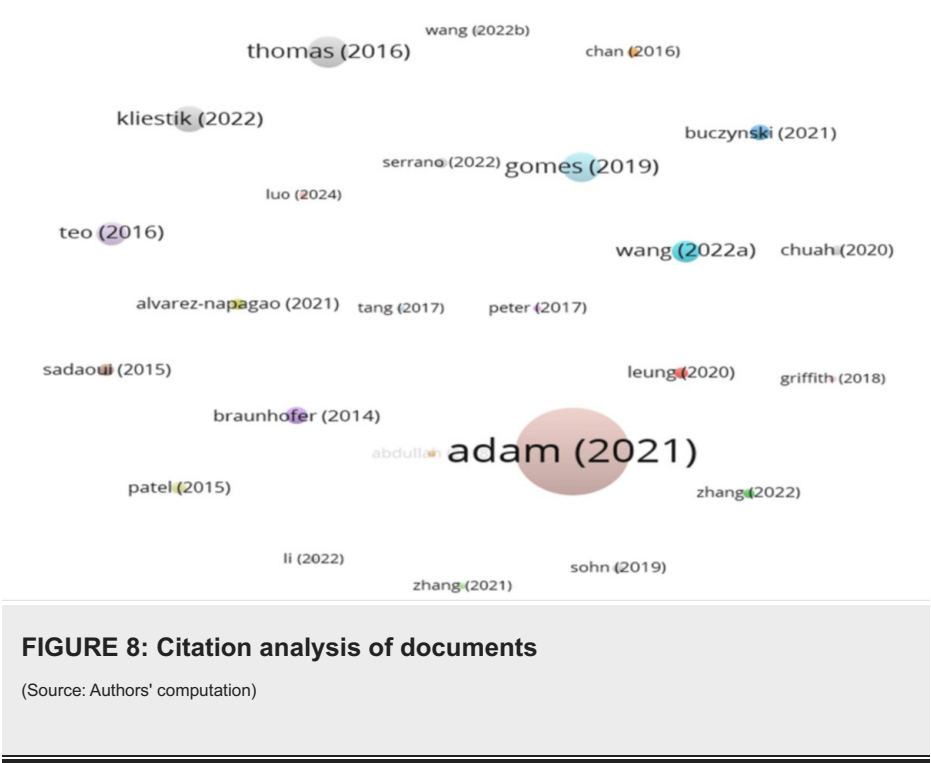


Clusters	Keywords	Themes
Cluster 1 (Red)	Artificial Intelligence, Commerce, Electronic Trading, Financial Markets, information systems, Information use, Intelligence systems, Investments, Natural Language Processes, Risk Assessment, Semantics, Surveys, Voice assistant	The Intersection of Artificial Intelligence and Financial Markets: Enhancing Trading and Risk Management
Cluster 2 (Green)	Artificial Intelligence Techno, Behavioral Research, Commerce platforms, e- commerce, factorization, information management, online systems, recommender systems, trading data, user behavior	AI-Driven Personalization in E-Commerce
Cluster 3 (Black)	Chatbot, Anthropomorphism, compliance, customer service, natural languages, real-time, sales, social presence, software agents	Human-like Chatbots in Customer Service
Cluster 4 (Yellow)	Blockchain, Data Marketplace, Project Management, Real estate, Search Engines, smart buildings, Smart Cities, Smart contracts, Validation and verification	Blockchain Innovations in Smart Cities
Cluster 5 (Purple)	Big Data, Consumer behavior, Decision Making Machine learning, Marketing Strategy, social media, Software engineering, Strategic planning, Virtual reality	Machine Learning in Marketing Strategy
Cluster 6 (Blue)	Advertising, Android (operating system), Classification (of information), Learning Algorithms, Learning systems, simple ++	AI Algorithms in Android Advertising
Cluster 7 (Orange)	5g mobile communication, Computation Theory, Live streaming, Opinion Leaders, Software testing, Supply chains	5G-Enabled Live Streaming for Supply Chains

TABLE 3: Categorization of themes from keywords clusters of VOS viewer
(Source: Authors' computation)

Most cited documents: Figure 8 depicts a bibliometric examination that gives insights into the citation trends within a 53-document dataset. Of these, 25 documents have at least three citations, suggesting their respective significance in the research topic. The visualization focuses on significant writers and their interconnection, with stronger nodes illustrating documents with more citations. Notably, Adam (2021) is the most mentioned text, demonstrating its prominent significance in intellectual debate (Table 4). Other notable achievements include studies by Gomes (2019), Leung (2020), and Kliestik (2022), all of which have received large citations. The clustering reveals thematic linkages and cooperation networks

between the writers. The geographical distribution of nodes suggests various yet interrelated study areas, with certain publications, such as Wang (2022), connecting many clusters, indicating a multidisciplinary influence. This study emphasizes the importance of major works and their role in defining the research landscape in the researched topic.



Article	Theme	Total citation	Country	Field-weighted citation impact
Martin et al., 2021	AI-based chatbots in customer service	495	Germany	29.92
Thomas et al., 2016	An e-business chatbot using AIML and LSA	81	India	6.76
Gomes, 2019	Computational sustainability	75	USA	4.66
Kliestik et al., 2022	Live shopping in the metaverse	59	USA	26.95
Teo et al. 2016	Adaptive, personalized diversity for visual discovery	51	USA	6.71
Wang et al., 2022	Live streaming changes shopping decisions in E-commerce	44	UK	5.50
Braunhofer et al., 2014	Usability assessment of a context-aware	29	France	7.65
Buczynski et al., 2021	Machine learning experiments in equity investment decision-making	23	UK	2.02
Patel et al., 2015	Detection and mitigation of android	15	India	2.63
Sadaoui et al., 2015	A real-time monitoring framework for online auctions frauds	15	Canada	1.60

TABLE 4: Most cited articles

Source: Authors' computation (AI and Live Commerce data, 2025)

Citation analysis of countries: The statistics show, in Table 5 (and in Figure 9), that Germany and Denmark are the most often referenced nations, indicating their enormous influence in research. Germany leads with 511 citations over four papers, for an astounding average of 127.75 citations per document. This indicates that German publications are not only numerous but also extremely influential. Similarly, Denmark has a single document with 488 citations, suggesting very important research that sticks out in

the collection. Hong Kong also has a significant impact, with three documents earning a total of 66 citations, an average of 22 citations per document. Canada and Greece follow with 15 and 14 citations, respectively, indicating moderate acknowledgement for their achievements. While China creates the most publications (18), its average citation count of 1.72 per document indicates a greater spread but less individual influence. These developments reflect Germany and Denmark's dominance in providing high-quality, globally recognized research.

Country	Documents	Citations
Canada	1	15
China	18	31
Denmark	1	488
Finland	1	13
Germany	4	511
Greece	2	14
Hong Kong	3	66

TABLE 5: Most cited countries

(Source: Authors' computation)

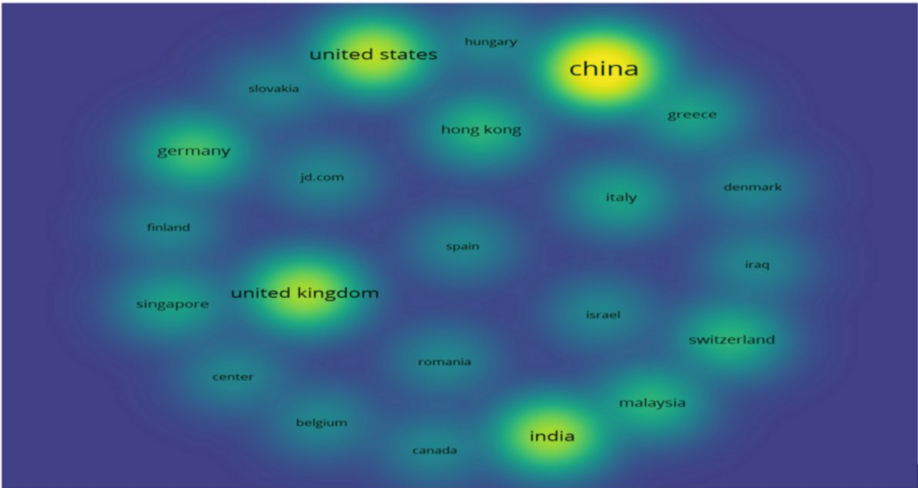


FIGURE 9: Most cited countries

(Source: Authors' computation)

Co- authorship analysis of authors: The co-authorship analysis in Figure 10 depicts the collaboration network among authors in a dataset of 197 documents, all of which meet the criteria of at least one document per author. The network is organized into several clusters, with Yu Han serving as a key author, connecting two significant clusters of collaboration. The red cluster shows intense links between authors such as Xia Yun, Zhou Jing, and Zhang Xueying, signifying a strong collaborative group working on comparable research subjects. Similarly, the green cluster includes important contributions such as Zhang Jianfu, Zhou Guoliang, and Liu Yawen, suggesting another coherent research group. The network's structure displays strong co-authorship ties, implying that research in this field relies extensively on collaborative efforts. The prominent position of Yu Han emphasizes their role as a bridge, allowing for multidisciplinary cooperation between the two groups. This interconnection encourages knowledge exchange and increases the effect of research across a number of subfields.

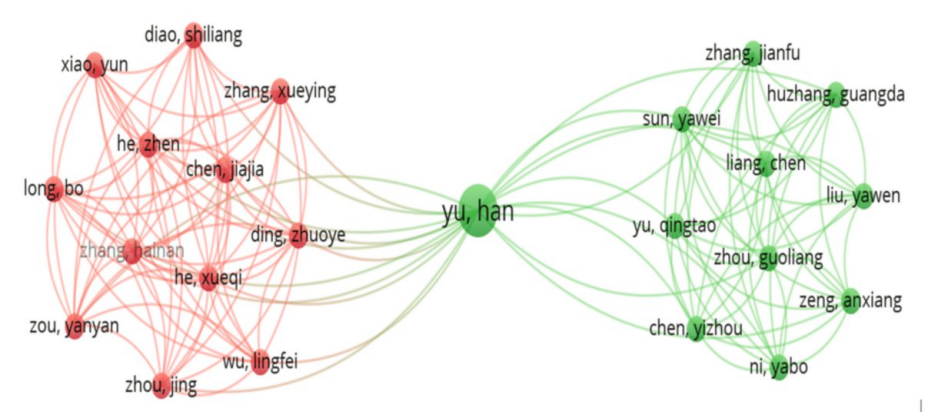


FIGURE 10: Co-authorship analysis of authors

(Source: Authors' computation)

Co-citation of references: The co-citation analysis of references shown in Figure 11 presents an overview of the interconnection among widely referenced works within a dataset of 1,576 cited references, 12 of which had at least 2 citations. The network is separated into two independent clusters, with Araujo T acting as the focal point that connects the red and green clusters. The red cluster incorporates prominent publications such as Gefen D, Xu K, and Hill J, which have extensive linkages, implying that they are often mentioned together and contribute to a similar research subject. Ravishankar T is included in the green cluster, which represents a smaller but crucial group concentrating on empirical investigations. Araujo T's important location demonstrates its critical function in linking numerous study fields, emphasizing its interdisciplinary significance. This co-citation pattern demonstrates a good integration of theoretical and empirical findings, implying that the subject matter benefits from a balanced emphasis on fundamental ideas and practical applications. The overall network (Table 6) highlights the major references that shape the field's intellectual structure, which suggests how certain works serve as fundamental texts for continuing study.

Cited Reference	Citations	Total Link Strength
Araujo T, Living up to the chatbot hype	5	12
Nass C, Moon Y, Machines and Mindlessness:	2	8
Verhagen T, Van Nes J, Feldberg F, Van Dolen W, Virtual	2	8
Xu K, Lombard M, Persuasive Computing	2	8
Hill J, Ford WR, Farreras IG, Real Conversations	2	7
Short J, Williams E, Christie B, The Social Psychology	2	7
Gefen D, Straub D, Managing User Trust in B2C E-Services	2	6
Molina V, Kersten M, Glatard T, A Conceptual Marketplace	2	4
Park JS, Youn TY, Kim HB, Rhee KH, Shin S	2	4
Ravishankar TN et al., Empirical Assessment and Detection	3	4

TABLE 6: Most cited references

(Source: Authors' computation)

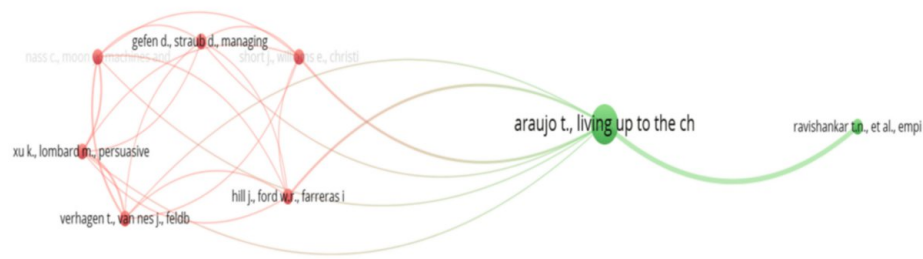


FIGURE 11: Co-citation analysis of references

(Source: Authors' computation)

Limitations and future research directions

There are also certain restrictions on this study. First, we can only retrieve data from the Scopus database. Even if it is the biggest and most reliable database, adding some additional databases, such as Web of Science, Emerald, or Google Scholar, might enhance the data set for the study. Second, grey literature, which might be useful in obtaining other viewpoints, is not included in the data we gather.

A recent development in both academic and practical research is identifying the role of AI in LSC. Table 7 identifies research gaps and suggests potential future research directions based on performance analysis and a thorough literature evaluation.

Future research directions	References
How different elements of live streaming—such as streamer charisma, product presentation, and real-time interactions—affect consumer decision-making stages, including need awareness, information search, and post-purchase evaluations	(Wang et al., 2022)
Analyzing how the lack of emotional intelligence and interpersonal skills in AI streamers influences consumer satisfaction and loyalty	(Peng et al., 2024)
Assess the impact of AR/VR technologies in live streaming environments to create more immersive shopping experiences	(Wang et al., 2022)
How can sentiment analysis via AI enhance live-streaming hosts' interactions with their audiences	Authors' suggestion
Examine the ethical considerations of AI use, including privacy concerns, data misuse, and bias in live-streaming platforms	Authors' suggestion

TABLE 7: Avenues for future research

(Source: Authors' computation). AR, augmented reality; VR, virtual reality

Conclusions

The findings of this study align with and extend the growing body of literature on the transformative role of AI in digital commerce. Prior research has consistently highlighted AI's capacity to personalize shopping experiences, streamline decision-making, and enhance consumer engagement in online retail environments. By situating these insights within the emerging context of live commerce, this study reinforces existing claims that AI-driven personalization fosters stronger customer relationships and improves purchase likelihood (consistent with prior work on AI in e-commerce). Furthermore, the identification of AI's role in optimizing live-stream content, forecasting demand, and enhancing fraud detection resonates with literature emphasizing AI's operational efficiency and risk mitigation in digital platforms. At the same time, this study advances current scholarship by specifically examining the intersection of AI with live commerce-a domain still underexplored compared to broader e-commerce research. While earlier studies on live commerce have focused primarily on consumer engagement and experiential value, this work underscores AI as a critical enabler of scalable, secure, and personalized live-stream shopping. The discussion of challenges such as privacy concerns, technological barriers, and the need for continuous innovation also echoes debates in the literature about the ethical and infrastructural complexities of AI adoption. In doing so, this research contributes to filling a gap between theoretical

discussions of AI in commerce and the practical realities of live commerce integration. It confirms that while risks remain, AI's advantages in enhancing interactivity, efficiency, and customer trust significantly outweigh its limitations. Thus, the study situates itself within existing scholarship as both a reinforcement of established findings and an expansion into the specific and evolving domain of AI-powered live commerce, offering avenues for future research and practical application.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Acquisition, analysis, or interpretation of data: Gauri Gupta, Rinki Joshi

Drafting of the manuscript: Gauri Gupta, Rinki Joshi, Vaishali .

Concept and design: Vaishali .

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