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Factors Influencing Customer Purchase Decisions in AI-Driven Online Shopping: Systematic Review

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ABSTRACT

This paper offers a PRISMA-guided systematic literature review to examine how Artificial Intelligence (AI) is applied in e-commerce. The focus is on identifying key factors that influence customer purchasing decisions in AI-driven online transactions. It examines Information Systems (IS) theories relevant to the integration of AI and e-commerce, offering insights into frameworks used to analyze the relationship between AI and consumer behavior. Additionally, the paper identifies gaps in current research and provides recommendations for future studies, particularly in areas requiring further exploration to understand the evolving impact of AI on e-commerce. Through a review of existing literature, the study identifies critical factors such as perceived enjoyment, perceived usefulness, perceived ease of use, interactivity, consumer engagement, AI technology, and information quality, which significantly affect consumer purchase intentions. This review finds that Stimulus-Organism-Response (SOR) and Technology Acceptance Model (TAM) are the most commonly adopted theories, while Media Richness Theory is used less frequently. The findings provide a robust foundation for future research, enabling the formulation of empirically testable hypotheses. Furthermore, this study offers a more integrated perspective by organizing identified constructs into a multi-dimensional framework and suggests directions for future empirical research, such as developing research models and validating them through survey-based approaches and Structural Equation Modeling (SEM-PLS), as well as qualitative methods. The study aims to offer insights to AI developers and e-commerce practitioners, helping them enhance AI-powered systems to better meet consumer needs and expectations, ultimately improving customer satisfaction and increasing purchase rates.

Keywords: Artificial Intelligence in E-commerce, Purchase Intention, Technology Acceptance Model, Stimulus-Organism-Response, Consumer Behavior.

ABSTRAK

Penelitian ini menyajikan tinjauan literatur sistematis berpedoman pada PRISMA untuk mengkaji bagaimana Kecerdasan Buatan (AI) diterapkan dalam *e-commerce*. Fokus penelitian ini adalah mengidentifikasi faktor-faktor kunci yang memengaruhi keputusan pembelian konsumen dalam transaksi online berbasis AI. Penelitian ini menelaah berbagai teori Sistem Informasi yang relevan dengan integrasi AI dan *e-commerce*, serta memberikan wawasan mengenai kerangka yang digunakan untuk menganalisis hubungan antara AI dan perilaku konsumen. Selain itu, penelitian ini juga mengidentifikasi kesenjangan dalam penelitian yang ada dan memberikan rekomendasi untuk penelitian selanjutnya, khususnya pada area yang masih memerlukan eksplorasi lebih lanjut untuk memahami dampak AI dalam *e-commerce*. Melalui tinjauan literatur, penelitian ini mengidentifikasi faktor-faktor penting seperti *perceived enjoyment*, *perceived usefulness*, *perceived ease of use*, *interactivity*, *consumer engagement*, *AI technology*, dan *information quality* yang secara signifikan memengaruhi niat pembelian konsumen. Hasil tinjauan menunjukkan bahwa teori *Stimulus-Organism-Response* (SOR) dan *Technology Acceptance Model* (TAM) merupakan teori yang paling umum digunakan, sementara *Media Richness Theory* lebih jarang digunakan. Temuan ini memberikan landasan yang kuat bagi penelitian selanjutnya, khususnya dalam merumuskan hipotesis yang dapat diuji secara empiris. Selain itu, penelitian ini juga menawarkan perspektif yang lebih terintegrasi dengan mengelompokkan konstruk ke dalam kerangka multidimensi serta memberikan arah bagi penelitian empiris selanjutnya, seperti pengembangan model penelitian dan validasinya melalui pendekatan

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berbasis survei dan analisis menggunakan SEM-PLS, serta pendekatan kualitatif. Penelitian ini bertujuan memberikan wawasan bagi pengembang AI dan praktisi *e-commerce* dalam meningkatkan sistem berbasis AI guna memenuhi kebutuhan konsumen serta meningkatkan kepuasan dan tingkat pembelian.

Kata Kunci: Kecerdasan Buatan dalam *E-commerce*, Niat Pembelian, *Technology Acceptance Model*, *Stimulus-Organism-Response*, Perilaku Konsumen.

1. Introduction

With the support of the internet as a global interconnection network for sharing and delivering information, transactions through e-commerce have become more popular and have enormous market potential, as indicated by the continuous sales increment [1]. The rapid development of e-commerce usage has led to changes in people's expectations and needs for e-commerce to be able to provide fast and efficient services, thus eliminating customer difficulties in transactions and consequently providing convenience. This has prompted companies to implement one of the leading technologies, namely Artificial Intelligence, in e-commerce [2]. AI is applied in e-commerce in various forms such as chatbots [2], [3] and recommendation systems [3], [4].

The primary objective of a company in e-commerce transactions is to influence customers to support a specific product or brand [3]. When customers align with a particular product or brand, they are more likely to make a purchase. The various benefits that AI brings to e-commerce, such as increased efficiency, ease of use, enhanced service quality, responsive interaction, personalization, and accuracy, are ultimately aimed at boosting customer purchase intentions and ensuring that every interaction has the potential to result in a sale. As noted in [5], factors such as entertainment, communication competence, interaction, trendiness, and satisfaction significantly shape how likely solo travellers are to make a purchase when utilizing AI chatbots. In [6], AI technology significantly boosts both social media consumer engagement and conversion rate optimization, thereby positively influencing consumer repurchase intentions. In this relationship, consumer engagement and conversion rate optimization function as mediators, while consumer habits act as a significant moderator between satisfying consumer experiences and repurchase intentions. Furthermore, the paper suggests that brand name, self-efficacy, and star ratings on social media could serve as potential moderators in future investigations.

On the other side, several studies have attempted to improve the accuracy of chatbot technology and recommendation systems. Despite improvements in model architectures and training methods, fundamental limitations like factual inaccuracies and biased outputs remain unresolved [7]. This concern is reinforced by findings that even with advanced metrics and rigorous testing methods, issues like hallucination, bias, and vulnerability to adversarial inputs persist [8]. Similarly, a study in [9] demonstrates that even advanced models like GPT-4 struggle with domain-specific challenges such as keyword stuffing and specialized terminology in e-commerce texts. Likewise, [10] conducted a bibliometric review of AI-powered recommender systems in e-commerce, highlighting that advanced techniques such as collaborative filtering, sentiment analysis, convolutional neural networks (CNNs), and knowledge graphs have been extensively explored to improve recommendation accuracy and personalization, yet challenges such as the cold start problem and sparse rating matrices persist.

While these technical advancements are undoubtedly important, research on behavioral factors and determinants of technology acceptance in AI-powered e-commerce is equally crucial to ensure that the capabilities of chatbots and recommendation systems are effectively utilized to drive customer purchase decisions. Understanding how consumers perceive the usefulness, ease of use, enjoyment, and trustworthiness of AI-driven interactions becomes essential, as these psychological factors ultimately determine whether technological improvements translate into user expectations that eventually materialize as actual purchase behavior. The urgency of this research is further underscored by recent industry data. A report by [11] found that 68% of AI projects in online retail fail to deliver meaningful results, highlighting a persistent gap between technical investment and real-world success. Therefore, understanding the factors that influence customer purchase decisions in AI-powered e-commerce is a crucial area of study, allowing AI developers to focus on key factors when developing features for e-commerce.

Based on the general review of the previously mentioned papers, this paper presents a systematic literature review conducted and reported following the PRISMA guidelines [12]. It aims to identify the factors that influence customer purchase decisions in online transactions using Artificial Intelligence, which remain underexplored in the current literature, by drawing insights from numerous studies. By understanding these factors, it is expected that AI developers in e-commerce or other types of online transactions can highlight or improve the quality of specific factors or aspects of AI that are effective in enhancing customer satisfaction, ultimately driving better customer purchase decisions [5]. In this paper, there are four Research Questions that will be addressed, namely:

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1. What are the applications and how is AI implemented in e-commerce?
2. What factors influence customer purchases in online transactions that implement AI?
3. Which Information Systems Theory is used in the context of the issues being discussed?
4. What are the limitations or suggestions for future research on the topic being discussed?

Although numerous studies have explored customer purchase decisions in online shopping environments, there is still a lack of systematic literature reviews that synthesize both the key influencing factors, such as perceived usefulness, perceived ease of use, and satisfaction, and the Information Systems (IS) theories used to explain them, including the Technology Acceptance Model (TAM) and Information Systems Success Model. Existing research tends to address these dimensions in isolation or in limited scope, often overlooking their interconnected roles within AI-powered e-commerce platforms. This gap calls for a comprehensive synthesis that not only maps the theoretical landscape but also identifies which IS-related constructs are most frequently used and influential in shaping customer purchase behavior in AI-driven online shopping contexts. There is also an urgent need to outline future research directions.

2. Research Method

This review adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [12], with the inclusion and exclusion criteria detailed in Table 1.

Table 1. Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Topic focus	AI-powered e-commerce (chatbots, recommender systems)	Machine learning performance optimization without behavioral outcomes
Variables discussed	Purchase intention, consumer behavior, technology acceptance	Purely technical algorithms, no behavioral variables
Publication type	Peer-reviewed journal articles, conference proceedings	Preprints, editorials, books, book chapters
Publication year	2015–2024	Before 2015
Language	English	Other than English

These criteria were designed to prioritize behavioral and IS-focused studies over purely technical algorithm optimization. Based on these criteria, the study selection followed the PRISMA four-phase flow diagram. The PRISMA framework consists of four phases: identification, screening, eligibility, and inclusion. Each phase is described below.

1. Identification

This stage began with searching for papers on the topic of the impact of AI on customer purchase decisions or intentions in various contexts, but not limited to retail, tourism, or other transactions. The paper search was conducted by exploring reputable journals or conference proceedings on Google Scholar, ScienceDirect, Emerald Insight, and IEEE Xplore. The keywords used included "Artificial Intelligence Customer Purchase Decision" or "Artificial Intelligence Customer Buying Intention". The literature search was limited to papers published between 2015 and 2024. Through an examination of literature relevant to the research topic, approximately 538 papers were identified that broadly relate to the application of AI in E-Commerce.

2. Screening

The 538 records were screened by title and abstract. A total of 485 records were excluded because they did not focus on AI-powered e-commerce, including purely technical papers without behavioral outcomes, or did not address customer purchase intention. The remaining 61 records proceeded to full-text assessment.

3. Eligibility

The 61 full-text articles were further assessed based on publication credibility (prioritizing peer-reviewed journals), source reputation, and substantive focus on factors influencing AI adoption and technology acceptance. After this assessment, 36 papers were selected for further analysis.

4. Included

Finally, 36 studies met all eligibility criteria and were included in further analysis.

In addition to identifying key influencing factors, the selected studies also provide insights into related aspects, such as cultural influences that shape future research directions, as well as variations in AI applications (e.g., different types of chatbots), which contribute to a more comprehensive understanding of customer behavior in AI-driven e-commerce. The classification of these papers is presented in Table 2 based on their journal or conference proceeding sources:

Table 2. Journal And Literature Sources Used

Journal / Conferences	Publisher	Total Number
Procedia Economics and Finance	Elsevier	1
Procedia Computer Science	Elsevier	1
Lecture Notes on Data Engineering and Communications Technologies	Springer	1
Electronic Markets	Springer	1

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The International Journal on Networked Business		
Tourism Management Perspectives	Elsevier	1
Technology in Society	Elsevier	1
Journal of Internet Commerce	Taylor & Francis	1
Proceedings of The International Conference on Electronic Business	AIS e-Library	1
Journal of Hospitality and Tourism Technology	Emerald Publishing Limited	1
Psychology & Marketing	Wiley Periodicals, LLC	2
Technological Forecasting and Social Change	Elsevier	1
Journal of Retailing and Consumer Services	Elsevier	2
Global Business Review	Sage Publications	1
Foresight	Emerald Publishing Limited	1
International Journal of Innovation Science	Emerald Publishing Limited	1
Journal of Systems and Information Technology	Emerald Publishing Limited	1
Journal of Enterprise Information Management	Emerald Publishing Limited	1
Benchmarking: An International Journal	Emerald Publishing Limited	1
Clothing and Textiles Research Journal	Sage Publications	1
European Journal of Management Studies	Emerald Publishing Limited	1
Electronic Commerce Research and Applications	Elsevier	1
Sustainability	MDPI	2
Behaviour & Information Technology	Taylor & Francis	1
Universal Access in the Information Society	Springer	1
Encyclopedia of Sexual Psychology and Behavior	Springer	1
Heliyon	Elsevier	1
Italian Journal of Marketing	Springer	1

The search results yielded several important discussion topics, including the application of Artificial Intelligence in E-Commerce or online shopping, factors influencing customer purchases when AI is applied in online transactions, the Information Systems theories used, and research development plans. These sources were then grouped for analysis to answer the research questions. During the search and grouping of sources, some topics were excluded from the group of papers analyzed, such as those on machine learning performance optimization and topics on customer purchase intentions in systems that did not involve AI.

3. Results and Discussion

3.1. Usage of AI in E-Commerce

As mentioned in the previous section, AI is used in e-commerce in several forms. This section will provide a detailed explanation of the various ways AI is implemented in e-commerce:

1. Chatbot and AI-based Customer Services

In e-commerce, a chatbot is a software application that leverages AI to engage in online conversations through text or voice with consumers visiting a particular website or application [3], [13]. Chatbots can assist customers in various ways, such as responding to questions and requests or helping them find suitable products. In [2], chatbots are categorized based on their purpose, namely "improvement of service performance" and "fulfillment of customer's expectations." AI is used as a chatbot in the sales of electric vehicles [14]. Chatbots are also discussed in the travel industry [5] to assist solo travelers in making travel decisions. In [15], AI is used as a chatbot to interact with customers at online travel agencies. A gamified chatbot is used in [16] to encourage customer engagement (cognitive, emotional, and behavioral). In [17], AI is utilized as a chatbot in e-retailing. The use of AI is not limited to chatbots; other AI-based services are discussed in [18]. The customer service type (AI chatbot vs. human) and product type (search vs. experience) are examined through a series of experiments in [19]. AI in the form of online customer service, along with other forms of customer service such as manual and human–machine collaboration, is explored in [20].

2. Recommendation Systems

In [4], recommendation systems are defined as software agents capable of providing recommendations to consumers to evoke their interests or preferences, either implicitly or explicitly. There are various types of recommendation systems, including hybrid, personalized, collaborative, and social. Recommendation systems use statistical programming, forecasting, and consumer behavior analysis by leveraging large datasets to help customers quickly find products [3]. In [21], a recommendation system is applied in Amazon's product, Echo Look. Echo Look is a virtual-style consultant that uses AI and machine learning to provide fashion advice. Echo Look is equipped with Alexa, a voice-based virtual assistant.

3. Visual and Voice Search

AI can be applied to assist customers in performing visual and audio searches on websites based on image and voice recognition algorithms [3]. Embedded artificial intelligence-mobile smart speech recognition technology is also used in the fashion retail industry to

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make the shopping process easier, more enjoyable, and efficient for users [22].

4. Customer Relationship Management

AI can manage customer relationships by predicting how consumers behave while shopping, what products they are likely to choose, and by gathering information on customer satisfaction, allowing businesses to respond effectively to customer needs [3].

5. AI-Integrated Social Media Platforms

Hospitality companies utilize AI-integrated social media platforms to monitor the behavior of social media users when they search various websites to buy products and services, aiming for greater conversion rate optimization [6], [23]. In [24], AI technology on Instagram is used to influence users' fashion purchasing decisions. AI is employed to analyse data from Instagram to understand consumer purchasing behaviour and subsequently provide personalized recommendations. In [25], AI integrated with social media is used to enhance consumer engagement and purchase intentions.

6. AI-Powered Automated Retail Stores (AIPARS)

Through the integration of AI, robotics, and advanced software systems, fully automated self-service retail stores come into existence [26]. These stores enable multiple automated functions: one-click check-out, automated explanations, marketing, selling, payments, customized product alerts and information, delivery of products, and education for customers. Moreover, customers in AI-mediated retail environments enjoy enhanced personalization, which supports their decision-making to find the best alternatives in a shorter time and at a reasonable cost [27], [28], [29]. In [30], AI is used to assist customers in purchasing anthropomorphic products.

3.2. Factors Influencing Customer Purchases In Online AI-Based Transactions

In more detail, the main factors influencing customer purchase intentions based on the initial literature review can be seen in Table 3. In this table, only the factors discussed in at least three of the referenced papers are included.

Table 3. The Main Factors Influencing Customer Purchase Intention

Number	Variables / Domain	Literature Source Findings
1	Interaction or Interactivity	[5], [26], [29], [15], [17]
2	Customization or Personalization	[5], [26], [18], [15]
3	Perceived Intelligence	[5], [30], [17]
4	Entertainment or Perceived Enjoyment or Hedonic Motivation	[5], [26], [14], [13], [16], [22], [18], [30], [31]
5	Accuracy or Information Quality	[5], [15], [17], [18], [31]
6	Information Credibility	[5], [17], [24], [31]
7	Communication Competence or Persuasiveness	[5], [17], [31]
8	Satisfaction or Satisfying Experience	[5], [6], [25], [23]
9	Artificial Intelligence Technology	[6], [25], [23], [16], [32]
10	Consumer Engagement	[6], [25], [23], [16], [32]
11	Perceived Emotional Value or Emotional Engagement	[24], [25], [16]
12	Perceived Quality	[24], [18], [19], [20]
13	Perceived Risk	[24], [14], [21]
14	Innovativeness	[26], [27], [22]
15	Perceived Ease of Use	[26], [27], [28], [21], [22], [19]
16	Perceived Usefulness	[26], [27], [14], [21], [15], [16], [22], [17], [18], [19]
17	Attitude toward AI	[27], [21], [22], [17]
18	Consumer Experience	[25], [16], [22]
19	Perceived Anthropomorphism	[30], [13], [31]
20	Faith or Trust	[28], [30], [15][31]
21	Social Presence	[13],[28], [31]

According to the table above, the main factors influencing customer purchase decisions in online shopping powered by Artificial Intelligence can then be identified and summarized based on the frequency of use in the corresponding papers, which has been utilized to form a framework model. In this framework, the size of each rectangle represents the frequency of its mention, with larger rectangles indicating factors that were more commonly identified across the reviewed papers. The resulting framework provides a visual representation of the key factors, and it can be used as a basis for further research. The following figure 1 presents a conceptual mapping developed from a systematic literature review, highlighting key factors that influence Customer Purchase Intention in AI-Powered E-Commerce. Each construct is shown as a box, with its size proportionally reflecting the number of supporting references found in the reviewed studies. The more frequently a construct appears in the literature, the larger its box. They indicate a stronger empirical emphasis and a higher level of influence on customer purchase intention. Specifically, Perceived Usefulness and Perceived Enjoyment are the most frequently cited constructs, suggesting that both exert the strongest influence on customer purchase decisions in AI-powered e-commerce settings. In addition, Artificial Intelligence Technology, Consumer Engagement, Interactivity, and Information Quality also emerge as notable factors that contribute significantly to shaping customer behavior. This visual synthesis helps clarify both the theoretical diversity and the relative prominence of constructs in the current body of scholarly research.

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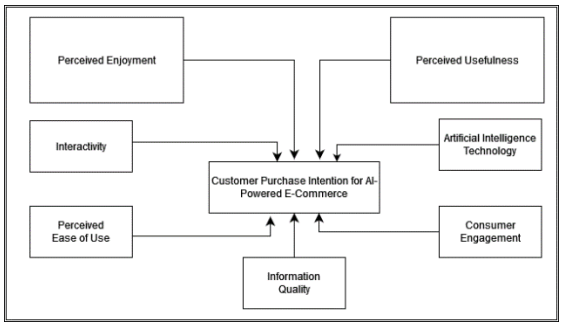

Fig. 1. A framework model about factors influencing customer purchase decisions in online shopping powered by AI (Source: Created By Author)

From Figure 1, it can be observed that while Table 3 and Figure 1 illustrate the frequency of each factor, a deeper critical synthesis is required to understand why Perceived Usefulness (PU) and Perceived Enjoyment (PE) emerge as the most dominant constructs in AI-powered e-commerce. PU reflects consumers' rational assessment of how AI enhances shopping efficiency, personalization, and decision accuracy. In the context of AI-powered chatbots and recommendation systems, PU is amplified because these technologies reduce search time, provide tailored suggestions, and simplify complex purchase decisions. PE, on the other hand, captures the hedonic and emotional value derived from interacting with AI, such as fun, curiosity, and immersion, which is particularly salient in conversational and interactive AI interfaces. The simultaneous dominance of both PU and PE suggests a paradigmatic shift from purely transactional systems to experience-based systems. Traditional e-commerce platforms focused primarily on utilitarian value (e.g., low price, fast checkout). However, AI enables interactive, conversational, and emotionally engaging experiences. Therefore, future AI design should not only optimize functional performance but also foster enjoyable interactions to maximize consumer engagement.

While the previous analysis highlights the most dominant factors, a higher-level perspective reveals that these constructs can be organized into five major dimensions.

(1) The cognitive dimension comprises perceived usefulness and perceived ease of use, reflecting users' rational evaluation of AI systems.

(2) The affective dimension captures hedonic and emotional responses, including perceived enjoyment, consumer engagement, emotional engagement, consumer experience, and social presence.

(3) The technological dimension represents AI-specific characteristics, such as artificial intelligence technology, perceived intelligence, anthropomorphism, interactivity, customization, innovativeness, and communication competence, highlighting the functional and interactive capabilities of AI systems.

(4) The information-related dimension encompasses information quality, information credibility, and perceived quality. Although perceived quality is an important determinant of customer behavior, its relationship with artificial intelligence technology is not direct. Instead, perceived quality can be understood as an outcome shaped by intermediate factors, particularly information quality, interactivity, and personalization, which are enhanced by AI capabilities.

(5) The trust and risk dimension reflects users' confidence and uncertainty in AI-driven environments, including trust and perceived risk.

Furthermore, social presence can be viewed as a bridging construct between technological and affective dimensions, as it reflects how features such as interactivity and anthropomorphism are translated into perceived human-like interaction and emotional experience. Building on this integrated perspective, by systematically identifying the key influencing factors, this study not only clarifies the determinants of customer purchase intention but also provides actionable insights for practitioners regarding which aspects of AI-powered systems should be prioritized and enhanced.

3.3. Information Systems Theory Used in the AI-Powered E-Commerce Purchase Intention

In this section, the information systems theories applied in the context of AI-powered e-commerce purchase intention are elaborated. These include theories used independently, as well as those extended or incorporated with other relevant theoretical frameworks.

1. Complexity Theory

A set of factors, namely trendiness, interaction, satisfaction, entertainment, and communication competence, exert influence on solo travelers' purchase intentions when using AI chatbots. According to [5], their relationships are intricate and non-linear, as illustrated through the application of complexity theory.

2. SOR Theory

In [6], the SOR theory is applied to understand how AI technology acts as a stimulus that influences both consumer engagement on social media and conversion rate optimization (the organisms), which in turn affect behavioral responses, such as satisfying consumer experience and ultimately repurchase intentions. In [18], SOR theory is also applied to examine the impact of AI service quality performance on online impulse buying in the context of e-retailing. SOR and Cognitive Consistency Theory are combined to explore how AI-driven interactions affect consumer behavior in online travel services as presented in [15].

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3. Technology Acceptance Model (TAM)

TAM is used in [14] to explore consumer behavior regarding AI chatbots in the context of green marketing for electric vehicles in China. TAM is implemented in [21] to explore how consumers accept AI technology in the fashion industry, specifically focusing on the Echo Look fashion AI product. TAM, which has been extended by incorporating attitudes toward technology and innovativeness, is discussed in [27] to explore impulse purchase intentions in an AI-mediated retail environment. TAM is incorporated with Diffusion of Innovation (DOI) Theory for exploring how Embedded AI Mobile Smart Speech Recognition (MSSR) influences consumer purchase intentions in fashion retail [22]. TAM is implemented with the Elaboration Likelihood Model (ELM) to investigate how AI-powered chatbots influence customer purchase intentions in a retail context [17].

4. Social Support Theory

Social support theory is employed to explore how AI technology affects consumer purchase intentions through social media engagement and consumer experience [25].

5. Media-Richness Theory (MRT)

MRT is utilized in [30] to explore how perceived anthropomorphism influences consumer purchase intentions through Artificial Intelligence (AI). MRT is frequently used to assess how effective communication channels are in conveying rich information and reducing uncertainty. In this context, MRT is applied to explain how anthropomorphized products can enhance communication experience, ultimately impacting consumer purchase intentions.

6. Schema Congruity Theory, Processing Fluency Theory, and Uncertainty Reduction Theory (URT)

Integration of these three theories is employed to examine how AI chatbots versus human customer service agents influence consumers' purchase intentions in online retail [19].

7. Engel-Kollat-Blackwell (EKB)

This model is used to analyze how AI-powered digital technologies influence Instagram users' purchase decisions in the apparel and fashion industry [24].

8.Technology Readiness and Acceptance Model (TRAM)

TRAM is implemented to study the shopping intentions of consumers at AI-Powered Automated Retail Stores (AIPARS) [26].

To provide a more structured overview of these theoretical foundations, Table 4 below summarizes the key Information Systems (IS) theories identified in the reviewed literature, mapping each theory to the main variables in the context of AI-powered e-commerce.

Table 4. Mapping of IS Theories and Key Variables

Theory	Key Variables
Technology Acceptance Model (TAM)	Perceived Usefulness, Perceived Ease of Use, Attitude, Intention
Stimulus-Organism-Response (SOR)	AI Technology (Stimulus), Engagement/Experience (Organism), Purchase Intention (Response)
Elaboration Likelihood Model (ELM)	Central cues (information quality), Peripheral cues (credibility, source attractiveness)
Media Richness Theory (MRT)	Anthropomorphism, Perceived Intelligence, Social Presence
Unified Theory of Acceptance and Use of Technology (UTAUT/UTAUT2)	Performance expectancy, Effort expectancy, Social influence, Hedonic motivation

Based on the essence of each theory summarized in Table 4 above, no single theory is fully robust in the AI e-commerce context. TAM and SOR are the most frequently used, but each have limitations: TAM focuses primarily on cognitive and utilitarian factors (perceived usefulness, ease of use) but ignores affective and technological dimensions (e.g., enjoyment, anthropomorphism, perceived intelligence). Conversely, SOR provides a flexible framework but it does not inherently specify which constructs should serve as the stimulus, organism, or response in AI-powered e-commerce, leaving information-related and trust-related constructs underexplored. Theories like MRT and ELM are promising but underexplored. Therefore, future research should develop hybrid models that integrate constructs across the five dimensions identified in this review (cognitive, affective, technological, information-related, trust and risk). This is especially urgent given the rapid evolution of generative AI and emotionally intelligent agents.

3.4. Directions For The Future Research

In addition to the research findings presented in the papers listed in the table above, there are several papers that mention the limitations of their studies, specifically the need to consider additional factors for further research [6], [24], [26], [27], [28]. This underscores the necessity of elaborating on the factors influencing the topic in several papers discussing it. Some papers recommend considering cross-cultural aspects or conducting research that considers the respondents' regional backgrounds, as these might yield different influences [5], [6], [24], [26], [27], [25], [23], [15]. This highlights the need to incorporate cultural elements into future research. One study that incorporates cultural aspects into technology acceptance frameworks is [33], which presents a meta-analysis of Hofstede's [34]

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cultural dimensions, showing that culture plays a role in technology adoption and significantly influences relationships within these models. This perspective is supported by [35], which, through a cross-cultural analysis of online consumers in Colombia and Spain, demonstrates that national culture significantly moderates relationships within e-commerce adoption models and influences behaviors such as impulsive buying and purchase intention. In addition, evidence from [36] shows that cultural differences affect key determinants that ultimately influence online purchase intention and behavior, with varying effects observed between European and Asian consumers.

4. Conclusion

In conclusion, this paper highlights AI's critical role in shaping online purchase decisions. Perceived enjoyment and perceived usefulness emerge as key factors, emphasizing the need for AI systems that are functional, user-friendly, and personalized. Beyond individual factors, this study organizes the identified constructs into five dimensions: cognitive, affective, technological, information-related, and trust and risk, offering a more comprehensive framework for understanding AI-driven consumer behavior. The frequent adoption of SOR and TAM in existing studies underscores their centrality, while other theories appear less prominent. Future research should explore these factors across different cultural contexts and demographics and empirically validate frameworks using survey-based SEM-PLS or qualitative approaches. Practically, the dominance of perceived usefulness and enjoyment suggests that chatbots should combine task efficiency (quick replies, menus) with hedonic elements (animations, emojis, gamification), while recommendation systems should leverage context-aware suggestions, transparent explanations, serendipitous recommendations, and interactive discovery modes. In essence, this paper bridges individual psychological factors with a multi-dimensional framework, offering both theoretical integration and practical design directions for AI-driven e-commerce.

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