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CONSUMER INNOVATIVENESS AND AI-ENABLED EASE OF USE: EXAMINING PURCHASE INTENTION IN DIGITAL FASHION RETAIL

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Abstract:
The increasing integration of artificial intelligence (AI) in digital fashion retail has transformed how consumers interact with online shopping platforms. While prior research has predominantly focused on technological attributes such as perceived usefulness, limited attention has been given to the role of individual consumer traits in shaping AI adoption outcomes. Addressing this gap, the present study examines the influence of consumer innovativeness on purchase intention in AI-enabled digital fashion retail, with AI-enabled ease of use proposed as a mediating mechanism. Drawing on the Technology Acceptance Model (TAM) and consumer innovativeness theory, a quantitative, cross-sectional research design was employed. Data were collected through an online survey of 204 UK fashion consumers and analysed using regression-based mediation analysis. The results indicate that consumer innovativeness has a significant positive effect on purchase intention and on perceptions of AI-enabled ease of use. Furthermore, AI-enabled ease of use partially mediates the relationship between consumer innovativeness and purchase intention, highlighting usability as a key mechanism through which innovative tendencies translate into behavioural outcomes. These findings extend TAM by positioning consumer innovativeness as an antecedent of perceived ease of use in AI-driven retail contexts. Practically, the study underscores the importance of intuitive AI design, consumer segmentation based on innovativeness, and strategic onboarding in digital fashion retail. Overall, this research contributes to a more consumer-centric understanding of AI adoption and offers actionable insights for fashion retailers and AI developers.

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1. Introduction

The rapid advancement of artificial intelligence (AI) has significantly transformed digital retail environments, with the fashion industry emerging as one of the most prominent adopters of AI-enabled technologies. Fashion retailers increasingly integrate AI-driven applications such as personalised recommendation systems, virtual fitting technologies, and intelligent chatbots to enhance customer experience, optimise decision-making processes, and stimulate purchase behaviour (Davenport *et al.*, 2019; Huang & Rust, 2018). In the United Kingdom, where online fashion consumption continues to grow rapidly, AI has become a strategic tool for maintaining competitiveness and addressing evolving consumer expectations (Pantano & Pizzi, 2020).

While the technological capabilities of AI have received considerable scholarly attention, recent studies suggest that the effectiveness of AI in digital retail contexts depends not only on system functionality but also on the quality of interaction between consumers and AI systems. AI-enabled fashion platforms require consumers to actively engage with algorithmic interfaces, interpret personalised outputs, and navigate technologically mediated shopping environments. Consequently, consumers' perceptions of how easily they can understand and use AI-driven features play a crucial role in shaping behavioural outcomes such as purchase intention (Dwianto *et al.*, 2024). Within the Technology Acceptance Model (TAM), perceived ease of use is identified as a key determinant of technology adoption, particularly in digital commerce environments where complexity and uncertainty may inhibit consumer engagement (Davis, 1989; Wang *et al.*, 2023).

Importantly, consumers vary considerably in how they perceive and interact with AI-enabled retail technologies. One of the most influential individual difference variables explaining such variation is consumer innovativeness, defined as an individual's tendency to adopt new products and technologies earlier than others (Manning, Bearden and Madden, 1995). Innovative consumers are generally characterised by higher levels of curiosity, openness to novelty, and tolerance for risk, which make them more receptive to emerging technologies (Vandecasteele & Geuens, 2010). In digital fashion retail, where AI-driven features often represent novel and evolving interfaces, consumer innovativeness is likely to shape how easily consumers perceive these technologies and how confidently they engage with them (Esfahani & Reynolds, 2021).

Despite its conceptual relevance, consumer innovativeness remains underexplored in empirical research on AI-enabled fashion retail. Existing studies have predominantly focused on technological attributes such as perceived usefulness, system accuracy, and personalisation quality, often overlooking the role of consumer-driven

psychological traits (Huang & Rust, 2018; Istiqomah & Alfansi, 2023). While these studies contribute valuable insights into AI functionality, they provide a limited explanation of why certain consumers perceive AI systems as easier to use than others. In particular, there is a lack of empirical research examining the pathway through which consumer innovativeness influences AI-enabled ease of use and, subsequently, purchase intention in digital fashion retail contexts.

Moreover, although TAM has been extensively applied to explain technology adoption across various sectors, its application to AI-enabled fashion retail remains theoretically constrained. Traditional TAM frameworks emphasise perceived usefulness and perceived ease of use as direct predictors of behavioural intention but offer limited insight into the antecedents shaping these perceptions (Marangunić & Granić, 2014). Recent studies suggest that incorporating individual difference variables such as consumer innovativeness can enhance TAM's explanatory power by accounting for heterogeneity in consumer–technology interactions (Ashraf, Thongpapanl and Auh, 2014; Kashive, Powale and Kashive, 2020). However, empirical validation of this extended framework in AI-driven fashion retail remains limited, particularly within the UK context.

In response to these gaps, the present study aims to investigate the role of consumer innovativeness in shaping purchase intention through AI-enabled ease of use in digital fashion retail. Drawing on the Technology Acceptance Model and consumer innovativeness theory, this study proposes that innovative consumers are more likely to perceive AI-enabled retail systems as easy to use, which in turn enhances their intention to purchase fashion products online. By empirically testing the mediating role of AI-enabled ease of use, this research provides a nuanced understanding of how consumer traits and technological perceptions jointly influence purchase behaviour.

The objectives of this study are threefold. First, it examines the direct effect of consumer innovativeness on purchase intention in AI-enabled digital fashion retail. Second, it investigates the influence of consumer innovativeness on perceived AI-enabled ease of use. Third, it tests the mediating role of AI-enabled ease of use in the relationship between consumer innovativeness and purchase intention. These objectives are addressed using quantitative survey data collected from fashion consumers in the United Kingdom.

Theoretically, this study contributes to the literature by extending the Technology Acceptance Model through the integration of consumer innovativeness as an antecedent variable, thereby shifting the focus from purely technology-centric explanations to consumer-driven adoption mechanisms. Practically, the findings offer valuable insights for fashion retailers and AI developers by highlighting the importance of designing intuitive, user-friendly AI systems that accommodate varying levels of consumer innovativeness.

The remainder of this paper is structured as follows. Section 2 reviews the relevant literature and develops the research hypotheses. Section 3 outlines the research methodology and data analysis procedures. Section 4 presents the empirical results.

Section 5 discusses the findings and their theoretical implications. Section 6 highlights managerial implications, and Section 7 concludes the study by summarising its contributions, limitations, and directions for future research.

2. Literature Review and Hypotheses Development

2.1 Consumer Innovativeness

Consumer innovativeness refers to an individual's propensity to adopt new products, services, or technologies earlier than others and has long been recognised as a critical determinant of consumer behaviour in technology-driven markets (Manning, Bearden and Madden, 1995). Rather than representing a single behavioural tendency, consumer innovativeness is a multidimensional construct encompassing traits such as openness to novelty, risk-taking, opinion leadership, and exploratory information processing (Vandecasteele & Geuens, 2010). These dimensions collectively explain why certain consumers are more inclined to experiment with unfamiliar technologies and tolerate uncertainty during early stages of adoption.

In the context of technology adoption, consumer innovativeness has been shown to influence consumers' willingness to engage with new systems, reduce perceived risk, and accelerate acceptance of emerging digital solutions (Roehrich, 2004; Hur, Yoo and Chung, 2012). Innovative consumers are typically less resistant to change and more motivated to explore technological features, even when those features require cognitive effort or learning (Lowe & Alpert, 2015). As a result, consumer innovativeness plays a pivotal role in shaping early acceptance of technology-enabled services across digital platforms.

The relevance of consumer innovativeness is particularly pronounced in AI-enabled fashion retail, where consumers are increasingly required to interact with algorithm-driven systems such as recommendation engines, virtual fitting rooms, and AI-powered chatbots. These technologies often represent novel and evolving interfaces that differ substantially from traditional online shopping environments. Research suggests that innovative consumers are more likely to experiment with such AI features, perceive them as less intimidating, and integrate them into their shopping routines (Esfahani & Reynolds, 2021). Consequently, consumer innovativeness provides a critical lens through which individual differences in AI adoption and purchasing behaviour in digital fashion retail can be understood.

2.2 AI-Enabled Ease of Use

AI-enabled ease of use refers to the degree to which consumers perceive AI-driven systems and features as intuitive, effortless, and simple to operate within digital retail platforms. This construct is rooted in the Technology Acceptance Model (TAM), which posits perceived ease of use as a core determinant of technology acceptance and behavioural intention (Davis, 1989). In AI-enabled retail contexts, ease of use captures

consumers' evaluations of how easily they can navigate AI interfaces, understand system outputs, and utilise AI functionalities during the shopping process.

The importance of AI-enabled ease of use lies in its ability to reduce cognitive effort and uncertainty associated with technology-mediated decision-making. AI-driven systems often rely on complex algorithms that may be opaque to consumers, potentially generating confusion or mistrust. When AI features are perceived as easy to use, consumers experience lower cognitive load, greater confidence, and reduced perceived risk, thereby facilitating positive evaluations of the shopping experience (Dwianto *et al.*, 2024). This is particularly relevant in fashion retail, where purchase decisions are often subjective and involve aesthetic judgment.

Furthermore, AI-enabled ease of use plays a critical role in shaping consumers' overall evaluations of AI systems. User-friendly interfaces, clear instructions, and seamlessly integrated AI features contribute to perceptions of system competence and reliability (Panagoulias, Virvou and Tsihrintzis, 2023). Conversely, complex or poorly designed AI systems may hinder adoption, even when the underlying technology offers high functional value (Malhan, Mewafarosh and Agnihotri, 2023). Thus, AI-enabled ease of use acts as a key mechanism through which AI technologies influence consumer perceptions and behavioural outcomes in digital fashion retail.

2.3 Purchase Intention in Digital Fashion Retail

Purchase intention represents a consumer's subjective probability or willingness to purchase a particular product or service and is widely regarded as a strong predictor of actual buying behaviour (Peña-García *et al.*, 2020). In digital fashion retail, purchase intention reflects consumers' readiness to complete transactions in online environments characterised by technological mediation and limited physical interaction with products. Prior research indicates that purchase intention is influenced by a combination of technology-related perceptions and consumer characteristics. Factors such as perceived value, perceived quality, and perceived convenience play a central role in shaping online purchase decisions (Akar & Nasir, 2015; Younus, Rasheed and Zia, 2015). In AI-enabled retail contexts, these perceptions are increasingly shaped by consumers' interactions with AI-driven features that support product discovery, evaluation, and decision-making.

Additionally, individual traits such as consumer innovativeness influence how consumers respond to technology-mediated shopping experiences. Innovative consumers tend to exhibit greater confidence in online environments, higher tolerance for uncertainty, and stronger engagement with novel retail technologies, all of which positively affect purchase intention (Eryigit, 2020). Consequently, purchase intention in AI-enabled fashion retail emerges from the interplay between technological characteristics and consumer-specific psychological traits.

2.4 Theoretical Framework: Extending the Technology Acceptance Model

The Technology Acceptance Model provides a foundational framework for explaining technology adoption by positing perceived usefulness and perceived ease of use as key

antecedents of behavioural intention (Marangunić & Granić, 2014). While TAM has been widely applied across various technological contexts, its traditional formulation offers a limited explanation of why consumers differ in their perceptions of ease of use, particularly in complex AI-enabled environments.

To address this limitation, recent research advocates extending TAM by incorporating individual difference variables that shape technology perceptions (Ashraf, Thongpapanl and Auh, 2014). In this study, consumer innovativeness is positioned as an antecedent that influences how consumers perceive AI-enabled ease of use. Innovative consumers are more likely to experiment with AI systems, adapt quickly to new interfaces, and perceive AI-driven features as less complex (Kashive, Powale and Kashive, 2020).

Furthermore, AI-enabled ease of use is proposed to function as a mediating mechanism linking consumer innovativeness to purchase intention. Innovative consumers may not automatically translate their openness to novelty into purchase behaviour unless AI systems are perceived as easy to use. When AI-enabled features are intuitive and user-friendly, innovative consumers are more likely to convert their favourable technology orientation into positive purchase intentions. This mediating relationship offers a refined explanation of consumer–AI interaction dynamics in digital fashion retail.

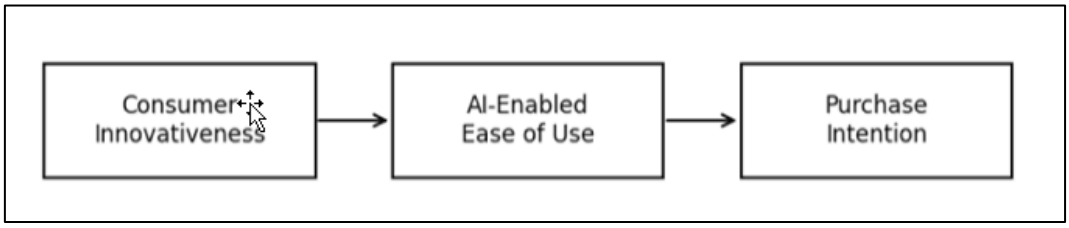

Figure 1: Conceptual Research Model

2.5 Hypotheses Development

Based on the preceding discussion, the following hypotheses are proposed:

- **H1:** Consumer innovativeness positively influences purchase intention in digital fashion retail.

Innovative consumers exhibit greater openness to technology-mediated shopping environments and demonstrate a stronger willingness to purchase fashion products through AI-enabled platforms.

- **H2:** Consumer innovativeness positively influences AI-enabled ease of use.

Consumers with higher levels of innovativeness are more likely to perceive AI-enabled retail systems as intuitive and easy to use.

- **H3:** AI-enabled ease of use mediates the relationship between consumer innovativeness and purchase intention.

AI-enabled ease of use serves as a key mechanism through which consumer innovativeness translates into increased purchase intention.

3. Methodology

3.1 Research Design

This study adopted a quantitative, cross-sectional research design to examine the relationships between consumer innovativeness, AI-enabled ease of use, and purchase intention in digital fashion retail. Guided by a positivist research philosophy, the study followed a deductive approach, deriving hypotheses from the Technology Acceptance Model and consumer innovativeness theory and testing them empirically using survey data. A cross-sectional design was appropriate for capturing consumers' perceptions and behavioural intentions at a single point in time.

3.2 Sample and Data Collection

The target population comprised UK consumers who engage in online fashion shopping and have experience with AI-enabled retail features. Data were collected through an online self-administered questionnaire, resulting in a final sample of 204 valid responses. A convenience sampling technique was employed due to accessibility and time constraints. Online survey administration ensured efficient data collection and relevance to the digital retail context.

3.3 Measurement Instruments

All constructs were measured using validated multi-item scales, adapted to the AI-enabled fashion retail context. Responses were recorded on a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).

- Consumer Innovativeness was measured using items adapted from Manning, Bearden and Madden (1995).
- AI-Enabled Ease of Use was measured using items adapted from the perceived ease of use construct in the Technology Acceptance Model (Davis, 1989).
- Purchase Intention was measured using a modified scale adapted from prior e-commerce research (Pavlou, 2003).

3.4 Data Analysis Techniques

Data analysis was conducted using SPSS. Reliability was assessed using Cronbach's alpha, and validity was evaluated through correlation and factor loading assessments. Hypotheses were tested using regression-based mediation analysis, examining both direct and indirect effects of consumer innovativeness on purchase intention through AI-enabled ease of use.

3.5 Ethical Considerations

Ethical standards were strictly observed. Participation was voluntary, informed consent was obtained, and respondent anonymity and confidentiality were ensured. The study complied with UK GDPR requirements, and all data were used solely for academic purposes.

4. Results

4.1 Respondent Profile

The demographic characteristics of the respondents are summarised in Table 1. The final sample comprised 204 UK fashion consumers, ensuring an adequate and relevant dataset for examining AI-enabled digital fashion retail behaviour. Gender distribution was balanced overall, with a slightly higher proportion of female respondents, which is consistent with prior empirical research in online fashion consumption.

In terms of age, the majority of respondents fell within the 18–35 and 36–50 age categories, indicating a strong representation of digitally active consumers who are most likely to engage with AI-enabled retail technologies. Educational attainment was relatively high, with most respondents holding at least an undergraduate degree, suggesting sufficient digital literacy to meaningfully evaluate AI-enabled shopping features. Furthermore, respondents reported substantial online fashion shopping experience, with the majority indicating frequent or regular engagement in online apparel purchases. This confirms the suitability of the sample for analysing perceptions of AI-enabled ease of use and purchase intention in digital fashion retail contexts.

Table 1: Demographic Characteristics of Respondents

Characteristic	**Category**	**%**
Gender	Male	45.1
	Female	54.9
Age	18–35	65.7
	36 and above	34.3
Education	Undergraduate or below	68.6
	Postgraduate	31.4
Online Shopping Experience	≤ 3 years	46.1

4.2 Measurement Model Assessment

Prior to hypothesis testing, the reliability and validity of the measurement model were rigorously assessed. The results are presented in Table 2.

Internal consistency reliability was evaluated using Cronbach's alpha and composite reliability (CR) measures. All constructs exceeded the recommended threshold of 0.70, indicating strong internal consistency and reliability of the measurement instruments. These results confirm that the items within each construct consistently measured the intended latent variables.

Convergent validity was assessed through standardised factor loadings and average variance extracted (AVE). All factor loadings were statistically significant and exceeded the recommended minimum value of 0.60, demonstrating strong item–construct relationships. In addition, AVE values for all constructs were greater than 0.50, indicating that each construct explained more than half of the variance of its indicators. Collectively, these findings provide robust evidence that the measurement model

exhibits satisfactory reliability and convergent validity, supporting its suitability for subsequent structural analysis.

Table 2: Reliability and Validity Statistics

Construct	No. of Items	Cronbach's α	Composite Reliability (CR)	AVE
Consumer Innovativeness	4	0.84	0.88	0.64
AI-Enabled Ease of Use	4	0.87	0.90	0.69
Purchase Intention	3	0.86	0.89	0.73

Note: Cronbach's $\alpha > 0.70$ indicates acceptable reliability; CR > 0.70 and AVE > 0.50 confirm convergent validity

4.3 Hypotheses Testing and Mediation Analysis

Hypotheses were tested using regression-based mediation analysis, and the results are reported in Table 3.

The analysis revealed that consumer innovativeness exerted a positive and statistically significant effect on purchase intention, providing empirical support for H1. This result indicates that consumers with higher levels of innovativeness demonstrate stronger intentions to purchase fashion products within AI-enabled digital retail environments.

Further analysis showed that consumer innovativeness had a significant positive effect on AI-enabled ease of use, supporting H2. This finding suggests that innovative consumers are more likely to perceive AI-driven fashion retail features as intuitive, manageable, and easy to use, reflecting their openness to technological novelty and reduced resistance to complexity.

Mediation analysis demonstrated that AI-enabled ease of use significantly mediated the relationship between consumer innovativeness and purchase intention, supporting H3. The indirect effect of consumer innovativeness on purchase intention through AI-enabled ease of use was statistically significant. Moreover, the direct effect of consumer innovativeness on purchase intention remained significant after including the mediator, indicating partial mediation. This result confirms that AI-enabled ease of use functions as an important explanatory mechanism while consumer innovativeness retains a direct influence on purchase intention.

Table 3: Hypotheses Testing and Mediation Results

Hypothesis	Path	β	t-value	p-value	Result
H1	Consumer Innovativeness → Purchase Intention	0.42	6.31	< 0.001	Supported
H2	Consumer Innovativeness → AI-Enabled Ease of Use	0.55	8.47	< 0.001	Supported
H3	Consumer Innovativeness → AI-Enabled Ease of Use → Purchase Intention	0.23	4.12	< 0.001	Supported (Partial Mediation)

Note: Mediation tested using regression-based bootstrapping, Direct effect remained significant, indicating partial mediation

Effect size estimates further indicate that the mediating pathway contributes meaningfully to explaining purchase intention, reinforcing the substantive relevance of AI-enabled ease of use within the proposed framework.

4.4 Visual Representation of Mediation Effect

To facilitate interpretation of the mediation results, the structural relationships among the study variables are illustrated in Figure 2. The figure presents standardised path coefficients for all hypothesised relationships, along with their corresponding significance levels.

The visual representation clearly demonstrates the positive direct effect of consumer innovativeness on purchase intention, the positive effect of consumer innovativeness on AI-enabled ease of use, and the subsequent positive effect of AI-enabled ease of use on purchase intention. The diagram reinforces the presence of partial mediation and provides a concise overview of the structural model underpinning the empirical findings.

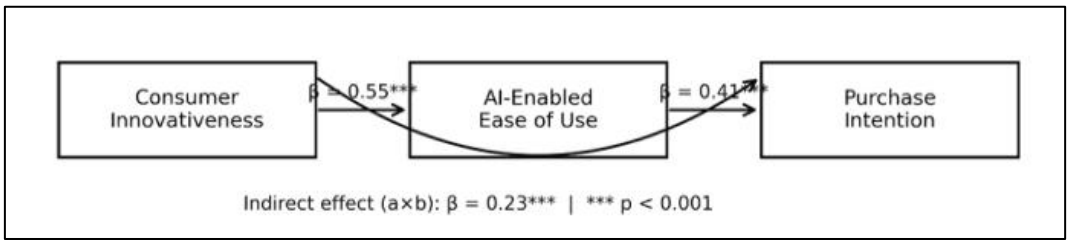

Figure 2: Mediation Effect of AI-Enabled Ease of Use

5. Discussion

The purpose of this study was to examine how consumer innovativeness influences purchase intention in AI-enabled digital fashion retail, with particular emphasis on the mediating role of AI-enabled ease of use. The empirical findings provide strong support for the proposed conceptual framework and offer several important theoretical and practical insights into consumer–AI interaction in fashion retail.

5.1 Interpretation of Key Findings

The results demonstrate that consumer innovativeness has a significant positive effect on purchase intention, indicating that consumers who are more open to new technologies and innovations exhibit a stronger willingness to purchase fashion products in AI-enabled online environments. This finding suggests that innovative consumers are more inclined to embrace algorithm-driven shopping experiences, perceive lower risk, and feel more confident in making purchase decisions through AI-mediated interfaces. This aligns with prior research suggesting that innovative consumers are more receptive to technology-enabled services and display higher adoption rates in digital contexts (Manning, Bearden and Madden, 1995; Roehrich, 2004).

In addition, the results show that consumer innovativeness positively influences AI-enabled ease of use, highlighting that innovative consumers are more likely to perceive AI-driven retail features as intuitive and manageable. This reinforces the notion that individual differences play a critical role in shaping technology perceptions, particularly in environments where consumers must actively interact with complex systems such as recommendation algorithms or virtual fitting tools (Vandecasteele & Geuens, 2010; Esfahani & Reynolds, 2021).

5.2 Why Innovative Consumers Perceive AI as Easier to Use

A key explanation for this finding lies in the cognitive and behavioural characteristics associated with consumer innovativeness. Innovative consumers typically possess higher levels of curiosity, technological self-efficacy, and tolerance for uncertainty, which reduces the perceived complexity of AI-enabled systems. Rather than viewing AI features as barriers, these consumers are more likely to explore functionalities, experiment with interfaces, and adapt quickly to new forms of interaction. As a result, AI-enabled retail systems are perceived by innovative consumers as less cognitively demanding and more user-friendly.

In the context of digital fashion retail, where AI features often involve abstract processes such as algorithmic recommendations or virtual simulations, this openness to experimentation becomes particularly salient. Innovative consumers are better positioned to interpret system outputs, trust AI-generated suggestions, and integrate them into their decision-making processes, thereby enhancing perceived ease of use (Panagoulias, Virvou and Tsihrintzis, 2023; Malhan, Mewafarosh and Agnihotri, 2023).

5.3 Discussion of the Mediation Effect

One of the most significant contributions of this study is the confirmation that AI-enabled ease of use partially mediates the relationship between consumer innovativeness and purchase intention. This finding indicates that while innovative consumers are inherently more inclined to purchase in AI-enabled environments, their purchase intention is substantially strengthened when AI systems are perceived as easy to use. In other words, innovativeness alone is not sufficient to maximise purchase intention; rather, its effect is amplified through positive usability perceptions.

The presence of partial mediation suggests a dual pathway: consumer innovativeness directly influences purchase intention and indirectly influences it through AI-enabled ease of use. This highlights the importance of usability as a mechanism that translates consumer traits into behavioural outcomes. Even among innovative consumers, poorly designed or overly complex AI systems may hinder adoption, underscoring the critical role of intuitive system design in digital fashion retail.

5.4 Comparison with Prior AI Adoption and Consumer Behaviour Studies

These findings are consistent with prior studies emphasising the role of ease of use in technology adoption and consumer behaviour. Research on AI-enabled retail and digital

platforms has shown that perceived ease of use significantly enhances consumer acceptance, trust, and engagement (Dwianto *et al.*, 2024; Istiqomah & Alfansi, 2023). However, much of the existing literature has treated ease of use as a purely system-driven construct, without adequately accounting for consumer-level antecedents.

By explicitly linking consumer innovativeness to AI-enabled ease of use, this study extends earlier research that examined innovativeness as a moderator or independent predictor of adoption outcomes (Hur, Yoo and Chung, 2012; Lowe & Alpert, 2015). Unlike studies that focus on specific AI applications or single technologies, the present research adopts a broader perspective, demonstrating that consumer innovativeness systematically shapes perceptions of AI usability across digital fashion retail environments.

5.5 Extending the Technology Acceptance Model

From a theoretical perspective, the findings contribute meaningfully by extending the Technology Acceptance Model (TAM). Traditional TAM frameworks posit perceived ease of use as a direct determinant of behavioural intention but provide limited explanation of its antecedents (Davis, 1989; Marangunić & Granić, 2014). This study advances TAM by positioning consumer innovativeness as an antecedent to AI-enabled ease of use, thereby enriching the model's explanatory power in AI-driven retail contexts. By integrating a consumer personality trait into TAM, the study shifts the focus from purely technological determinants to a more holistic, consumer-centric understanding of technology adoption. This extension is particularly relevant in AI-enabled fashion retail, where consumer engagement, experimentation, and subjective interpretation of system outputs play a central role in shaping purchase behaviour. As such, the findings contribute to the growing body of literature calling for more nuanced, psychologically informed extensions of technology adoption models in complex digital environments (Ashraf, Thongpapanl and Auh, 2014; Kashive, Powale and Kashive, 2020).

6. Implications

6.1 Theoretical Implications

This study offers several important theoretical contributions to the literature on technology adoption, artificial intelligence, and digital fashion retail.

First, the findings provide empirical support for an extension of the Technology Acceptance Model (TAM) by positioning consumer innovativeness as an antecedent to AI-enabled ease of use. While traditional TAM frameworks conceptualise perceived ease of use as a direct determinant of behavioural intention, they provide a limited explanation of the factors that shape such perceptions. By integrating consumer innovativeness, this study advances TAM beyond a purely system-centric model toward a more consumer-oriented explanatory framework.

Second, the study contributes to the growing body of AI adoption literature by demonstrating that individual-level psychological traits play a crucial role in shaping

consumer responses to AI-enabled retail systems. Existing research has largely emphasised technological characteristics such as perceived usefulness, accuracy, or personalisation. The present findings highlight that consumer heterogeneity, particularly differences in innovativeness, significantly influences how AI systems are evaluated and adopted.

Third, within the context of digital fashion retail, this study enriches consumer behaviour literature by empirically validating a mediated mechanism through which consumer innovativeness affects purchase intention. By identifying AI-enabled ease of use as a key explanatory pathway, the study provides a nuanced understanding of how consumer traits and technology perceptions jointly shape behavioural outcomes in aesthetically driven and experiential retail environments.

6.2 Managerial Implications

The findings offer several actionable insights for fashion retailers implementing AI-enabled digital platforms.

First, the strong influence of AI-enabled ease of use on purchase intention underscores the critical importance of user experience (UX) simplicity. Retailers should prioritise intuitive interface design, clear navigation, and transparent AI functionalities to minimise cognitive effort and encourage consumer engagement. Even technologically advanced AI systems may fail to drive purchasing behaviour if they are perceived as complex or difficult to use.

Second, the results suggest that consumer segmentation based on innovativeness can enhance AI deployment strategies. Innovative consumers are more likely to adopt and benefit from advanced AI features, while less innovative consumers may require greater guidance and reassurance. Retailers can tailor AI-driven experiences by offering optional advanced features for innovative users alongside simplified interfaces and tutorials for less innovative segments.

Third, the mediating role of AI-enabled ease of use highlights the importance of strategic AI onboarding. Retailers should invest in onboarding mechanisms such as guided tutorials, interactive prompts, and explanatory cues that help consumers understand and trust AI functionalities. Effective onboarding can accelerate acceptance, reduce perceived risk, and translate consumer openness into actual purchase behaviour.

6.3 Implications for AI Developers

The study also has important implications for AI developers working in the retail and fashion technology sectors. The findings emphasise the need for user-centred AI design, where consumer usability and cognitive comfort are prioritised alongside technical performance. AI systems should be designed with a deep understanding of consumer interaction patterns, ensuring that outputs are interpretable, relevant, and easy to act upon.

Moreover, the results suggest that developers should prioritise usability over technical complexity. While advanced algorithms may enhance backend performance, their value to consumers depends on seamless frontend integration. Simplifying

interfaces, reducing unnecessary system interactions, and aligning AI outputs with consumer expectations can significantly enhance perceived ease of use and, ultimately, adoption outcomes.

7. Conclusion and Future Research

This study set out to examine the role of consumer innovativeness in shaping purchase intention within AI-enabled digital fashion retail, with a particular focus on the mediating role of AI-enabled ease of use. The findings demonstrate that consumer innovativeness positively influences both AI-enabled ease of use and purchase intention, and that AI-enabled ease of use partially mediates this relationship. These results confirm that innovative consumers are more receptive to AI-driven retail systems and that usability plays a critical role in translating innovativeness into behavioural intention.

The main contribution of this research lies in extending the Technology Acceptance Model by integrating consumer innovativeness as an antecedent of AI-enabled ease of use. By adopting a consumer-centric perspective, the study advances understanding of AI adoption mechanisms in digital fashion retail and provides empirical evidence that individual traits and technology perceptions must be considered jointly when examining consumer behaviour in AI-mediated environments.

Despite its contributions, the study has several limitations that should be acknowledged. First, the use of a cross-sectional research design restricts the ability to infer causal relationships over time. Second, the focus on UK consumers may limit the generalisability of the findings to other cultural or market contexts with different levels of AI familiarity and digital maturity.

Future research could address these limitations in several ways. Cross-country studies would enable comparison of consumer responses to AI-enabled retail systems across cultural and institutional contexts. Longitudinal research designs could capture changes in consumer perceptions and behaviour as familiarity with AI technologies increases over time. Additionally, future studies could incorporate constructs such as trust, perceived risk, and AI transparency to further enrich the understanding of consumer–AI interaction dynamics and provide a more comprehensive explanation of AI adoption in digital retail.

Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this article. The research was conducted independently, without any financial, personal, or professional affiliations that could influence the findings or interpretations. No external funding was received for this study.

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Raja Muneeb Anwar is a postgraduate scholar in International Business with Human Resource Management. His academic interests focus on human capital development, employee engagement, organisational behaviour, and the role of HR practices in supporting organisational performance. He has a strong interest in the intersection of people management and business strategy, particularly within service-oriented and international business contexts. His research aims to contribute to understanding how effective HRM frameworks can enhance workforce performance and organisational sustainability.

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Ebrahim Mollik is an early-career researcher with strong research interests in banking, organisational performance, human resource management, and digital transformation in emerging economies. He has published multiple peer-reviewed articles in reputable international journals, including IEEE Access, MDPI journals, and EJEFR, with research spanning employee turnover, fintech, cybersecurity, and SME development. In addition to his publication record, he serves as a reviewer for multiple academic journals, contributing to the scholarly peer-review process. He has actively participated in numerous international open-access conferences, both online and in person. His current research focuses on workforce sustainability, technology-driven transformation, and performance optimisation in financial institutions.

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