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ARTICLE

Factors Influencing Consumer Acceptance of AI-powered Shopping Assistants: Evidence from Jumia Sierra Leone

Sulaiman Kamara [1], Saidu Koroma [2*], Abdul Caesar Fofanah [3]

[1] *Faculty of Economics and Business, Department of Business Administration, Cyprus International University, Nicosia, North Cyprus.*

[2] *Faculty of Business and Communication, Department of Business Administration and Management Accounting and Finance (BAMAF), Central University.*

[3] *Faculty of Business and Communication, Department of Business Administration and Management Accounting and Finance (BAMAF), Central University.*

[*]Corresponding author. Email: saidukoroma156@gmail.com

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Abstract

The National Innovation and Digital Strategy (2019–2029) of Sierra Leone emphasizes the application of technology to foster economic growth, improve service provision, and invigorate trade. This strategy emphasizes including digital tools in corporate framework and adherence to the United Nations E-Commerce and Digital Economy Principles. Despite adopting this strategy, the country still faced significant issues regarding implementing and adopting AI-powered tools to assist customers in shopping. This study explored factors influencing consumer acceptance of AI-powered shopping assistants in Sierra, with a significant focus on customers of Jumia Sierra Leone. Through the snowball sampling technique, the study collected data using Google Forms from 384 customers who have been using Jumia. The collected data was analyzed using the structural equation model (SEM) and bootstrapping method of AMOS software. The study found that the perceived usefulness of AI-powered shopping assistants had a positive and significant impact on behavior intention toward AI-powered shopping assistants. It was discovered that perceived ease of use of AI-powered shopping assistants had a negative and significant impact on behavior intention toward AI-powered shopping assistants. The results reveal that attitudes towards AI partially mediate the relationship between perceived usefulness, ease of use, and behavior intention toward AI-powered shopping assistants. Jumia should highlight the benefits of its AI-driven shopping assistants, enhancing the shopping experience and time efficiency and providing tailored recommendations.

Keywords: Attitude towards AI; Behavioural intention to use; Perceived ease of use; Perceived usefulness; Sierra Leone

1. INTRODUCTION

Digital tools, such as artificial intelligence (AI)- driven shopping assistants, utilize data analytics, natural language processing, and machine learning to transform online shopping [1]. These technologies improve the search and shopping experience by delivering personalized recommendations derived from user preferences and historical activity. Consumers can enhance search results to access more pertinent options and locate products more swiftly by employing voice, image, or natural language inquiries [2].

AI-powered virtual try-on features utilizing Augmented Reality (AR) are available alongside search functionalities [3]. These aspects aid buyers in recognizing things like furniture or apparel, diminishing uncertainty and enhancing confidence in their purchasing choices. AI shopping assistants offer real-time consumer support through chatbots, addressing questions on product availability, delivery, and returns while operating continuously to guarantee accessibility and convenience [4]. These assistants enhance and optimize the purchase experience by providing features such as secure payment processing, discount applications, and personalized recommendations.

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The growing application of AI in online shopping illustrates its capacity to revolutionize shopping by customizing interactions and enhancing the entire consumer experience [5]. Organizations utilize AI to improve search and personalization functions and assess consumer behavior and feedback. These insights enable organizations to refine their marketing strategy and product offerings. AI boosts security by detecting aberrant transaction activity, bolstering client confidence, and preventing fraud [6].

The effective use of AI in shopping depends on comprehending the aspects that affect consumer acceptability. Key motivators encompass the extent of personalization offered by AI-driven goods, perceived usefulness, and user-friendliness [7]. Moreover, fostering customer confidence requires transparency in the functioning of artificial intelligence systems and guarantees about data protection. Cultural and demographic characteristics influence acceptance levels, including age, technological ability, and previous experience with AI [8]. By resolving these difficulties, retailers might customize AI solutions to correspond with consumer preferences, ultimately improving engagement and loyalty.

Notwithstanding the benefits of AI, its extensive implementation in the retail sector is impeded. Data security, privacy, and the ethical implementation of AI remain substantial challenges [9]. Certain users may perceive AI products as intrusive or irritating if they lack user-friendliness, while others may express apprehension regarding the acquisition and use of their data. Implementing AI may provide difficulties for smaller firms due to the required financial resources and technological intricacies [10]. The widespread adoption is notably challenging because of cultural variances in consumer behavior and the inherent biases inside AI systems. Specific issues must be addressed to realize the potential of AI-powered retail shopping assistants.

Previous studies on AI-driven shopping assistants concentrated on the effects on business benefits, customer experiences, and technological functionalities [11-13]. However, there is a considerable gap in studies regarding the influence of perceived usefulness and usability on consumers' behavioral intentions to utilize AI-powered shopping assistants. While prior research has examined the use of AI in e-commerce, most studies have concentrated on data security, personalization, and trust [14,15]. There is limited understanding of the psychological and perceptual factors that affect consumers' willingness to interact with AI-powered shopping assistants.

Moreover, there are no studies on the mediation role of attitudes toward AI in the relationship between perceived usefulness, ease of use, and behavioral intention of AI-powered shopping assistants. Also, no studies have investigated the influence of consumers' positive or negative attitudes toward AI on the pathways from perceived usefulness to behavioral intention and from perceived ease of use to behavioral intention. Addressing these gaps will provide valuable information to organizations striving to improve the adoption and efficacy of AI-driven retail purchasing assistants and comprehend the psychological mechanisms that govern consumer behavior.

This study investigates the influence of perceived usefulness and ease of use on behavioral intention for AI-powered shopping assistants. It also addresses a critically important gap that has garnered minimal attention. By addressing these gaps, this study will explain the characteristics that affect consumers' inclination to utilize AI-powered shopping assistance.

The study contributes to the literature by exploring the impact of perceived usefulness and perceived ease of use of AI-powered shopping assistants on consumers' intentions to adopt them. These contributions are substantial as they offer a more thorough comprehension of consumer perceptions and utilization of artificial intelligence technologies in online shopping. This understanding is crucial for advancing AI systems that fulfil customer expectations and enhance acceptability and engagement. This research advances adoption models by emphasizing these links and provides significant insights for the academic and retail sectors.

This research contributes to the literature by examining the impact of the perceived usefulness and ease of use of AI-powered shopping assistants on Attitudes toward AI. These contributions are particularly crucial for comprehending the influence of attitudes on consumers' views of AI-powered goods, as they are a fundamental aspect of the adoption and engagement with new technology. The pertinent contribution provided in this study can guide the design and enhancement of AI systems, ensuring they align with consumer expectations and promote a more favorable perception of AI in retail settings.

The paper contributes to the literature by investigating the effect of consumers' Attitudes toward AI on their intention to adopt AI-powered shopping assistants. This contribution is crucial for advancing AI

systems that attract consumers, enhance their view of artificial intelligence, and promote its adoption in retail settings. In both academic and practical realms, it is beneficial for organizations that use AI systems to enhance consumer connections and bridge this gap.

The study contributes to the field by probing into the mediation role of Attitude towards AI in the relationship between perceived usefulness, perceived ease of use of AI-powered shopping assistants, and consumers' intention to adopt them. These contributions are substantial as they illustrate how customers' opinions of AI whether favourable or unfavourable affect their views on its usability and advantages, thus influencing their decision to utilize AI-powered shopping assistants. Addressing this knowledge gap would aid organizations striving to enhance consumer engagement in retail and deploy AI solutions to comprehend better the psychological mechanisms driving technology adoption.

This study is significant since it investigates the psychological elements that affect consumers' acceptance of AI-powered purchase assistants. It examines the relationships among views about AI, perceived usefulness, and ease of use to comprehend better how these elements influence consumer behavior toward AI acceptance. The findings from this study will advise retailers on the appropriate implementation of AI-powered products and elucidate the key factors affecting consumer choices. This study enhances the understanding of retail technology adoption by offering practical insights for optimizing AI systems to maximize engagement and enjoyment and enhance consumer interactions.

The paper is structured as indicated below: Section 2 encompasses the examination of existing literature and the formulation of hypotheses, whilst Section 3 delineates the data and variables used in this study. In Section 4, the findings and discussions are presented. Lastly, Section 5 presents a summary and conclusion derived from the results

2. Literature review

2.1. Theoretical perspective

The Technology Acceptance Model (TAM) offers a pragmatic framework for comprehending the acceptability of AI-driven shopping assistants and clarifies the psychological factors influencing consumer behavior. TAM posits that perceived usefulness and ease of use are the primary determinants of individuals' acceptance of new technologies [16]. In this context, perceived usefulness reflects consumers' views of AI-powered shopping assistants as improving their shopping experience by optimizing operations, offering crucial support during purchasing, and delivering personalized recommendations [17]. The perceived ease of use of these technologies highlights their simplicity, accessibility, and user-friendliness, hence diminishing the effort needed for interaction and rendering them more appealing to clients [18].

The attitude toward AI as a mediator between behavioral intention, perceived usefulness, and ease of use is a fundamental aspect of the TAM. Consumers are more inclined to value positive perceptions of AI-powered purchase assistants when they view them as practical and user-friendly [19]. This affects their readiness to adopt and utilize AI-driven purchasing assistants. Understanding this mediating role illustrates how customers' cognitive and emotional assessments of technology influence their behavioral intentions.

This study uses the TAM framework to analyze how these components interact to affect customer behavior. It emphasizes enterprises' importance in promoting user-cantered design and functionality to improve perceived effectiveness and usefulness. Resolving these concerns necessitates enhancing the possibility of adoption, consumer happiness, and cultivating positive attitudes. The TAM framework guarantees that the research examines the determinants of adoption from both a theoretical standpoint within technology acceptance literature and a practical viewpoint in e-commerce methodologies.

2.2. Hypothesis development

The influence of perceived usefulness and ease of use of AI-powered shopping assistants on behavioral intention to use AI-powered shopping assistants.

The intention to utilize AI-driven purchasing assistants is affected by perceived usefulness, as consumers are more likely to embrace technologies, they believe will improve their efficiency and enjoyment of the shopping experience [20]. A study by Hooda et al. [21] found that perceived usefulness significantly influences behavioral intention across various technology contexts. Similarly, studies on

mobile payment systems indicate that users experience satisfaction when they believe these technologies enhance transactional efficiency and convenience [22,23]. The findings suggest that customers prefer technologies that deliver significant value. Perceived usefulness is a crucial factor influencing their willingness to adopt AI-powered shopping assistants.

The perceived ease of use influences behavioral intention by diminishing the cognitive effort needed to engage with new technology [24]. Consumers are drawn to smart and user-friendly purchase assistants driven by AI. Hong et al. [25] found that user effort diminishes and accessibility improves through ease of use, lowering resistance to new technology. Furthermore, studies on e-commerce reveal that consumers favour systems that are easy to navigate [26,27]. The results demonstrate that clients' behavioral intentions can be directly improved by streamlining interactions with AI-driven purchasing assistants. Thus, usability emerges as a crucial factor in client acceptability.

H1a: Perceived usefulness of AI-powered shopping assistants had a positive and significant impact on behavioral intention to use AI-powered shopping assistants.

H1b: Perceived ease of use of AI-powered shopping assistants had a negative and significant impact on behavioral intention to use AI-powered shopping assistants.

The influence of perceived usefulness and ease of use of AI-powered shopping assistants on attitude towards AI.

Consumers' perceptions of AI-driven shopping assistants are influenced mainly by their perceived usefulness since most users see technology favourably when they believe it will aid in achieving their goals [28]. Yeh and Teng [29] found that attitudes toward new technologies are significantly affected by perceived usefulness, especially when users link them to improved performance. A study on smart home technologies revealed that persons who regarded the devices as advantageous held a more positive view of them [30]. The findings indicate favorable consumer sentiments are improved when AI-powered shopping assistants offer concrete advantages, like efficiency and personalization.

Reducing the effort needed to interact with AI-driven shopping assistants enhances their attractiveness and modifies perceptions, influencing attitudes [11]. Jo and Park [31] found that user-friendly technologies enhance enjoyment and diminish frustration, fostering positive attitudes by directly alleviating discomfort. Research on mobile applications provides further evidence that user attitudes are markedly improved by simple and intuitive designs [32]. Research indicates that the usableness and navigability of AI-driven purchase assistants improve customer perceptions and elevate their enthusiasm for embracing new technology [33].

H2b: Perceived usefulness of AI-powered shopping assistants had a positive and significant impact on attitudes toward AI.

H2b: Perceived ease of use of AI-powered shopping assistants had a negative and significant impact on attitudes toward AI.

The influence of attitude towards AI on behavioral intention to use AI-powered shopping assistants.

The inclination to utilize AI-powered shopping assistants is affected by positive attitudes, reflecting consumers' readiness to embrace technology and their favorable perceptions [34]. The theory of Planned Behavior (TPB) highlights the degree to which attitude affects behavioral intention, and a rise in positive attitudes leads to a heightened intention to act [35]. Research on social media technologies indicated that those expressing happiness with the platform were significantly more likely to become users [36]. The findings indicate that consumers are more inclined to use AI-powered shopping assistants when they positively perceive them.

Furthermore, attitudes are shaped by cognitive and emotional assessments, which impact consumer behavior [37]. Research on e-commerce platforms indicates that persons with positive perceptions of online purchases are more inclined to participate in and utilize these platforms [38]. This supports the concept that a favorable disposition towards AI-driven purchase assistants, through perceived value, satisfaction, or trust, may substantially affect behavioral intentions. Companies can enhance adoption by cultivating favorable consumer perceptions through effective design, transparency, and personalization, which is enabled by comprehending this connection [39].

H3: Attitude towards AI positively and significantly influences behavioral intention to use AI-powered shopping assistants

The mediation role of attitude towards AI in the relationship between perceived usefulness, ease of use, and behavioral intention to use AI-powered shopping assistants.

The impact of perceived benefits on customer intentions is amplified by positive attitudes toward A, which mediate the correlation between the intent to utilize AI-powered shopping assistants and perceived usefulness. Research on mobile learning devices indicates that attitudes influence the relationship between perceived efficacy and intention and discovered that positive attitudes enhance adoption intentions [40]. Rupp et al. [41] revealed that users with positive perceptions of the devices' usability exhibited more intent to utilize them. The results suggest that consumers who view AI-powered shopping assistants as advantageous are more likely to develop positive views, enhancing their willingness to use the technology.

Attitude is a crucial mediator in the correlation between perceived ease of use and behavioral intention. AI-driven purchase assistants embrace and foster favorable perceptions when consumers perceive them as user-friendly [28]. Research in online learning settings has shown that attitudes are significantly affected by ease of use, which subsequently moderates the influence on behavioral intention [42,43]. A study on self-service technology in retail by Kaushik and Rahman [44] revealed that user-friendly interfaces enhanced user attitudes, subsequently elevating adoption rates. The findings indicate that deploying simple and intuitive AI-driven purchase assistants can indirectly advance behavioral goals by cultivating a favorable consumer disposition.

H4a: Attitude toward AI positively and significantly mediates the relationship between perceived usefulness and behavior intention to use AI-powered shopping assistance.

H4b: Attitude toward AI positively and significantly mediates the relationship between perceived ease of use and behavioral intention to use AI-powered shopping assistance.

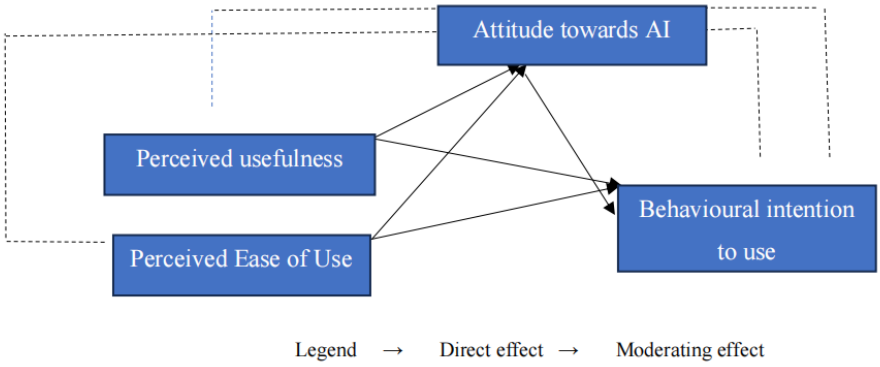

Figure 1. Conceptual Model [Source: composed by Authors]

3. Methodology

3.1. Data and sample

This study was undertaken in Sierra Leone, a nation currently undergoing a fast digital transition and witnessing a rising prevalence of e-commerce. The research supports Sierra Leone's National Innovation and Digital Strategy (2019–2029), which emphasizes the application of technology to foster economic growth, improve service provision, and invigorate trade [45]. This strategy highlights the government's dedication to promoting digital adoption, creating an optimal context for exploring the use of A-powered shopping assistants. The nation's initiatives to include digital tools within its corporate framework and adherence to the United Nations E-Commerce and Digital Economy Principles enhance its appropriateness for this research.

The study concentrated on Jumia Sierra Leone, a prominent e-commerce platform nationwide. Jumia's operations enable the procurement of items and services using technology, enhancing the digital economy [46]. Given their influence on online purchase behavior, this research is well-suited for investigating the capacity of AI-driven shopping assistants to enhance consumer experiences. Jumia's digital tools offer a significant framework for Sierra Leone's efforts to develop a strong e-commerce ecosystem, improving its collaborative initiatives.

The principal users of the platform and its digital innovations are the consumers of Jumia Sierra Leone, making them the specific target demographic of the study. Understanding the attitudes, actions, and views of individuals in Sierra Leone enables the identification of factors influencing the acceptance of AI in e-commerce. This consumer-focused guarantees that the outcomes are derived from actual experiences and can inform efforts to enhance the national adoption of e-commerce.

The researcher does not know the entire composition of Jumia Sierra Leone's customer base. Given an unspecified population size, the Cochran formula was utilized to ascertain the investigation's sample size. This method ensures reliable and broadly applicable outcomes by accurately estimating the necessary sample size when the population is indeterminate. The Cochran formula is expressed as follows:

$$n = \frac{Z^2}{4e^2}$$

"n" is the required sample size,
"Z" is the Z-score corresponding to the desired confidence level,
"e" is the desired margin of error.

$$n = \frac{1.96^2}{4(0.05)^2}$$
$$n = \frac{3.8416}{0.01}$$
$$n = 384$$

4. Sampling technique

The snowball sampling method was utilized to gather data from Jumia Sierra Leone's customers. The implementation of this strategy was driven by the inability to identify a complete customer roster. Initially, a limited selection of Jumia's customers was identified and invited to partake in the study. Information gathered through snowball sampling was cross-checked with customer data from Jumia to confirm that they belonged to the intended population. Subsequently, the same respondents were asked to identify more clients who had used Jumia's services. The referrals continued until the target sample size of 384 responses was achieved.

The questionnaires were designed using Google Forms and distributed electronically using email, WhatsApp, and social media, thus enhancing their reach. To maintain data integrity, all incomplete responses were excluded from the sample. New data was gathered to substitute the incomplete response to obtain the calculated sample size.

5. Measurement and scale

The study used 3 questions from Venkatesh et al. [47] to measure the customer's behavioral intention to accept using AI-powered shopping assistants. It also used 10 questions extracted from Davis [48] to measure the perceived usefulness and ease of use of AI-powered shopping assistants. The 20 questions on attitudes toward AI were extracted from Schepman and Rodway [49]. 12 of the questions measured positive attitudes toward using AI, and 8 measured negative attitudes.

Each question was rated using a five-point Likert scale oscillating from strongly agreed (5) to strongly disagreed (1). This rating scale enables customers to give their opinions of each question related to their experience using AI-powered shopping assistants.

6. Statistical tools for data analysis

The data underwent statistical analysis with AMOS (Analysis of Moment Structures). AMOS was selected for its specialized function in structural equation modelling (SEM), facilitating the analysis of complex relationships between latent and observable variables [50]. SEM is a suitable technique for assessing the suggested model and analyzing mediation effects in this study. AMOS is an optimal statistical tool for analyzing the data in this study because of its strong capabilities in model estimation, hypothesis testing, and model fit assessment [51].

7. Results and empirical findings

Table 1: Descriptive statistics

	Minimum	Maximum	Mean	Std. Deviation
Perceived usefulness of AI-powered shopping assistants	1	5	3.80	1.068
Perceived ease of use of AI-powered shopping assistants	1	5	3.75	1.304
Behavior intention to AI-powered shopping assistants	1	5	4.021	1.008
Attitudes towards AI	1	5	3.891	1.069

Table 1 presents the descriptive statistics analysis of the study variables. Based on the average perceived usefulness score, customers regard AI-powered shopping assistants as moderately beneficial for their requirements. This suggests that although customers recognize the usefulness of virtual assistants, there remains potential to enhance their features to boost user pleasure and adoption.

Based on the average perception of ease of use, users assessed the technology as relatively user-friendly yet not entirely intuitive. This underscores the imperative for improved support systems and intuitive interfaces to mitigate usability barriers. The average score for behavioral intention indicates that customers tend to utilize AI-driven purchasing assistants. This indicates that the technology is well-received and can enhance engagement and loyalty with appropriate deployment and promotion. The average score toward AI in the shopping setting indicates a predominantly favorable perspective. This suggests that cultivating trust and educating clients about AI's capabilities can enhance their adoption and utilization of these technologies.

8. Measurement model fitness assessment

Table 2 presents the constructs' measurement model (fitness assessment), convergent validity, and reliability. The results of the discriminant validity are presented in Table 3. The fitness assessment of the measurement model indicates that the data is adequately fitted. The CMIN/df value of 4.21 is acceptable for bigger samples within the recommended threshold of 3-5 [52]. The model fit is outstanding, demonstrated by an NFI score of 0.932, surpassing the 0.9 benchmark. The SRMS of 0.033 is far below the recommended value of 0.08, while the RMSEA of 0.001 demonstrates an exceptional fit, well below the standard threshold of 0.08 [53]. The results verify the validity and reliability of the research constructs, indicating that the measurement model appropriately reflects the observed data.

9. Validity assessment

The validity of the constructs was assessed through convergent and discriminant validity. Convergent validity evaluates the correspondence among the components of a construct [54] Convergent validity is confirmed when the standardized loadings of the items and the average variance extracted (AVE) surpass 0.5 [55]. The standardized loading of all the items under each construct is presented in Figure 1 (Measurement model). However, some items within the ease of use of AI-powered shopping assistants (PEASE9) and attitudes toward A1 (AITTU19) had standardized loading below the threshold of 0.50. They were deleted to ensure that items with higher validity were used for this study. The constructs show a substantial percentage of the variance in its components, as demonstrated by the higher standard loadings of 0.911, 0.921, and 0.931. The AVE for perceived usefulness is 0.582.

Discriminant validity guarantees that constructs are differentiated from each other. According to the Fornell and Larcker criterion, every construct's square root of the AVE must surpass its correlations with other constructs [56]. The square root of the AVE for perceived ease of use was 0.782, surpassing its correlation with other components, such as behavioral intention (-0.040) and attitudes towards AI (-.102), thus indicating adequate discriminant validity. The uniqueness of constructions enables the diversity of customer perceptions and the execution of specialized strategies to address certain attitudes and behaviors.

10. Reliability assessment

The study evaluated construct reliability using Cronbach's Alpha (CA) and Composite Reliability (CR), which measure item internal consistency. Cronbach's Alpha assesses the extent of homogeneity within a set of items [57]. Acceptable reliability is signified by a value greater than 0.70. The internal consistency of attitudes toward AI is highly satisfying, as shown by a Cronbach's Alpha of 0.954. The Cronbach's Alpha values for perceived usefulness and ease are 0.945 and 0.421, respectively, confirming the reliability of the constructs.

Composite reliability evaluates the overall reliability of a construct by addressing item variability [58]. A CR value greater than 0.7 is considered acceptable. The composite reliability demonstrates remarkable internal consistency and reliability, with attitudes toward AI and perceived usefulness recording composite reliability of 0.941 and 0.933, respectively. The higher CA and CR scores evidence the study's reliable constructs, bolstering confidence in the conclusions.

Table 2: Measurement model assessment, convergent validity and reliability.

Construct (dimension)	Item	Standardized loadings	Average variance Extracted (AVE)	Cronbach alpha (CA)	Composite Reliability (CR)
Perceived usefulness of AI-powered shopping assistants	PUSE1	.911	0.582	.945	.933
	PUSE2	.921			
	PUSE3	.931			
	PUSE4	.883			
	PUSE5	.653			
	PUSE6	.679			
	PUSE7	.632			
	PUSE8	.680			
	PUSE9	.622			
	PUSE10	.600			
Perceived ease of use of AI-powered shopping assistants	PEASE1	.747	.611	9.421	.934
	PEASE2	.793			
	PEASE3	.809			
	PEASE4	.827			
	PEASE5	.766			
	PEASE6	.754			
	PEASE7	.801			
	PEASE8	.828			
	PEASE9	.700			
Behavior intention to AI-powered shopping assistants	BEHA1	.914	.640	.839	.838
	BEHA2	.853			
	BEHA3	.597			
Attitudes towards AI	AITTU1	.812	.500	.954	.941
	AITTU2	.835			
	AITTU3	.821			
	AITTU4	.600			
	AITTU5	.520			
	AITTU6	.727			
	AITTU7	.558			
	AITTU8	.751			
	AITTU9	.718			
	AITTU10	.643			
	AITTU11	.633			
	AITTU12	.682			
	AITTU13	.738			
	AITTU14	.727			
	AITTU15	.649			
	AITTU16	.589			
	AITTU17	.587			
	AITTU18	.581			
	AITTU19	.602			

Minimum Discrepancy Function by Degrees of Freedom divided (CMIN/ df) =4.21, Normed Fit Index (NFI) =0.932, Standardized Root Mean Square Residual (SRMR) =0.033, Root mean square error estimation (RMSEA) = 0.001

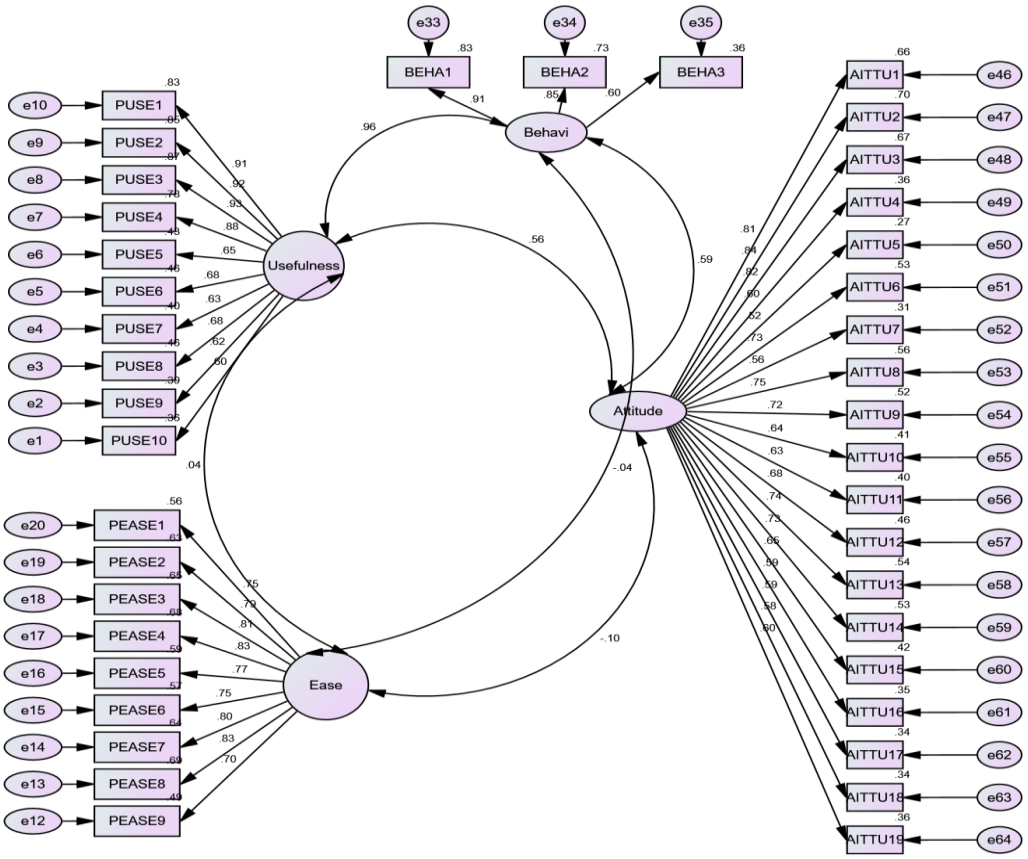

Figure 1: Measurement model

Table 3: Fornell & Larcker criterion (Discriminant validity)

	1	2	3	4
(1) Perceived usefulness of AI-powered shopping assistants	**0.763**			
(2) Perceived ease of use of AI-powered shopping assistants	.036	**0.782**		
(3) Behavior intention to AI-powered shopping assistants	.561	-.040	**.800**	
(4) Attitudes towards AI	.564	-.102	.588	**.678**

11. Hypothesis testing (Direct relationship)

Table 5 presents the findings of the direct relationship between the variables. The results are also evident in Figure 2 (structural model). The study found that the perceived usefulness of AI-powered shopping assistants had a positive and significant impact on behavior intention to AI-powered shopping assistants (β =1.085, t= 12.899, P<0.01), supporting the hypothesis (H1a).

The investigation discovered that perceived ease of use of AI-powered shopping assistants had a negative and significant impact on behavior intention to AI-powered shopping assistants (β =-0.72, t= -2.662, P<0.001), supporting the hypothesis (H1b).

The study found that the perceived usefulness of AI-powered shopping assistants had a positive and significant impact on attitudes toward AI (β = 0.657, t= 9.070, P<0.01), supporting the hypothesis (H2a).

The investigation discovered that perceived ease of use of AI-powered shopping assistants had a negative and significant impact on attitudes towards AI (β = -0.129, t= -2.685, P<0.001), supporting the hypothesis (H2b).

Attitudes towards AI were found to have a positive and significant relationship with behavior intention toward AI-powered shopping assistants, AI (β = 0.56, t= 1.762, P<0.01), supporting the hypothesis (H2b).

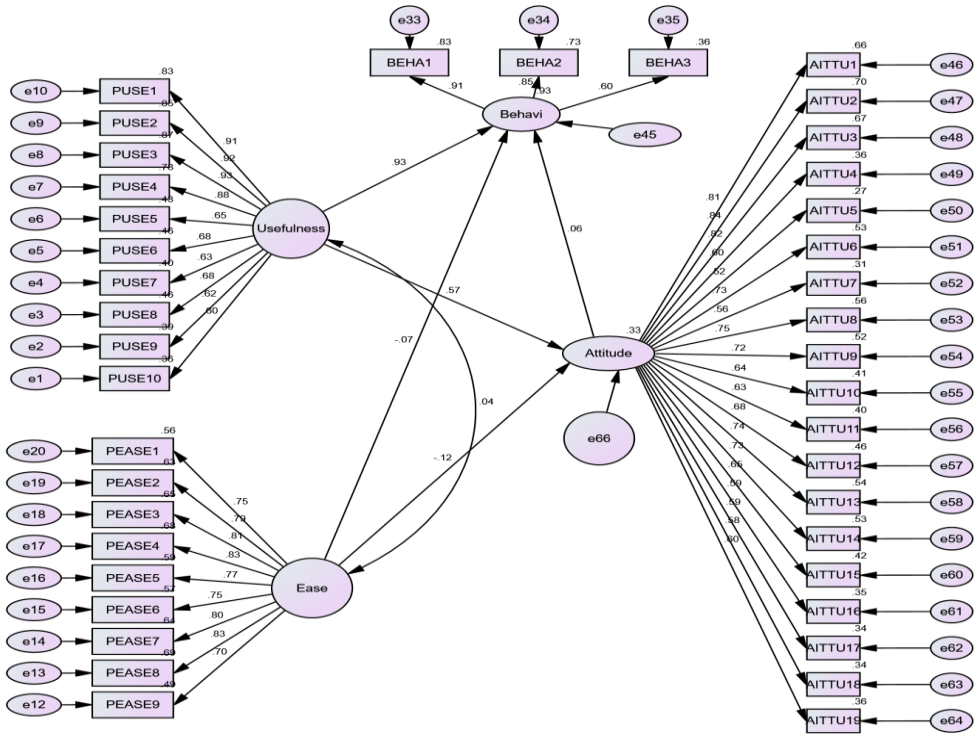

Figure 2: Structural model

Table 4: Direct relationship findings

Relationship	Hypothesis	β	S. E	t-test	P values
Perceived usefulness of AI-powered shopping assistants -> Behavior intention to AI-powered shopping assistants	H1	1.085 ***	.084	12.899	.000
Perceived ease of use of AI-powered shopping assistants -> Behavior intention to AI-powered shopping assistants	H2	-.072 ***	.027	-2.662	.008
Perceived usefulness of AI-powered shopping assistants -> Attitudes towards AI	H3	.657 ***	.072	9.070	.000
Perceived ease of use of AI-powered shopping assistants -> Attitudes towards AI	H4	-.129 ***	.048	-2.685	.007
Attitudes towards AI -> Behavior intention to AI-powered shopping assistants	H5	.056 *	.032	1.762	.078

**** p<.01, ** p<.05, * p<.10*

12. Hypothesis testing (Indirect relationship)

Table 5 presents the results of the indirect relationship (Mediation analysis) between the variables. The mediation analysis was carried out using the bootstrapping method, where the iteration was carried out at 5000 and at a 95% confidence interval (Tibbe & Montoya, 2022). The study found that attitudes

towards AI partially mediate the relationship between perceived usefulness, ease of use, and behavior intention toward AI-powered shopping assistants. The direct relationship between the perceived usefulness, ease of use, and behavior intention of AI-powered shopping assistants led to partial mediation results. Therefore, hypotheses H4a and b were accepted.

Table 5: Mediation analysis (indirect relationship)

Relationship	Hypothesis	B	Std. Error	t-value	Confidence interval		Sig.	Conclusion
					Lower bounds	Upper bounds		
Perceived usefulness of AI-powered shopping assistants -> Attitudes towards AI ->Behavior intention to AI-powered shopping assistants	H4a	.036	0.011	3.273	-.011	.203	.000	Partial mediation
Perceived ease of use of AI-powered shopping assistants -> Attitudes towards AI ->Behavior intention to AI-powered shopping assistants	H4b	-.007	.001	7.00	-.048	.002	.000	Partial mediation

**** p<.01, ** p<.05, * p<.10*

13. Discussion of empirical findings

The study found that the perceived usefulness of AI-powered shopping assistants had a positive and significant impact on behavioral intention to use them. These findings align with the fundamental tenets of the TAM, which posits that humans are more inclined to adopt and employ technology when they see it as beneficial [60]. This finding demonstrates that buyers of Jumia utilize AI-powered shopping assistants when they believe the technology enhances their purchasing experience, mainly through personalized recommendations or enhanced product search functionalities.

A plausible reason for this finding is the growing need for ease and efficiency in online shopping, where consumers emphasize technology that facilitates informed and swift decision-making [61]. Jumia contends that the advantageous features of AI-driven assistants, like improved product matching and time efficiency, could facilitate greater customer adoption. This highlights the significance of perceived value to consumers. Therefore, Jumia management must emphasize improving AI-powered assistants' capabilities to fulfil client demands and expectations [62]. The appropriate articulation of their advantages can augment the engagement and appreciation of these technologies.

The study found that ease of use of perceived usefulness of AI-powered shopping assistants negatively and significantly impacted behavioral intention to use AI-powered shopping assistants. These findings indicate that consumers may not regard these technologies as beneficial or valuable in their purchase experience. The TAM posits that humans are less likely to adopt a technology if it does not provide them with value [63]. These findings suggest that consumers may be unconvinced that AI-driven shopping assistants offer substantial benefits compared to conventional purchase techniques, resulting in diminished aspirations to embrace such technology.

These findings can be attributed to two probable factors: an absence of clear, concrete advantages for users or ambiguity concerning the usefulness of AI-powered gadgets [64]. This indicates that Jumia should improve its depiction of the time efficiency and tailored shopping experiences provided by AI-powered assistants, along with other advantageous features and characteristics. This suggests that consumers may be disinclined to embrace AI technology if they view it as ineffective. The principal aims of Jumia management should be to augment the functionalities of these assistants and guarantee that they provide substantial benefits. Tailored marketing and user education are crucial in improving customer acceptability and transforming consumer views [65].

The study found that the perceived usefulness of AI-powered shopping assistants had a positive and significant impact on attitudes toward AI. The findings indicate that people who view AI as beneficial

are more likely to have a positive overall perception of the technology. The TAM asserts that individuals' attitudes and perceptions of technology change when they believe it will benefit them [66]. This outcome suggests that Jumia users are predisposed to exhibit a positive disposition towards AI technology. They may be less hesitant or resistant if they understand the advantages of employing AI-powered assistants.

A plausible explanation for this outcome is the increasing utilization of technologies that enhance efficiency and convenience [67]. Users may cultivate a more favorable opinion of AI technology upon observing their utility during purchasing. Jumia asserts that highlighting the practical advantages of AI-powered assistants may foster positive perceptions of the technology, consequently enhancing client happiness and adoption rates. Customers' perceptions of AI may evolve, leading them to be more predisposed to adopt new AI technologies upon witnessing the support that AI assistants may offer. Jumia may find that highlighting the advantages of these technologies is a crucial technique for fostering favorable perceptions of AI and promoting greater involvement [68].

The study found that ease of use of perceived usefulness of AI-powered shopping assistants had a negative and significant impact on attitudes toward AI. These findings indicate that customers may not hold a positive view of artificial intelligence, irrespective of the perceived ease of use of these products. This suggests that a favorable perception of AI-powered assistants cannot be achieved only through simplicity and user-friendliness [69]. The TAM asserts that the technology's usability enhances the adoption process, and a favorable attitude toward the technology is not assured if its perceived effectiveness is not adequately highlighted [70].

A plausible reason for this outcome is that individuals may question the efficacy or utility of AI-powered assistants despite their apparent simplicity [71]. Although the technologies are easy to operate, consumers may not view AI positively if it offers minimal advantages. Jumia should advocate for usability without showcasing clear and concrete advantages, which may be inadequate to create a positive perception of artificial intelligence-powered assistants. These findings indicate that consumers' favorable opinions of AI systems are not assured by their usability despite their significance. Jumia's management must stress the amalgamation of practical advantages with user-friendliness to guarantee that consumers recognize the tool's utility and sense authentic worth in its application [72].

Attitudes toward AI toward AI were found to have a positive and significant impact on behavioral intention to use AI-powered shopping assistants. The findings indicate that consumers with a favorable view of AI are more inclined to utilize AI-powered purchase assistants. The TAM supports this, highlighting that a favorable disposition toward a technology generally results in a heightened intention to embrace it [73]. Consumers are more inclined to adopt and utilize AI technology in future purchases if they view it as user-friendly and advantageous.

This view may be shaped by consumers' growing confidence in AI technologies and their heightened familiarity with digital solutions that enhance efficiency and convenience. Effective engagements with AI-powered assistants catalyse a favourable disposition toward AI, as they enhance the perception that these devices can facilitate practical purchase experiences [74]. Jumia indicates that a favorable disposition towards AI may enhance user engagement with AI-powered purchase assistants and improve adoption rates.

Consumers with a positive outlook on AI are more inclined to use these technologies, enhancing their purchase experience [75]. Jumia's management should highlight AI assistants' advantages to enhance client contentment and augment the probability of future consumer utilization. This will result in heightened demand. Attitude towards AI partially mediated the relationship between perceived usefulness, ease of use, and behavioral intention to use AI-powered shopping assistants. The findings suggest that AI's perceived usefulness and usability are linked to beliefs about it, which affect behavioral intentions. The findings align with the TAM, which asserts that consumers' perceptions of technology are shaped by their evaluations of its usefulness and usability, influencing their propensity to embrace it [76]. The acceptance of AI is affected by an individual's perspective.

Although perceived usefulness and efficacy directly affect behavioral intention, they initially shape users' overall attitudes and perceptions of AI, providing possible explanations for this partial mediation. These factors may be more effectively linked to behavioral objectives when adopting a favorable outlook on AI. Jumia must augment AI-driven shopping assistants' perceived value and functionality [77]. Nonetheless, a favorable disposition towards AI motivates customers to employ these tools.

Thus, customers' perceptions of AI influence their decision to adopt the technology, irrespective of their assessment of the AI product's value and usability. Jumia can enhance customer happiness and adoption rates by elevating consumers' perceptions of the value and utility of AI and their attitudes toward it [78].

14. Conclusion

This study examined the factors influencing consumer acceptance of AI-powered shopping assistants in Sierra, with a significant focus on customers of Jumia Sierra Leone. Through the snowball sampling technique, the study collected data using Google Forms from 384 customers who have been using Jumia. The collected data was analyzed using the structural equation model (SEM) and bootstrapping method of AMOS software.

The study found that the perceived usefulness of AI-powered shopping assistants had a positive and significant impact on behavior intention toward AI-powered shopping assistants. It was discovered that perceived ease of use of AI-powered shopping assistants had a negative and significant impact on behavior intention toward AI-powered shopping assistants. The results reveal that attitudes towards AI partially mediate the relationship between perceived usefulness, ease of use, and behavior intention toward AI-powered shopping assistants.

15. Managerial implication

The research findings offer Jumia Sierra Leone critical insights for enhancing consumer engagement with AI-powered shopping assistants. If consumers view AI-driven purchase assistants as advantageous, they are significantly more likely to adopt them. The instrument's practicality dramatically impacts their decision to adopt it. Jumia should highlight the significant benefits of its AI-driven purchasing assistants, which encompass enhancing the shopping experience, time efficiency, and providing tailored recommendations. Regular marketing or feature improvements would remind customers of the importance of the assistant and the promising future of AI in consumer engagement.

Although user-friendliness may adversely affect consumers' opinions of artificial intelligence, the platform's accessibility can transform their perspectives and promote adoption. Jumia's user interface should be streamlined to improve the intuitiveness and user-friendliness of its AI-driven shopping assistant. Providing seminars, user guides, or live demonstrations may aid clients in optimizing their system usage. Implementing customer support or an accessible help feature tailored for AI could effectively address uncertainty.

Consumers' inclinations to use AI are significantly affected by their positive evaluations of the technology. Cultivating a favorable disposition towards AI enhances the probability of adoption. Jumia must emphasize user data security management, boost transparency over AI operations, and address privacy issues. Furthermore, presenting authentic success stories or testimonials from individuals who have gained advantages from AI-powered assistants helps foster trust and optimism in the technology.

An individual's viewpoint shapes the perceived use, effectiveness, and behavioral intention regarding AI. Thus, embracing an optimistic perspective can augment the impact of these elements on acceptance. Jumia may focus on marketing methods that highlight the functionality and accessibility of its AI solutions while concurrently enhancing consumer perceptions of AI. One strategy would involve highlighting the reliability and utility of AI in the procurement process while concurrently utilizing focused communication to counter any preconceived biases toward it. Moreover, consumer feedback mechanisms allow for modifying the AI assistant's capabilities based on client happiness, thereby improving perceptions of technology.

The capacity of AI assistants to provide tailored experiences may enhance their adoption rates. Personalizing the AI assistant improves customer satisfaction. Jumia's AI-driven shopping assistants should leverage consumer browsing patterns, preferences, and historical purchases to generate tailored product recommendations. The assistant's perceived value could be augmented by offering targeted notifications, discounts, or promotions. Using these techniques, Jumia Sierra Leone may improve client satisfaction and experience, promoting the adoption of AI-powered shopping assistants and supporting overall business growth.

16. Limitation of the study

Snowball sampling exhibited a limitation concerning sample bias, as participants could recommend persons with similar features, thereby diminishing the sample's diversity. Furthermore, the plan may not adequately reflect the broader demographic of Jumia Sierra Leone. Future studies should employ probabilistic sampling methods to achieve more universally applicable conclusions.

Using Google Forms for data gathering faced several restrictions, including the risk of excluding those with restricted internet access or inadequate computing abilities, potentially skewing the results. Future studies may employ hybrid data-gathering strategies, such as in-person questionnaires or telephone interviews, to overcome this constraint.

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