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Value of Co-creation and AI Services: Role of Perceived Anthropomorphism

Nishwa Iqbal*

BIC-STBS, International Islamic University, Pakistan

Abstract

This study investigates the influence of AI services on perceived anthropomorphism in relation to value co-creation and the intention to adopt AI. It develops and validates a conceptual model by examining the mediating role of customer ability readiness and the moderating effect of trust in artificial intelligence. A total of 420 valid responses were collected through a cross-sectional online survey distributed to customers employed in the FMCG sector in Pakistan. The data were analysed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess both direct and interaction effects. The results demonstrate that perceived anthropomorphism has a significant positive effect on customer ability readiness. Furthermore, customer ability readiness mediates the relationship between perceived anthropomorphism and both value co-creation and intention to adopt AI. The findings also confirm that trust in artificial intelligence significantly moderates the effect of customer ability readiness on value co-creation and AI adoption intentions. The study was limited by its reliance on cross-sectional survey data and a geographically specific sample. Future research may employ qualitative methods, larger datasets, or mixed-method approaches to improve generalisability and uncover additional aspects of customer readiness, such as motivation and role clarity. This research extends media richness theory by illustrating how anthropomorphic cues in AI services influence customer cognition, emotional response, and behavioral engagement through enriched communication. The proposed framework deepens the understanding of consumer readiness in AI-driven environments. The study offers actionable insights for practitioners on designing anthropomorphic AI interfaces and strengthening customer trust to enhance engagement and AI adoption. A validated measurement scale for AI services is also provided to support future strategic applications. This research is among the first to integrate perceived anthropomorphism, ability readiness, trust in AI, value co-creation, and adoption intention into a unified model. It contributes to both AI service research and customer engagement literature by offering new empirical and theoretical perspectives.

Keywords

Perceived Anthropomorphism; Customer Ability Readiness; Trust in AI; Value Co-Creation; Intention to Adopt AI; Media Richness Theory

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1. Introduction

The increasing integration of artificial intelligence (AI) in customer facing functions has significantly reshaped the online retail landscape, particularly in fast-moving consumer goods (FMCG) sectors (Yusuf et al., 2021). AI-enabled systems, especially those incorporating anthropomorphic characteristics, are altering how consumers perceive and interact with service technologies. These technologies, through their ability to simulate human like behavior, are influencing user expectations, decision-making, and purchase intention (Gao et al., 2023; Solakis et al., 2024). As a result, customers are progressively shifting their preferences from physical retail spaces to AI-driven online platforms, where digital agents can provide customised recommendations and streamline decision processes

*Corresponding author: e-mail addresses: nishwa.iqbal@iiu.edu.pk (N. Iqbal)

(Flavián et al., 2022; Malhotra & Ramalingam, 2023). Despite the increasing application of AI in service contexts, concerns about consumer trust persist. While human-like cues can enhance relatability and trust (Blut et al., 2021), anthropomorphized AI products are sometimes perceived as artificial or even deceptive (Roesler et al., 2023; Zhang et al., 2020). This paradox creates a dilemma: consumers may be drawn to anthropomorphic features but remain sceptical of the system's capabilities (Kwak et al., 2017). Trust, therefore, becomes a critical factor in shaping how consumers evaluate and engage with AI services (Gao et al., 2023; Torkzadeh et al., 2022). Although value co-creation has been widely examined within smart service systems (Barile et al., 2024), limited research addresses how AI stimuli particularly perceived anthropomorphism influence this process. Value co-creation involves not only interaction but also trust in technology and a consumer's readiness to participate (Carvalho & Alves, 2023). Yet, few studies have explored the mediating role of customer ability readiness within these relationships. Understanding how these elements interact is essential for designing AI systems that promote engagement and sustained value creation. This study responds to these gaps and aims to empirically test a framework that links perceived anthropomorphism to value co-creation and AI adoption intentions, mediated by customer ability readiness and moderated by trust in AI

2. Literature Review

2.1. S-O-R Framework

The Stimulus-Organism-Response (S-O-R) framework suggests that environmental elements (stimuli) influence individuals' internal cognitive and emotional states (organisms), which in turn drive behavioral responses (responses). The framework is noted for its adaptability in analysing interactions between various stimuli both tangible and intangible and the resulting reactions (Zhu et al., 2020). It has been widely applied to study consumer behavior in AI-mediated service contexts (Liu et al., 2023; Suparno, 2020). Technological stimuli such as self-service technologies, virtual assistants, and smart service platforms have been examined through this lens to understand their impact on user responses. In this study, AI stimuli are considered external triggers encountered during customer interactions. The organism reflects customer ability readiness, capturing the cognitive and emotional preparedness of the individual during the service encounter. The response is conceptualised as value co-creation, emerging from customer-service provider interactions that generate mutual value (Gao et al., 2023).

2.2. Concepts of Perceived Anthropomorphism

Anthropomorphism is the tendency to attribute human characteristics, intentions, and emotions to non-human agents (Zhang et al., 2020). With the growing integration of AI technologies into customer interfaces such as chatbots and recommendation systems this concept has gained relevance in digital marketing. Perceived anthropomorphism refers specifically to the attribution of human-like qualities to AI-based systems (Roesler et al., 2023), influencing customer trust, decision-making, and satisfaction. Anthropomorphized brands are perceived as sentient entities capable of emotion and intention (Kwak et al., 2017; Roesler et al., 2021), enhancing emotional bonds with consumers. The process extends beyond simple animism, involving attributions of volition and intellect that elevate the consumer-brand relationship to one akin to interpersonal interaction (Malhotra & Ramalingam, 2023; Xie et al., 2020).

2.3. Psychological Mechanism of Anthropomorphism

The psychological basis of anthropomorphism has been framed through various models (Balakrishnan et al., 2022). Yusuf et al. (2021) proposed a three-factor model comprising sociality motivation, effectance motivation, and elicited agent knowledge. These components reflect the consumer's need to form relationships, comprehend non-human agents, and apply existing human-centric schemas to digital systems (Blut et al., 2021). Schema congruity plays a key role; when AI features align with human mental models, cognitive processing is more fluent, leading to positive

evaluations (Malhotra & Ramalingam, 2023). Additionally, consumers experiencing loneliness or high needs for belongingness may be more receptive to anthropomorphic cues (Huang et al., 2021). Effectance motivation further strengthens schema alignment by increasing the user's need to rationalise AI behaviors in human terms (Kwak et al., 2017; Roesler et al., 2021).

2.4. Understanding about Value co-Creation

Value co-creation is a collaborative process wherein customers and service providers jointly produce value through interaction and engagement (Barile et al., 2024). As firms shift from goods-dominant to service-dominant logic, the focus is increasingly on operant resources such as skills and knowledge rather than tangible products (Goyal, 2020; Saha et al., 2022). Co-creation is grounded in "value-in-use," where customers become active participants in deriving personalised value from services (Carvalho & Alves, 2023; Helal, 2023). Customer involvement, communication, and shared experience enhance perceived value, highlighting the need for businesses to co-design offerings with users (Goyal, 2022; Poushneh & Vasquez-Parraga, 2019). This paradigm shift has redefined how firms understand and deliver value in digitally mediated environments.

2.5. Adoption of AI

AI and related technologies have transformed service delivery, enabling intelligent automation and personalised experiences (Atwal & Bryson, 2021). From voice-enabled assistants to autonomous vehicles, AI is increasingly integrated into consumer interfaces. However, consumer responses to AI differ from those toward traditional technologies due to its autonomy and human-like interaction capabilities (Gao et al., 2023). AI systems are expected not only to replicate human decision-making but also to adapt behaviorally in real-time (Solakis et al., 2024). Understanding adoption patterns requires firms to reduce perceived complexity and improve user familiarity (Flavián et al., 2022; Malhotra & Ramalingam, 2023). As trust and ability readiness increase, consumers are more likely to engage with AI systems, accelerating acceptance and enabling deeper customer-firm co-creation.

3. Research Hypothesis Development and Conceptual Framework

3.1. Hypothesis Development

3.1.1. Perceived anthropomorphism and customer ability readiness

Anthropomorphism refers to the attribution of human characteristics such as emotions, intentions, and cognition to nonhuman agents (Balakrishnan et al., 2022; Malhotra & Ramalingam, 2023). It has been shown to influence a range of consumer behaviors, including brand attachment, product evaluation, and perceived trustworthiness (Kwak et al., 2017; Roesler et al., 2023; Zhang et al., 2020). While anthropomorphic cues may enhance empathy and engagement (Yusuf et al., 2021), emerging findings reveal more complex implications. For instance, anthropomorphizing products may diminish consumer self-control, particularly with hedonic offerings (Xie et al., 2020). Individual differences also moderate these effects. Yusuf et al. (2021) found that entity theorists who perceive personality traits as stable react more negatively to anthropomorphized brands associated with undesirable attributes. Moreover, Torkzadeh et al. (2022) demonstrated that time anthropomorphism can reduce patience, particularly among individuals with lower perceived power. From a technological perspective, anthropomorphism may support customer readiness by enhancing emotional attachment and reducing perceived complexity (Poushneh & Vasquez-Parraga, 2019). The infusion of human-like cues into AI systems fosters a sense of familiarity, thereby mitigating uncertainty and encouraging interaction with digital services. Carvalho and Alves (2023) further emphasized that such cues improve intuitiveness, which is critical for customer ability readiness defined as the user's confidence and competence in utilizing advanced services. Accordingly, this study proposes the following hypothesis:

H1: Perceived anthropomorphism has a significant impact on customer ability readiness.

3.1.2. The mediating effect of customer ability readiness

Customer readiness comprises the cognitive, motivational, and behavioral preparedness of individuals to adopt new service technologies, particularly AI-enabled systems (Alsmairat, 2023; Torkzadeh et al., 2022). Central to this is customer ability readiness the confidence and competence users perceive in their ability to engage effectively with AI-based services (Gao et al., 2023). This sense of ability is shaped through observation, prior usage, and role clarity, and directly influences the extent to which users participate in co-creation processes. Anthropomorphism introduces human-like features into AI interfaces, facilitating emotional comfort and perceived familiarity (Goyal, 2020; Poushneh & Vasquez-Parraga, 2019). These perceptions are particularly valuable in reducing perceived complexity and increasing trust when navigating intelligent systems (Helal, 2023). Yet, as Saha et al. (2022) suggest, such features only translate into meaningful adoption and engagement when users also feel capable of handling the interaction. Users who perceive high ability readiness are more likely to interact with AI confidently, complete tasks effectively, and share constructive feedback (Flavián et al., 2022). Atwal and Bryson (2021) emphasize that AI systems equipped with domain-specific expertise and responsive capabilities improve service adaptability and real-time interaction quality. These enhancements, when aligned with user readiness, contribute significantly to sustained co-creation. Furthermore, Carvalho and Alves (2023) highlight that the intuitiveness of anthropomorphized AI systems increases when users are cognitively prepared. Readiness not only predicts behavioral intention but also influences the quality of engagement (Andrews et al., 2021). In line with this, the following hypotheses are proposed:

H2: Customer ability readiness significantly mediates the relationship between perceived anthropomorphism and value co-creation.

H3: Customer ability readiness significantly mediates the relationship between perceived anthropomorphism and intention to adopt AI.

3.1.3. The moderating effect of trust in artificial intelligence

Artificial intelligence (AI) strives to replicate not only cognitive processing but also emotional and social responsiveness, often captured through perceived subjective intelligence (Atwal & Bryson, 2021). This includes the AI's ability to interpret emotional cues and react in socially appropriate ways, which strengthens customers' perception of its competence (Flavián et al., 2022; Gao et al., 2023). However, gaps between expectation and actual AI performance especially in the consistency of behavior remain a concern (Malhotra & Ramalingam, 2023). AI-driven systems that integrate responsiveness, clarity, and personalization are more likely to enhance customer engagement. These features support the co-creation process by enabling interactive experiences and service adaptation (Carvalho & Alves, 2023; Solakis et al., 2024). Still, the customer's willingness to co-create is influenced by their comfort and perceived safety in using the technology. Helal (2023) underscores that even when AI demonstrates social cues and responsiveness, users must perceive the interaction as secure and predictable to remain engaged. Trust in AI significantly reduces perceived risk and uncertainty two major psychological barriers to technology adoption (Torkzadeh et al., 2022). Customers who trust AI are more confident in its decision-making capabilities and more open to participating in value-enhancing interactions (Scharowski et al., 2024). This trust also moderates the effects of ability readiness, influencing whether readiness translates into adoption or co-creation behavior (Flavián et al., 2022) Accordingly, the following hypotheses are proposed.

H4: Trust in artificial intelligence significantly moderates the relationship between customer ability readiness and value co-creation.

H5: Trust in artificial intelligence significantly moderates the relationship between customer ability readiness and intention to adopt AI.

The conceptual framework and proposed linkages of this study are summed up in Figure 1.

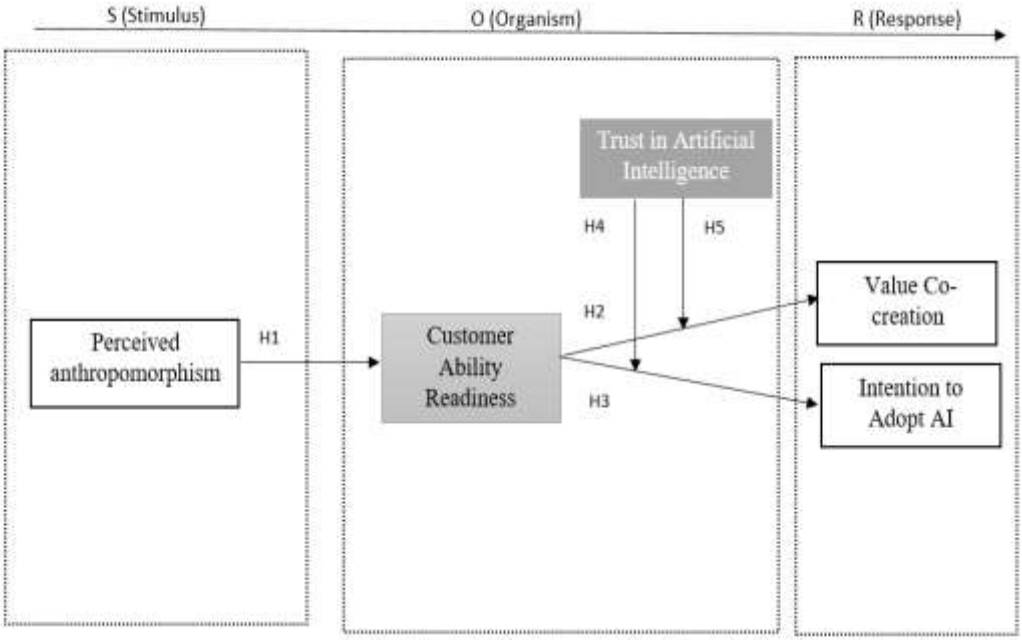

Figure 1. Conceptual Framework

4. Methodology

4.1. The Development of AI Adoption

The measurement items for AI adoption were initially developed through a combination of literature review and expert consultation. Relevant literature across domains including information systems, marketing, and behavioral psychology was systematically reviewed using keywords such as "AI," "technology," and "adoption intention." Drawing from this review and group discussions, preliminary items were formulated. The initial descriptors reflected both emotional and evaluative responses to AI adoption in service environments, with examples shown in Table 1.

Table 1. Initial Scale for Adoption of AI

Initial Dimension	Items descriptions
Adoption of AI	I don't like the idea of adopting AI and related technologies in libraries. I feel apprehensive about adopting AI and related technologies in libraries. Adopting AI and related technologies in libraries is somewhat intimidating me. I support adopting services/systems adopting AI and related technologies in my library. I support adopting services/systems adopting AI and related technologies in libraries, overall.

To enhance clarity and face validity, a pilot test was conducted among members of the research team. Feedback from 26 participants was analysed using corrected item-total correlations (CITC), and any ambiguous or poorly performing items were removed. The final version retained those items that demonstrated strong reliability and conceptual alignment with AI adoption in service contexts.

4.2. Measurements of Variables

All constructs were measured using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Measurement items were adapted from prior validated studies. Perceived anthropomorphism was measured using a four-item scale from (Malhotra & Ramalingam, 2023), while customer ability readiness and value co-creation were each measured using four- and five-item scales from Gao et al. (2023). Trust in artificial intelligence was captured using a five-item scale developed by (Scharowski et al., 2024). To ensure contextual relevance, all items were carefully adapted for the FMCG sector. A complete list of measurement items is provided in the Appendix.

4.3. Sampling

An online survey was conducted via Google Forms from June to September 2024. The target population consisted of FMCG customers aged 20 and above, based in Pakistan. A total of 510 questionnaires were distributed, of which 420 valid responses were obtained, yielding a response rate of 83%. To address potential non-response bias, the method proposed by Weber (2017) was followed. A chi-square test comparing early (n=225) and late (n=195) respondents revealed no significant differences in age or gender ($p > 0.05$), thus supporting the assumption that non-response bias was minimal. Descriptive statistics of the respondents are summarised in Table 2.

Table 2. Characteristics of Respondents

Criteria	Frequency	(%)
Gender		
Male	285	67.8
Female	135	32.1
Age		
20-30 years old	125	29.7
31-40 years old	111	26.4
41-50 years old	108	25.7
More than 50 years old	76	18.0
Working Years		
Below 3 years	123	29.2
3-5 years	219	52.1
5-10 years	78	18.5
More than 10 years		
Monthly Income		
500 Euro	118	28.0
1000-2000 Euro	201	47.8
More than 2000 Euro	101	24.0

4.4. Reliability and Validity

To assess internal consistency, both Cronbach's alpha (α) and Composite Reliability (CR) were calculated (Hair et al., 2024). All α values exceeded the minimum threshold of 0.6, with CR values

surpassing 0.7. Convergent validity was evaluated through Average Variance Extracted (AVE), where all constructs exceeded the 0.5 threshold. The factor loadings were above 0.6, confirming indicator reliability. Detailed reliability statistics and factor loadings are shown in Table 3.

Table 3. Validity and Reliability

S.no	Construct and Scale Items	Loading	KMO
	Perceived Anthropomorphism (PA) (α=0.815, Composite Reliability=0.878, AVE=0.644)		
1	Customers; I do not feel fake about it.	0.867	
2	Customers are more humanlike.	0.754	0.827
3	Customers are conscious of their actions.	0.763	
4	Customers feel lifelike and not artificial.	0.821	
	Customer ability readiness (CAR) (α=0.902, Composite Reliability=0.931, AVE=0.773)		
5	I am fully capable of using AI	0.881	
6	I am confident in my ability to use AI.	0.870	
7	Using AI is well within the scope of my abilities.	0.881	0.837
8	My past experiences increase my confidence that I will be able to successfully use AI.	0.884	
	Trust in artificial intelligence (TAI) (α=0.915, Composite Reliability=0.937, AVE=0.748)		
9	I believe that customers are honest.	0.873	
10	I believe that customers are trustworthy.	0.780	
11	I believe that customers offered my best interest.	0.895	0.802
12	The AI provides security.	0.890	
13	The AI has integrity.	0.882	
	Value Co-Creation (VCC) (α=0.945, Composite Reliability=0.958, AVE=0.820)		
14	I actively responded to the questions of the AI so that the company can understand my needs.	0.907	
15	I participated in the solicitation or evaluation of new product/service ideas proposed by the AI.	0.901	
16	I participated in the experience or promotion of new products recommended by the AI.	0.910	0.910
17	I actively gave feedback about my experience, questions, improvement suggestions, etc. to the AI.	0.911	
18	I actively help other consumers solve their problems.	0.899	
	Intention to Adopt AI (IAI) (α=0.932, Composite Reliability=0.949, AVE=0.788)		
19	I don't like the idea of adopting AI and related technologies in libraries.	0.848	0.878
20	I feel apprehensive about adopting AI and related technologies in libraries.	0.911	
21	Adopting AI and related technologies in libraries is somewhat intimidating me.	0.926	
22	I support adopting services/systems adopting AI and related technologies in my library.	0.908	
23	I support adopting services/systems adopting AI and related technologies in libraries, overall.	0.842	

5. Results and Conclusions

5.1. Structural Model

Structural Equation Modeling (SEM) using the Partial Least Squares (PLS) method in SmartPLS 3.0 was employed to assess the relationships proposed in the conceptual model. The PLS-SEM technique is particularly suitable for exploratory research with smaller sample sizes and complex models (Hair et al., 2024). To ensure no collinearity issues affected the structural model, variance inflation factors (VIFs) for all indicators were examined and found to be well below the recommended threshold of 4.0. As shown in Table 4, the VIF values ranged from 1.501 to 4.429, suggesting acceptable multicollinearity

Table 4. Structural Model

Constructs	Items	VIF
Customer Ability Readiness	CAR1	3.016
	CAR2	2.941
	CAR3	3.234
	CAR4	3.291
Intention to Adopt AI	IAI1	2.450
	IAI2	3.958
	IAI3	4.429
	IAI4	3.786
	IAI5	2.566
Perceived Anthropomorphism	PA1	2.111
	PA2	1.501
	PA3	1.670
	PA4	1.835
Trust in Artificial Intelligence	TAI1	2.847
	TAI2	1.989
	TAI3	3.420
	TAI4	3.240
	TAI5	2.983
Value Co-Creation	VCC1	3.878
	VCC2	3.563
	VCC3	3.862
	VCC4	3.804
	VCC5	3.414

5.2. Hypothesis Testing

5.2.1. Direct effect

The direct relationships were evaluated using bootstrapping with 5,000 resamples. The analysis revealed that perceived anthropomorphism had a significant positive influence on customer ability readiness (ß = 0.602, $p < 0.01$), thereby supporting H1.

Table 5. Direct Hypothesis

Relationships	β value	P Values
Perceived anthropomorphism -> Customer Ability Readiness	0.602	0.000

5.2.2. Mediating effect

To assess the mediating role of customer ability readiness, a bootstrapping approach was applied, consistent with Hair et al. (2024). The results indicated that customer ability readiness significantly mediated the relationship between perceived anthropomorphism and value co-creation (ß = 0.218, $p < 0.01$), confirming H2. Furthermore, the mediation between perceived anthropomorphism and intention to adopt AI was also significant (ß = 0.258, $p < 0.01$), supporting H3.

Table 6. Mediating Hypothesis

Relationships	β-value	P-Values
Perceived anthropomorphism -> Customer Ability Readiness -> Value Co-creation	0.218	0.000
Perceived anthropomorphism -> Customer Ability Readiness -> Intention to Adopt AI	0.258	0.000

5.2.3. Moderating effects

To test the moderation hypotheses, interaction terms were created and analysed. The results demonstrated that trust in artificial intelligence significantly moderated the relationship between customer ability readiness and value co-creation (ß = 0.358, $p < 0.01$), validating H4. Similarly, trust in AI significantly moderated the relationship between customer ability readiness and intention to adopt AI (ß = 0.209, $p < 0.01$), supporting H5.

Table 7. Moderation Hypothesis

Relationships	β-value	P-Values
Moderating Effect 1 -> Value Co-creation	0.358	0.000
Moderating Effect 2 -> Intention to Adopt AI	0.209	0.000

6. Conclusions

This study advances the understanding of how perceived anthropomorphism affects value co-creation and the intention to adopt AI by examining the mediating role of customer ability readiness and the moderating role of trust in artificial intelligence. Drawing on the S-O-R framework, this research conceptualized and tested a structured model that integrates external stimuli (perceived anthropomorphism), internal organismic states (customer ability readiness), and behavioral responses (value co-creation and adoption intention). The findings confirm that perceived anthropomorphism has a significant positive effect on customer ability readiness ($\beta = 0.602$, $p < 0.01$). Although perceived anthropomorphism does not directly affect value co-creation or intention to adopt AI, its influence is channelled through customer ability readiness, which functions as a critical intermediary. Specifically, customer ability readiness mediates the relationship between perceived anthropomorphism and value co-creation ($\beta = 0.218$, $p < 0.01$), as well as between perceived anthropomorphism and intention to adopt AI ($\beta = 0.258$, $p < 0.01$), highlighting its pivotal role in shaping behavioral outcomes in AI-driven service contexts. Moreover, the study demonstrates that trust in artificial intelligence significantly moderates the relationship between customer ability readiness and both value co-creation ($\beta = 0.358$, $p < 0.01$) and adoption intention ($\beta = 0.209$, $p < 0.01$). This implies that higher levels of trust enhance the positive impact of readiness on desired behavioral outcomes, reinforcing the importance of trust-building strategies when implementing AI-based customer service technologies. In

summary, these findings emphasize the central role of customer readiness and trust in realising the full potential of anthropomorphized AI services. The results contribute to both theory and practice by expanding the conceptualisation of anthropomorphism in AI service environments and offering actionable insights for enhancing AI adoption and customer engagement in value co-creation. Future research should explore additional moderators and mediators to further clarify the boundary conditions under which anthropomorphism enhances or hinders customer outcomes.

7. Discussion

7.2. Theoretical Contribution

This study builds an integrative framework linking perceived anthropomorphism with value co-creation and the intention to adopt AI, through the mediating mechanism of customer ability readiness and the moderating role of trust in artificial intelligence. While prior research has examined these constructs in isolation (Malhotra & Ramalingam, 2023; Saha et al., 2022), this work presents a unified model under the S-O-R paradigm, enriching theoretical understanding by capturing both psychological and behavioral responses in AI service contexts. The findings extend the application of media richness theory by demonstrating that perceived anthropomorphism enhances the richness of AI-mediated communication, thereby improving cognitive and emotional evaluations that contribute to customer ability readiness and behavioral outcomes. This highlights the significance of anthropomorphic cues in reducing uncertainty and increasing comprehension during human-AI interactions (Roesler et al., 2021). Empirical evidence confirms the mediating role of customer ability readiness in the relationship between perceived anthropomorphism and both value co-creation and intention to adopt AI. The results indicate that customers' perception of human-like attributes in AI enhances their confidence and capability, which in turn facilitates meaningful engagement and adoption. Furthermore, the moderating effect of trust in artificial intelligence is validated, revealing its pivotal influence in strengthening the impact of customer ability readiness on both value co-creation and AI adoption intention. These insights deepen the theoretical foundation by showing how trust serves as a boundary condition that amplifies behavioral outcomes in AI-enabled service interactions.

7.3. Managerial Implications

The results offer several strategic insights for practitioners in the FMCG sector, particularly those implementing AI-driven services. First, enhancing anthropomorphic design features—such as human-like speech patterns, emotional expressions, and adaptive interactions—can significantly improve customers' perceived engagement and readiness to adopt AI interfaces. Second, establishing trust in AI systems is critical. Firms should ensure that AI applications demonstrate transparency, reliability, and data integrity. Clear communication regarding the capabilities and limitations of AI tools can alleviate concerns about technological opacity, thereby encouraging greater user confidence and acceptance (Scharowski et al., 2024). Third, fostering customer ability readiness should be a priority. Companies may provide tutorials, usage demonstrations, and responsive support to equip users with the necessary skills and knowledge. This preparation not only boosts confidence but also increases the likelihood of customers participating in co-creation activities and adopting AI-driven innovations. Lastly, the proposed framework can assist managers in developing tailored marketing strategies that align with customer psychological readiness and expectations, ultimately enhancing the overall customer experience and driving service innovation.

7.4. Limitations and Future Research

While this study contributes to both theory and practice, it also presents some limitations. The sample was geographically concentrated in Pakistan, and limited in size. Future research should test the model across different regions and larger, more diverse populations to improve generalizability.

The model focused solely on customer ability readiness as the mediating construct. Future studies should incorporate additional readiness dimensions, such as role clarity and motivation, to explore their combined or comparative effects on AI adoption and co-creation outcomes. Moreover, the reliance on quantitative data may limit interpretative depth. Incorporating qualitative methods or mixed-method designs such as interviews, sentiment analysis, or user-generated content from digital platforms may yield richer insights into customer experiences and behavioral intentions in AI service environments. By addressing these limitations, future research can further clarify how technological design, consumer psychology, and service outcomes intersect in the evolving landscape of AI-enabled co-creation.

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