INTEGRATING TAM WITH MARKETING INNOVATION: THE CASE OF CRLAND IN CHINA'S REAL ESTATE SECTOR

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ABSTRACT

As digital transformation in real estate accelerates, innovative marketing is vital for influencing consumer adoption of property platforms. This research examines the impact of digital marketing (DM), personalized services (PS), and experiential marketing (EM) on user acceptance, grounded in the Technology Acceptance Model (TAM). A survey was conducted with 400 CRLand platform users across five Chinese cities. The model includes seven constructs: DM, PS, EM, Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude Toward Use (ATU), Behavioral Intention (BI), and Actual System Use (ASU). Data analysis with PLS-SEM via ADANCO evaluated reliability, validity, and model fit (SRMR, HTMT, R^2, Q^2). Findings show EM significantly influences PU (β=0.960, $p<0.001$), whereas DM and PS do not. PEOU strongly predicts ATU (β=0.959, $p<0.001$), which, in turn, affects BI (β=0.911) and ASU (β=0.762). Some TAM relationships, such as PU ⟶ ATU and PU ⟶ BI, were not supported, potentially due to multicollinearity between PU and ATU (HTMT > 0.85). These findings extend TAM by showing that experiential engagement plays a more influential role in property technology adoption than traditional digital marketing. As a result, immersive and user-centered experiences emerge as critical drivers of consumer acceptance, suggesting that real estate firms should prioritize technologies such as VR/AR and intuitive platform design. Furthermore, the limited support for several traditional TAM relationships indicates that technology adoption models may require contextual adaptation when applied to high-stakes and emotionally involved purchase decisions.

Keywords

Innovative Marketing Mix, Technology Acceptance Model (TAM), Customer Purchasing Behavior, Digital Marketing, VR/AR, PLS-SEM, Real Estate Industry (China)

Research Background

The Chinese real estate industry is transforming due to urbanization, policy reforms, and digital technology. As buyers become more digitally savvy, traditional marketing struggles to remain competitive (Zhou & Ye, 2021). Developers must adopt innovative, consumer-centric digital strategies that influence buying decisions (Manzoor et al., 2020). China Resources Land (CRLand) leads the way with interactive marketing, virtual showrooms, AI-driven engagement, and a digital platform that covers 93% of marketing expenses in 2024 (CRLand, 2024). Despite interest, little empirical research has explored how these strategies impact consumer intentions and purchasing, mediated by technology acceptance.

Most studies focus on TAM in low-involvement digital services, such as e-commerce and mobile apps, and rarely examine high-stakes cases, like residential property purchases, where emotion and experience matter more. Additionally, few studies compare digital marketing, personalization, and experiential strategies in emerging markets.

This study integrates TAM (Davis, 1989) with marketing innovation to assess behavioral outcomes among potential buyers. TAM, widely used in digital marketing, is adapted here to evaluate how perceived ease of use, usefulness, emotional appeal, social interaction, and trust influence buyer behavior (Gefen et al., 2003). It focuses on high-cost, high-involvement residential real estate, analyzing data from CRLand prospects across China to test how marketing elements affect purchase intentions. The study's contributions are threefold: contextualizing TAM in real estate, offering practical insights for developers, and enriching consumer behavior research in emerging markets amid digital transformation.

Research Objectives

This study analyzes how innovative marketing mix elements combined with TAM affect consumer purchasing in China's real estate market, using CRLand as a case study.

Conceptual Framework

This study integrates the Technology Acceptance Model (TAM) with three external variables—Digital Marketing (DM), Personalized Services (PS), and Experiential Marketing (EM)—to examine their influence on Perceived Ease of Use (PEOU) and Perceived Usefulness (PU). These factors affect Attitude Toward Using (ATU), Behavioral Intention to Use (BI), and Actual System Use (ASU), capturing both cognitive and emotional responses in the real estate context. Including ASU addresses a key behavioral aspect often missing in TAM (Venkatesh et al., 2008). In real estate, actual system use—via virtual tours, online tools, and digital bookings—leads to tangible outcomes like qualified leads, shorter sales cycles, and conversions, beyond attitude measures. The framework evaluates how marketing innovations directly affect perceptions and, through mediators, indirectly influence user behavior. Using structural equation modeling (SEM), it analyzes complex relationships, such as emotional responses to experiential marketing and tech adoption, aiding the development of theory and strategies for developers like CRLand.

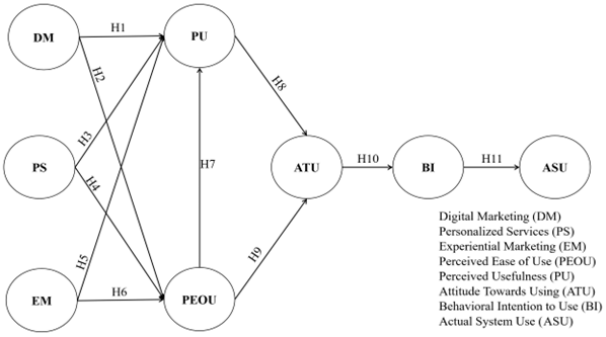


Figure 1: Conceptual Framework

Definition of Terms

Digital Marketing (DM) involves utilizing online platforms, such as social media, mobile apps, and virtual content, to promote property listings. CRLand, for instance, has incorporated WeChat, Douyin, and O2O (online-to-offline) systems to allow virtual tours, live-streamed property launches, and targeted digital advertising. These tools improve information accessibility and boost consumers' perceived usefulness of the platform (CRLand, 2024).

Personalized Services (PS) include AI-driven property recommendations, smart home previews, and custom buyer journeys tailored to user behavior and preferences. Through big data analytics, CRLand offers dynamic pricing, exclusive offers, and concierge-level interactions, thereby improving the ease of use and relevance of its digital interfaces (Bhattacharya et al., 2004).

Experiential Marketing (EM) focuses on emotionally engaging the buyer through immersive, interactive experiences. CRLand utilizes technologies such as VR/AR home viewings, lifestyle-themed events, and interactive model homes to foster emotional connections and brand loyalty. These experiences support deeper psychological involvement in the purchase process, influencing both perceived usefulness and attitude formation.

Perceived Ease of Use (PEOU) refers to the degree to which users believe that interacting with the system will be effortless (Davis, 1989). In the real estate context, where transactions are complex and financially significant, platforms that offer intuitive navigation, seamless virtual tours, and real-time assistance are particularly crucial for enhancing PEOU.

Perceived Usefulness (PU) refers to the extent to which users believe that the system will enhance their decision-making or productivity. For property buyers, this includes better access to listings, price comparisons, and tailored property suggestions that address information asymmetry challenges inherent in property markets, thereby improving decision-making quality (Gefen et al., 2003).

Attitude Toward Using (ATU) reflects the user's positive or negative evaluation of using the system. Beyond traditional usefulness and ease-of-use factors, emotions elicited by

experiential marketing directly influence attitude formation toward real estate technology adoption (Bhattacharya et al., 2004).

Behavioral Intention to Use (BI) is the degree to which a person has formulated conscious plans to use a system. It acts as a key predictor of actual engagement (Ajzen, 1991).

Actual System Use (ASU) captures observable user behavior, such as engaging with virtual tours, scheduling property viewings through apps, or interacting with online sales agents. Measuring actual usage in real estate contexts poses unique challenges due to the infrequency of property purchases.

Literature Review

The relevant literature for this research was reviewed according to the factors associated with each hypothesis, as follows:

H1: Digital Marketing (DM) ⟶ Perceived Usefulness (PU) Digital marketing (DM) refers to technology-mediated promotion, such as virtual reality (VR) house tours, online-to-offline (O2O) platforms, and social media. According to TAM (Davis, 1989), DM improves access to relevant property information, thus increasing perceived usefulness. Real estate-specific studies confirm that digital channels enhance perceived utility in property purchases, with virtual tours and interactive platforms significantly improving buyers' ability to evaluate properties remotely (McLean & Wilson, 2019; Saleem et al., 2022). **H1 is proposed:** DM has a positive influence on PU.

H2: Personalized Services (PS) ⟶ PU PS offers customized services tailored to buyer profiles, including AI-driven property recommendations. Rooted in Service-Dominant Logic (Vargo & Lusch, 2004), such personalization increases perceived value. Personalization specifically addresses information asymmetry in real estate markets by filtering vast property databases to match individual preferences and financial capabilities, thereby reducing buyer uncertainty and search costs inherent in property transactions (Bhattacharya et al., 2004). **H2 is proposed:** PS has a positive influence on PU.

H3: Experiential Marketing (EM) ⟶ PU EM includes immersive experiences like virtual walkthroughs and lifestyle events. Based on experiential consumption theory (Pine & Gilmore, 1999), engaging experiences influence perceptions of usefulness. The qualitative aspect of usefulness for EM lies in allowing prospective buyers to "experience" and emotionally connect with properties before physical visits, enabling them to assess spatial layouts, ambiance, and lifestyle fit—making digital tools profoundly useful for high-stakes property decisions (Reinartz et al., 2019). **H3 is proposed:** EM has a positive influence on PU.

H4: DM ⟶ Perceived Ease of Use (PEOU) Digital interfaces that offer intuitive navigation and visual tools improve user comfort. TAM suggests such features lower effort perception (Davis, 1989). Research confirms that mobile-first real estate platforms improve PEOU (Reinartz et al., 2019). **H4 is proposed:** DM positively influences PEOU.

H5: PS ⟶ PEOU AI-enhanced services simplify user interactions, such as filtering, comparisons, or scheduling. Personalized services reduce complexity in real estate transactions, which are often overwhelming due to the sheer volume of property information, financing options, and legal considerations. By presenting curated, relevant content, these services reduce cognitive load and perceived effort (Gefen et al., 2003; Liu, 2023; Verhoef et al., 2021). **H5 is proposed:** PS positively influences PEOU.

H6: EM ⟶ PEOU EM reduces cognitive load by digitally simulating real-world experiences. The immersion provided by EM directly contributes to effortless understanding of complex property features—buyers can intuitively grasp spatial relationships, design elements, and functionality through virtual experiences rather than interpreting static images or floor plans (Verhoef et al., 2021). **H6 is proposed:** EM positively influences PEOU.

H7: PEOU ⟶ PU According to TAM, technologies that are easier to use are perceived as more useful (Davis, 1989). Meta-analyses confirm this causal path in various contexts (Venkatesh et al., 2008). **H7 is proposed:** PEOU positively influences PU.

H8: PU ⟶ Attitude Toward Using (ATU) Users are more likely to form positive attitudes when they believe the system improves performance. Prior research in mobile and real estate platforms supports this (Henseler et al., 2015; Ullah et al., 2019). **H8 is proposed:** PU has a positive influence on ATU.

H9: PEOU ⟶ ATU TAM posits that ease of use leads to favorable attitudes toward adoption (Gefen et al., 2003). This is particularly relevant in real estate, where positive attitudes stemming from ease of use help reduce perceived risk in high-value transactions by building user confidence and trust in digital tools for major financial decisions. **H9 is proposed:** PEOU positively influences ATU.

H10: ATU ⟶ Behavioral Intention (BI) A positive attitude is a strong predictor of intention, according to the Theory of Planned Behavior (TPB) framework (Ajzen, 1991). Studies have shown that digital satisfaction leads to an intention to adopt real estate platforms. **H10 is proposed:** ATU has a positive influence on BI.

H11: BI ⟶ Actual System Use (ASU) Behavioral intention is a direct precursor to usage behavior (Venkatesh et al., 2003). In real estate, intentions to explore digital tools translate to actual engagement. **H11 is proposed:** BI positively influences ASU.

Research Methodology

1. Research Design

This study uses a survey to examine how innovative marketing strategies affect consumer acceptance and behavior in China's real estate. It combines the Technology Acceptance Model with three external factors: Digital Marketing, Personalized Services, and Experiential Marketing. These influence perceptions, attitudes, intentions, and engagement with digital property systems. The cross-sectional approach captures current perceptions but cannot track changes over time, a limitation given long purchase cycles and gradual tech adoption.

PLS-SEM was chosen for its suitability in exploratory research that expands existing models with new constructs. Unlike covariance-based SEM, PLS-SEM manages complex models

with many relationships, works well with small samples, and makes few distribution assumptions. It is ideal for prediction and theory development rather than confirmation, making it suitable for studying how innovative marketing impacts technology acceptance in China's digital real estate platforms.

2. Population and Sample

Population Definition: The target group includes prospective residential buyers aged 18+ who engaged with China Resources Land's digital platforms—website, app, WeChat mini-program, virtual showrooms, or online customer service—in the past year (January–December 2024). They are residents or potential buyers in first-tier cities (Beijing, Shanghai, Shenzhen) and second-tier cities (Chengdu, Hangzhou) where CRLand has a strong market and digital presence.

Sampling Method: A non-probability purposive sampling approach was used to recruit 400 participants with recent exposure to CRLand's digital channels. They were recruited through CRLand's CRM database of recent users and online survey panels managed by research firms, screening for matching demographics and engagement.

Sampling Limitations: Several limitations exist: purposive sampling limits generalization beyond CRL and its users; findings may not apply to consumers unfamiliar with digital platforms or in lower-tier cities; offline-only buyers are omitted, potentially representing a distinct group.

3. Questionnaire Development

The research instrument was developed based on validated measurement scales from prior TAM and marketing innovation studies. Constructs such as Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Behavioral Intention (BI) were measured using multi-item 7-point Likert scales (1 = Strongly Disagree, 7 = Strongly Agree). New items related to DM, PS, and EM were crafted to reflect estate-specific interactions (e.g., virtual tours, AI suggestions, immersive events). Content validity was established through three rounds of expert review involving real estate professionals and marketing scholars. A pilot survey (n = 50) assessed item clarity, internal consistency (Cronbach's $\alpha > 0.85$), and construct reliability. Minor adjustments were made before launching a survey via online platforms, with 436 distributed and 400 valid responses, a 91.6% response rate.

4. Data Analysis and Structural Modeling

This study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) using ADANCO to validate the measurement model and test the hypothesized structural relationships. PLS-SEM is appropriate for research involving predictive modeling and theoretical extension, especially when combining reflective and formative constructs or working with latent variables.

a. Measurement Model Evaluation

The evaluation of the measurement model focused on four key psychometric criteria to ensure construct reliability and validity. Indicator Reliability was checked using outer loadings, with a threshold of ≥ 0.708, to confirm that each indicator shares more variance with its construct than with error. Internal Consistency Reliability was verified using Cronbach's alpha and Composite Reliability (CR), both of which require values above 0.70 to indicate sufficient inter-item consistency within each construct. Convergent Validity was assessed via Average Variance Extracted (AVE), with values exceeding 0.50, indicating that the constructs explain more than half

of the variance in their indicators. Discriminant Validity was tested using the Heterotrait-Monotrait (HTMT) ratio, which requires values below 0.85 to demonstrate that constructs are sufficiently distinct (Henseler et al., 2015). Together, these criteria ensure that the psychometric properties are adequate for dependable structural model analysis.

b. Structural Model Evaluation

The structural model evaluation employed comprehensive statistical procedures to examine path significance and assess model robustness.

Path Significance Testing used bootstrapping with 5,000 resamples to estimate t-values and confidence intervals, providing reliable, assumption-free significance testing for relationships. Explanatory Power was measured via R^2 values (0.25=weak, 0.50=moderate, 0.75=strong), indicating variance explained by predictors. Practical Significance was evaluated through effect sizes (f^2) and Q^2 for out-of-sample prediction. Harman's single-factor test was used to assess common method bias; the first factor explained less than 50% of the variance, indicating minimal bias and validating the results.

Results

1. Demography of the Sample

The demographic profile reveals a diverse age range (22-70 years), with 62% falling within the 30-50 age group, aligning with China's primary homebuyers. Monthly income ranged from 870 to 150,000 yuan, with 75% earning ≤20,000 yuan, mainly low- to middle-income individuals. This may influence preferences for cost-effective property search tools. The sample was 64.5% female and 35.5% male, which could impact results due to gender differences in technology adoption and real estate decisions. These demographics should be taken into account when interpreting the findings.

2. Model fit

Table 1 presents a thorough assessment of the model's adequacy using the Standardized Root Mean Square Residual (SRMR), dULS, and dG, as outlined by Henseler et al. (2015). The SRMR was 0.0298 for the saturated model and 0.0385 for the estimated model, both well below the 0.08 threshold, indicating an excellent fit. The dULS and dG values fell within acceptable confidence intervals (95% and 99%), supporting the model's robustness. These findings demonstrate that the structural model has an excellent overall fit, thereby increasing confidence in the links between marketing innovation aspects (Digital Marketing, Personalized Services, Experiential Marketing), technology acceptance, and consumer behavior in the real estate sector. This reliable fit underpins the validity of conclusions and practical suggestions for developers like CRLand, ensuring that pathways to consumer technology adoption are factually supported and feasible.

Table 1 Model fit index

	Saturated model			Estimated model		
	Value	HI95	HI99	Value	HI95	HI99
SRMR	0.0298	0.0361	0.0416	0.0385	0.0578	0.0751
d_{ULS}	0.2049	0.3003	0.3994	0.3423	0.7708	1.3043
d_G	0.3189	0.3682	0.4250	0.3452	0.4221	0.5815

3. Measurement Model Reliability and Validity

All constructs showed satisfactory internal consistency and validity. Indicator loadings exceeded 0.708. CR ranged from 0.8053 to 0.8927, indicating strong consistency. AVE values above 0.50 confirmed convergent validity. The model met reliability and validity criteria as shown in Table 2.

Table 2 Measurement Model Results

Indicator	loadings	Cronbach's alpha	Composite reliability Jöreskog's rho (Rho_c)	Average variance extracted (AVE)
Digital Marketing (DM)		0.8929	0.8927	0.7351
DM1	0.8830			
DM2	0.8609			
DM3	0.8275			
Personalized Services (PS)		0.8488	0.8538	0.7461
PS1	0.9273			
PS2	0.7952			
Experiential Marketing (EM)		0.8673	0.8672	0.6852
EM1	0.8340			
EM2	0.8116			
EM3	0.8374			
Perceived Usefulness (PU)		0.8369	0.8392	0.6235
PU1	0.8937			

Indicator	loadings	Cronbach's alpha	Composite reliability Jöreskog's rho (Rho_c)	Average variance extracted (AVE)
PU3	0.8052			
Perceived Ease of Use (PEOU)		0.8843	0.8850	0.7196
PEOU1	0.8824			
PEOU2	0.8408			
PEOU3	0.8205			
Attitude Towards Using (ATU)		0.8918	0.8922	0.7341
ATU1	0.8918			
ATU2	0.8575			
ATU3	0.8196			
Behavioral Intention to Use (BI)		0.8723	0.8725	0.6958
BI1	0.8911			
BI2	0.8088			
BI3	0.7994			
Actual System Use (ASU)		0.7986	0.8053	0.6758
AU1	0.8932			
AU2	0.7442			

HTMT analysis showed several values above 0.85, indicating overlap between constructs like PU–PEOU (0.8910), PU–ATU (0.9263), and ATU–BI (0.9118), suggesting significant overlap among TAM components, especially in real estate, where perceptions of usefulness and ease of use are intertwined due to high involvement. Elevated correlations may influence attitudes and behavior; similar issues have been observed in other high-involvement TAM studies. While most HTMT values are below 0.85, these high correlations call for cautious interpretation. Future research should use higher-order models or refine measurement items to differentiate these constructs in property market dynamics better.

Table 3 Discriminant validity, the Heterotrait–Monotrait Ratio (HTMT)

Construct	DM	PS	EM	PU	PEOU	ATU	BI	ASU
DM								
PS	0.8003							
EM	0.8494	0.7391						
PU	0.7533	0.6364	0.9042					
PEOU	0.6092	0.6252	0.8358	0.8910				
ATU	0.6409	0.5126	0.8192	0.9263	0.8446			
BI	0.6393	0.5632	0.8389	0.8873	0.8565	0.9118		
ASU	0.4960	0.4876	0.6469	0.7013	0.6269	0.6950	0.7642	

HTMT index values surpassing the threshold (PU–ATU = 0.9263; PU–PEOU = 0.8910) may suggest multicollinearity or TAM variable overlap, weakening PU ⟶ ATU and PU ⟶ BI links, despite the model's validity.

4. Structural Model

Experiential marketing significantly influences perceived usefulness (β = 0.960, $p < 0.001$), underscoring the role of immersive tools like VR in real estate. The core TAM pathways remain strong—PEOU ⟶ ATU (β = 0.959), ATU ⟶ BI (β = 0.911), BI ⟶ ASU (β = 0.762)—while digital marketing and personalization do not show significant effects, indicating they are now expected baseline features. All R^2 values exceed 0.58, confirming the model's robust explanatory power.

Table 4 PLS-SEM Structural Path Coefficients and Hypothesis Testing Results

		Standard bootstrap results				Percentile bootstrap quantiles (CI=95%)		Supported
Effect	Original coefficient	Mean value	Standard error	t-value	p-value (2-sided)	2.5%	97.5%	
H1:DM -> PU	-0.0168	-0.0299	0.3442	-0.0489	0.9610	-0.4800	0.3755	NO
H4:DM -> PEOU	-0.4689	-0.1638	14.6413	-0.0320	0.9745	-1.1587	0.0967	NO
H2:PS -> PU	-0.0571	-0.0728	0.3061	-0.1866	0.8520	-0.3292	0.1492	NO
H5:PS -> PEOU	0.2384	0.3010	5.7260	0.0416	0.9668	-0.3172	0.8141	NO
H3:EM -> PU	0.9596	0.9901	0.2275	4.2183	0.0000	0.6031	1.4699	YES
H6:EM -> PEOU	0.4012	-0.6411	54.1190	0.0074	0.9941	-1.3434	2.1402	NO
H7:PU->PEOU	0.7278	1.4731	39.1121	0.0186	0.9852	-0.6603	2.2320	NO
H8:PU -> ATU	0.8412	1.2593	21.7862	0.0386	0.9692	-0.6385	2.6853	NO
H9:PEOU -> ATU	0.0952	-0.3234	21.7863	0.0044	0.9965	-1.7622	1.5724	NO
H10:ATU -> BI	0.9118	0.9127	0.0333	27.4180	0.0000	0.8435	0.9743	YES
H11:BI -> ASU	0.7616	0.7659	0.0874	8.7147	0.0000	0.5897	0.9287	YES

5. Hypothesis Testing Results

Figure 2 and Table 4 indicate that Digital Marketing (H1, H4) and Personalized Services (H2, H5) had no significant influence on PU or PEOU, suggesting they are fundamental features rather than primary value drivers in the real estate sector. Experiential Marketing (H3) substantially enhanced PU, highlighting the importance of immersive experiences, yet it did not influence PEOU (H6). Several core paths of the Technology Acceptance Model (TAM) were not supported (H7: PU⟶PEOU; H8: PU⟶ATU), suggesting that perceived usefulness may not directly affect ease of use or attitudes toward high-value properties. The supported pathways reaffirm PEOU⟶ATU (H9), ATU⟶BI (H10), and BI⟶ASU (H11), underscoring that usability and attitudes are pivotal determinants of technology adoption and actual utilization within real estate platforms.

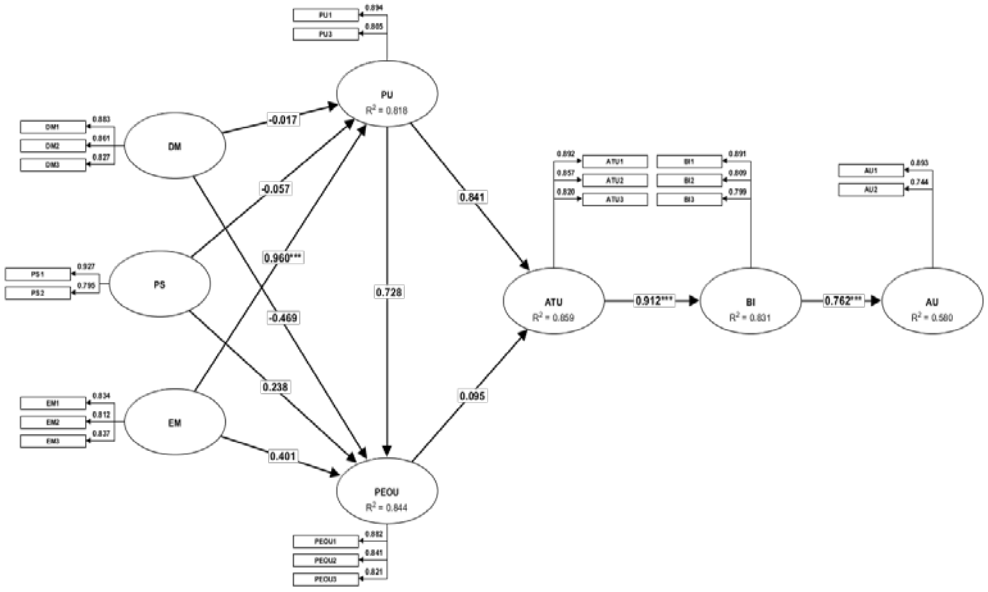


Figure 2: Structural Equation Model

Discussion

1. Summary of Key Findings

This study examined how digital marketing (DM), personalized services (PS), and experiential marketing (EM) influence consumer adoption in real estate via the Technology Acceptance Model (TAM). Results show that EM significantly boosts perceived usefulness (PU), while DM and PS have no significant effect. Core TAM pathways were partially supported: PEOU strongly predicts ATU, which drives BI and ASU, but PU ⟶ ATU and PU ⟶ BI were not significant.

The negligible effects of DM and PS on PU/PEOU may indicate that digital marketing tools and personalized services have become a "baseline expectation" among consumers in China's modern real estate market. This is consistent with Zhu et al. (2022), who found that buyers now

regard digital services and AI recommendations as standard, so they no longer add perceived usefulness.

The insignificant relationships of PU on ATU and BI suggest that perceived usefulness might not be the main factor in situations with "high emotional and financial risk," such as buying a home. This aligns with Venkatesh & Bala's (2012) idea that emotional involvement can reduce the influence of utility-based evaluation in decision-making.

Another reason for the non-significant results is China's saturated, highly competitive real estate market. Consumers are accustomed to abundant information, price-comparison tools, live-stream house tours, and AI recommendation systems. These tools no longer notably improve "ease of use" or "usefulness" compared to experiential marketing, which offers greater emotional value.

2. Interpretation and Theoretical Discussion

The strong influence of EM on PU underscores the value of immersive tools, such as VR tours and interactive 3D simulations, in shaping user perceptions, aligning with research that emphasizes experiential value in high-involvement purchases (Li & Zhang, 2022). In contrast, the insignificance of DM and PS suggests that these strategies have become baseline expectations in China's highly digitized real estate market, reflecting the diminishing impact of generic digital presence or algorithmic personalization (Zhu et al., 2022). The lack of support for TAM's conventional PU ⟶ ATU and PU ⟶ BI relationships may be due to conceptual overlap or multicollinearity (as evidenced by the HTMT statistic), indicating that, in high-stakes property decisions, PU and ATU are closely connected cognitive evaluations. This suggests that TAM's universal applicability may be limited in emotionally and financially complex decisions (Venkatesh & Bala, 2012). However, the strong PEOU ⟶ ATU pathway confirms that intuitive, easy-to-use platforms remain essential for fostering positive attitudes, highlighting the importance of user-friendly design in reducing complexity and promoting the adoption of real estate technology (Davis, 1989; Hair et al., 2019).

Recent studies support that immersive technology boosts perceived usefulness. Deep et al. (2023) showed that VR/AR reduces spatial uncertainty and helps buyers evaluate properties, thereby increasing its effectiveness in high-involvement decisions. Ibrahim et al. (2023) found that immersive VR features such as vividness, interactivity, and realism improve users' property assessments, outperforming traditional digital tools. These findings suggest experiential value, not just digital information, influences perceptions of usefulness in real estate technology.

The lack of significant effects from digital marketing and personalized services aligns with evidence that these are now baseline features rather than key differentiators in real estate tech. Sun et al. (2023) found that digital cues elicit weaker engagement among users accustomed to digitized platforms, leading them to treat them as standard information tools. Mauri et al. (2024) noted that non-immersive digital interfaces do not affect evaluations unless paired with immersive or emotional elements. These findings explain why DM and PS had no predictive effect on PU or

PEOU: in saturated markets, digital access and recommendations are expected, offering little additional value.

The reduced predictive power of perceived usefulness for attitude and intention aligns with findings that TAM's cognitive pathways weaken in emotionally complex, high-risk decisions, such as property buying. Chen et al. (2025) show experiential and affective value drive VR real estate intention, while Sun et al. (2023) report emotional resonance and presence influence early decisions more than utilitarian judgments. These suggest that usefulness remains relevant but secondary to immersive, affective, and confidence-building experiences, highlighting the need to adapt TAM to high-stakes, emotional contexts.

Although some hypotheses were unsupported, these non-significant results provide insights. The insignificant paths from Digital Marketing and Personalized Services to PU and PEOU indicate that these features are now standard in China's digital real estate market, no longer increasing perceived usefulness or ease of use. On the other hand, experiential marketing continues to be a key differentiator influencing user perceptions. Non-significant relationships from PU to ATU and BI suggest that emotional, high-risk property purchases emphasize experiential and affective cues over rational utility. Venkatesh & Bala (2012) note that TAM's cognitive evaluations weaken in emotional decisions. The elevated HTMT between PU–ATU and PU–PEOU indicates conceptual overlap, possibly affecting the significance of these paths. These findings highlight TAM's limitations in high-involvement contexts and recommend that future research include higher-order constructs or alternative theories to better capture experiential value.

3. Theoretical and Practical Implications

Theoretical Implications

This study enhances TAM by adding innovative marketing elements, demonstrating that experiential components have a more substantial impact than traditional digital promotion. This broadens TAM's ability to explain adoption behavior by emphasizing the importance of sensory and interactive marketing in high-involvement contexts such as real estate (Li & Zhang, 2022). Additionally, the insignificance of several traditional TAM paths calls into question the model's assumed universality. Consistent with Venkatesh and Bala (2012), the results suggest that overlapping constructs and complex contexts limit TAM's predictive effectiveness in emotionally and financially demanding decisions. This highlights the need to tailor general adoption models to niche markets.

Practical Implications

Managerially, the results suggest that greater investment in immersive technologies—such as VR tours and AR simulations—can enhance perceived usefulness and decrease reliance on repeated physical visits (Guo et al., 2023). Personalization should extend beyond generic recommendations to include context-aware, transparent suggestions that offer genuine decision-making value. Additionally, platform design must focus on simplicity and intuitive navigation, reaffirming Davis' (1989) principle that ease of use is a key factor in adoption. Real estate

developers should consequently shift their resources from traditional digital marketing to experiential, user-centered innovations that deliver tangible benefits to consumers.

4. Limitations

This study has several limitations. First, the sample is limited to users of CRLand platforms, reducing generalizability across global markets with different cultural and regulatory conditions. Second, the cross-sectional design restricts causal inference, particularly in long purchase cycles typical of real estate (Hair et al., 2019). Third, the elevated HTMT values between PU and ATU suggest potential issues with discriminant validity. Lastly, reliance on self-reported data may introduce biases, such as social desirability, in sensitive financial decision-making contexts.

5. Recommendations for Future Research

5.1 Model Extension: Future studies should integrate constructs from the Stimulus–Organism–Response (S-O-R) framework (Mehrabian & Russell, 1974), such as emotional engagement and sensory stimuli, to capture experiential mechanisms better.

5.2 Higher-Order Constructs: To mitigate construct overlap, PU and ATU could be modeled as dimensions of broader constructs, such as “Perceived Value” (Chiu et al., 2014).

5.3 Longitudinal Designs: Tracking user engagement across the property purchase timeline would provide insight into the evolution of attitudes and intentions (Hair et al., 2019).

5.4 Cross-Context Comparisons: Replication across emerging versus mature real estate markets would validate generalizability and reveal structural differences.

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