AI-based Smart Home Technologies in the Telecommunication Industry – A Multiple Case Study

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Abstract

Despite the evident market growth and technological advancements, there is a lack of studies examining the strategies employed by Chinese smart home technology firms to encourage the adoption of AI-based smart home technologies. This qualitative multiple-case study aimed to fill that gap by exploring how five leading Chinese smart home technology firms (Haier, Aqara, Xiaomi, Huawei, and LifeSmart) embed TAM-related adoption predictors into their consumer communication strategies, focusing on Millennials and Gen Z. This purpose leads to the research question: "How do five leading Chinese smart home firms embed TAM-related adoption predictors into their consumer communication strategies, focusing on Millennials and Gen Z?" The findings reveal that all five case study firms effectively tailor their communication strategies by leveraging TAM predictors to resonate with the preferences and expectations of Milennials and Gen Z, providing implications for both academic theory and practical marketing management. Future research could add further case study firms to the sample, extend the results to other geographical markets, or use longitudinal studies to analyse changes in consumer adoption and communication strategies.

#Keywords

Artificial intelligence; AI-based Smart Home Technologies; China; Smart Home Technology; TAM; Technology Acceptance Model; Perceived Usefulness; Perceived Ease of Use; Trust; User Attitude; User Adoption Intention.

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KI-basierte Smart-Home-Technologien in der Telekommunikationsbranche – Eine Fallstudie

Trotz des offensichtlichen Marktwachstums und der technologischen Fortschritte mangelt es an Studien, die die Strategien chinesischer Smart-Home-Technologieunternehmen zur Förderung der Akzeptanz von KI-basierten Smart-Home-Technologien untersuchen. Diese qualitative Multiple-Case-Studie zielt darauf ab, diese Forschungslücke zu schließen, indem untersucht wird, wie fünf führende chinesische Smart-Home-Technologieunternehmen (Haier, Aqara, Xiaomi, Huawei und LifeSmart) TAM-bezogene Adoptionsprädiktoren in ihre Verbraucherkommunikationsstrategien einbetten, mit einem besonderen Fokus auf Millennials und die Generation Z. Daraus ergibt sich die Forschungsfrage: „Wie betten fünf führende chinesische Smart-Home-Unternehmen TAM-bezogene Adoptionsprädiktoren in ihre Verbraucherkommunikationsstrategien ein, mit einem Fokus auf Millennials und die Generation Z?" Die Ergebnisse zeigen, dass alle fünf Fallstudienunternehmen ihre Kommunikationsstrategien wirksam anpassen, indem sie TAM-Prädiktoren nutzen, um die Präferenzen und Erwartungen von Millennials und der Generation Z gezielt anzusprechen. Dies liefert wertvolle Implikationen sowohl für die akademische Theorie als auch für das praktische Marketingmanagement. Zukünftige Forschung könnte zusätzliche Fallstudienunternehmen in die Stichprobe einbeziehen, die Ergebnisse auf andere geografische Märkte ausweiten oder Längsschnittstudien einsetzen, um Veränderungen in der Verbraucherakzeptanz und den Kommunikationsstrategien zu analysieren.

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电信行业中的人工智能智能家居技术——案例研究

尽管市场增长显著且技术不断进步，但目前针对中国智能家居技术企业促进人工智能（AI）智能家居技术采纳策略的研究仍然不足。本质性多案例研究旨在填补这一空白，通过考察五家中国领先的智能家居技术企业（海尔、Aqara、小米、华为和LifeSmart）如何将技术接受模型（TAM）相关的采纳预测因素嵌入其消费者沟通策略中，重点关注千禧一代和Z世代。因此，本研究提出研究问题："中国五家领先的智能家居企业如何在针对千禧一代和Z世代的消费者沟通策略中嵌入TAM相关的采纳预测因素？"研究结果表明，这五家案例企业均有效地通过利用TAM预测因素来调整其沟通策略，以契合千禧一代和Z世代的偏好和期望，从而为学术理论和市场营销管理实践提供了启示。未来研究可进一步增加案例企业样本，将研究结果扩展至其他地理市场，或采用纵向研究方法分析消费者采纳与沟通策略的变化。

Introduction

The rapid integration of artificial intelligence (AI) into smart home technologies has significantly transformed residential living, offering enhanced automation, personalization, and efficiency. The global AI in smart home technology market was valued at USD 12.7 billion in 2023 and is projected to reach USD 57.3 billion by 2031, growing at a compound annual growth rate (CAGR) of 21.3% during the forecast period (Future Data Stats, 2024; InsightAce, 2024). China is expected to achieve a smart home market share of 20–30% by 2028 (Narcotta, 2024); however, significant growth potential remains, as only 22.6% of Chinese internet users accessed the internet via smart home devices as of December 2024 (China Internet Network Information Center, 2025). This substantial growth (potential) underscores the increasing demand for intelligent home solutions. Companies like LG Electronics are at the forefront of this evolution, emphasizing "Affectionate Intelligence" to create empathetic and caring AI that delivers unique customer experiences (LG, 2024).

Despite the evident market growth and technological advancements, there is a lack of studies examining the strategies employed by Chinese smart home technology firms to encourage the adoption of AI-based smart home technologies. The specific problem this study addresses is that foreign marketing managers lack a comprehensive understanding of how Chinese smart home technology firms manage consumer adoption of their products (Kuziaev & Neubert, 2024). This qualitative multiple-case study aims to fill that gap and solve the problem by exploring how five leading Chinese smart home technology firms embed TAM-related adoption predictors into their consumer communication strategies, focusing on Millennials and Generation Z. This purpose leads to the research question: "How do five leading Chinese smart home firms embed TAM-related adoption predictors into their consumer communication strategies, focusing on Millennials and Generation Z?"

This study is part of an ongoing research project at the European Institute of Management (EIM), focusing on the adoption of AI-based Smart Home Technologies (AI-SHT) among Chinese consumers. The first published study in this series was a systematic literature review that assessed the current state of research and identified relevant research gaps (Kuziaev & Neubert, 2024). The second publication employed a quantitative approach to examine the factors in-

fluencing age-related adoption patterns of AI-SHT among Chinese Millennials and Gen Z (Kuziaev & Neubert, 2024). Its findings indicated that the most influential predictors of Gen Z purchasing behavior were user-friendly design, transparency, and data privacy. At the same time, Millennial consumers were primarily motivated by financial savings, practical functionality, and safety features (Kuziaev & Neubert, 2024). Building on these insights, this third paper presents a qualitative multiple-case study to explore how five leading Chinese smart home technology firms embed TAM-related adoption predictors into their consumer communication strategies, focusing on Millennials and Generation Z. By exploring how these factors are represented across case study firms, this study aims to contribute to the field of smart home technology adoption and should support marketing managers in designing effective adoption strategies of innovative high-tech products.

Literature Review and Conceptual Framework

China's smart home technology market

China's smart home technology market is based on a combination of consumer preferences, technological innovation, and infrastructural support. Chinese consumers prioritize affordability and functionality in their smart home purchases, with many products designed to integrate into multifunctional mobile applications, such as social media or payment services (Narcotta, 2024). This consumer demand is met by domestic tech giants such as Xiaomi or Haier, which dominate the sector through comprehensive AI-powered ecosystems like Mi Home (Narcotta, 2024). Xiaomi, in particular, leads in offering low-cost, AI-enhanced devices, ranging from security cameras to kitchen appliances, all of which are interconnected via its proprietary platform (Narcotta, 2024). The Chinese government's substantial investment in 5G and IoT infrastructure and consumer benefits (e.g., trade-in promotion) further supports the growth of the smart home technology industry by enabling device integration and connectivity (China Internet Network Information Center, 2025). Unlike Western markets, where independent manufacturers and platforms typically compete, China's telecommunications providers, China Mobile, China Telecom, and China Unicom, serve as the backbone of the ecosystem by bundling broadband, mobile, and smart home services (Narcotta, 2024). For instance, China Mobile's Home app has surpassed 360 million subscriptions. It supports hundreds of millions of connected devices, while China Telecom and China Unicom have developed cloud-based and 5G-enabled platforms emphasizing automation, security, and energy efficiency (Narcotta, 2024). Collectively, these dynamics illustrate how China's integrated approach, driven by consumer needs and institutional support, is positioning it at the forefront of global smart home technology innovation.

The Technology Acceptance Model (TAM) as Conceptual Framework

The TAM states that users' adoption intentions are primarily governed by the constructs of "perceived usefulness" (PU) and "perceived ease of use" (PEU) of a technology (Zhou et al., 2024). PU is defined as the degree to which a user believes the smart-home technology system will enhance daily life, and PEU as how effortlessly it can be used (Yap & Kamaruddin, 2023). Empirical studies consistently find that higher PU and PEU lead to more favorable user attitudes (UA) and, in turn, higher adoption intent. Contemporary research extends TAM by adding predictors such as trust (TR) and user attitude (UA), also for smart home technology adoption (Chin et al., 2024). For example, Chang et al. (2017) highlight that perceived security and trustworthiness in devices strengthen users' confidence, while Choung et al. (2022) show trust has a strong positive effect on perceived usefulness. In the

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Chinese smart-home technology context, Kuziaev and Neubert (2024) likewise include trust as a key factor: well-designed communication that fosters transparency and reliability can significantly boost consumer trust and, by extension, PU. In sum, the TAM constructs PU, PEU, TR, and UA form the core drivers of smart-home technology adoption intent in this study (see Figure 1).

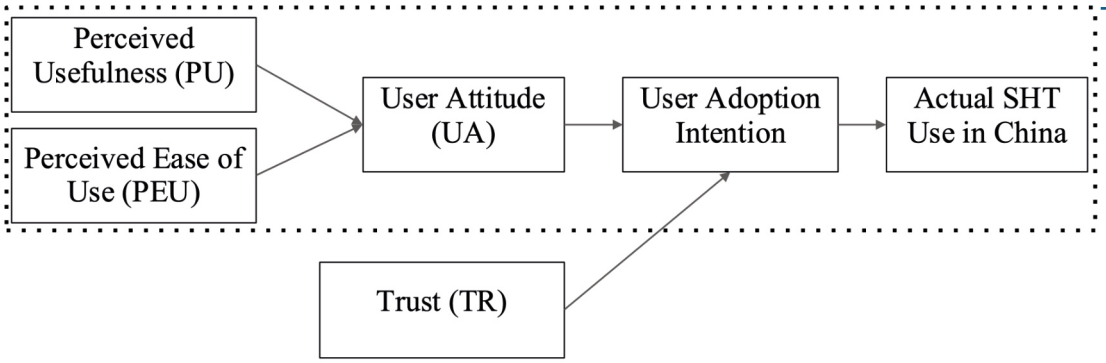

Figure 1: *TAM -Technology Acceptance Model (adapted)*

Generational Influences on Adoption

Millennials and Generation Z, though both "digital-native" cohorts, differ in how they weigh these TAM constructs. In the Chinese market, Kuziaev and Neubert (2024) found that Gen Z consumers place an exceptionally high value on PEU, highly rating "ease of learning, transparency, and intuitive use," which makes them more likely to adopt technologies that are easy and fun to use. Older Millennials, by contrast, responded more to PU-driven attributes: they showed the strongest intent for devices that enhance home value and safety. They emphasized functional benefits (e.g., energy savings or security) over costs (Kuziaev & Neubert, 2024). These findings mirror broader generational trends. For example, U.S. data show that 97% of Millennials already own smartphones and use social media, indicating a high level of digital engagement (Pew Research Center, 2024). Gen Z consumers, born into a world of ubiquitous mobile internet, are even more immersed and thus expect seamless, cutting-edge experiences (Theocharis & Tsekouropoulos, 2025). Studies of Gen Z marketing note that this cohort values authenticity, transparency, and social responsibility (Matsa Prasanna, 2024; Theocharis & Tsekouropoulos, 2025); they trust brands that share genuine stories and visible ethics (Matsa Prasanna, 2024). By contrast, Millennials – having grown up with earlier internet waves - appreciate convenience and established brand trust, and respond well to clear demonstrations of usefulness and endorsements (Achmad Syamsudin et al., 2025). In practice, smart-home communications should reflect these generational nuances: for Gen Z audiences, emphasis on intuitive features and brand ethos (e.g., innovation, sustainability) will resonate (Huang et al., 2024; Theocharis & Tsekouropoulos, 2025); for Millennials, messages highlighting reliability, safety benefits, or expert testimonials may be more persuasive (Valencia-Arias et al., 2023).

Research Methodology

This study adopted a qualitative multiple-case study research design, which is well-suited for exploring "how" and "why" questions in real-world contexts (Yin, 2017; Neubert et al., 2025). A qualitative method enables an in-depth understanding of consumer communication strategies, aligning with a constructivist paradigm that values meaning-making in context (Merriam & Tisdell, 2015; Stake, 2005). A multiple-case study research design was selected to compare five case-study firms, enhancing the robustness of findings through replicati-

on logic and cross-case validation (Yin, 2017; Halkias & Neubert, 2020). In contrast to a single case, examining several cases in a similar context broadens the perspective on the phenomenon (Halkias & Neubert, 2020).

The sample comprises five leading Chinese smart home firms: Aqara, Haier, Huawei, Lifesmart, and Xiaomi. These firms were selected using purposive sampling, a method well-suited for identifying data-rich cases that align closely with the study's purpose (Halkias et al., 2023; Merriam & Tisdell, 2015; Neubert, 2023). The inclusion criteria for case selection were as follows: (1) each firm must offer an AI-based smart home technology ecosystem specifically designed for consumer use, (2) the firm must be legally domiciled in China, and (3) the firm must have a robust, publicly accessible presence in consumer-facing communication, such as websites, promotional materials, and product documentation. These criteria ensured that all cases were relevant to the study's technological and geographical scope.

Data were collected through publicly available sources of evidence, such as (1) official websites and press releases, highlighting product features and value propositions, (2) social media posts and promotional videos, conveying marketing messages tailored to young adult audiences, and (3) consumer reviews and testimonials to generate feedback on products on e-commerce platforms and forums.

Data were analyzed using qualitative thematic analysis (Halkias et al., 2022; Neubert, 2024). First, a within-case analysis was conducted for each firm, where researchers coded the textual and visual content to identify emergent themes related to the constructs identified by Kuziaev and Neubert (2024) in that firm's case-study communications. Next, a cross-case thematic analysis was conducted to compare patterns across the five cases and discern common strategies and any divergent approaches. This two-stage analytic procedure – moving from case-specific findings to cross-case synthesis – follows best practices for multiple-case studies (Halkias & Neubert, 2020; Stake, 2005; Yin, 2017). Within- and cross-case analysis, conducted in tandem, enabled the researchers to develop a richer understanding of how AI-based smart home technology firms communicate adoption drivers, as recurring themes were confirmed across several cases (Yin, 2017; Halkias & Neubert, 2020). Throughout the analysis, iterative coding and constant comparison were employed to refine themes, and conclusions were drawn by converging evidence from different data sources, thereby increasing the credibility of findings.

Findings - Within Case Analysis

Case Study 1 - Haier Smart Home

Link: https://www.haier.com/global/smart_home/

Haier, a leading Chinese home appliance brand, has shifted its focus in recent years toward a comprehensive transformation of the smart home under its "Haier Smart Home" initiative. With its robust AI and IoT capabilities, Haier offers integrated solutions that automate household management across all major appliance categories (Haier Smart Home, n.d.). One of the flagship innovations is the "Smart Home Brain," a system that coordinates appliances through proactive learning and natural interaction to deliver customized, energy-efficient scenarios (Haier Smart Home, n.d.).

The usefulness of Haier's smart home offering is apparent: it frees users from routine household chores through intelligent automation. The company explicitly promotes a shift "from forced smart to practical smart," addressing consumer frustrations with earlier, less helpful smart technologies (Haier Smart Home, n.d.). By combining voice control, app integration, and edge AI, Haier reduces effort while enhancing home functionality, aligning strongly with Millennial

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demands for efficiency and time savings (Haier Smart Home, n.d.).

Ease of use is a pillar of Haier's strategy. The company has designed its Haier app to provide one-tap access to device control and automation, with a user interface optimized for simplicity and natural language interaction. Features such as multi-user voice recognition and continuous dialogue support enhance intuitiveness, meeting Gen Z's expectation for low-effort, seamless control (Haier Smart Home, n.d.).

Haier leverages social influence through its dominant market position and extensive user base, comprising over 15 million monthly active users and 183 million households utilizing its Smart Home Brain platform (Haier Smart Home, n.d.). This widespread adoption generates trust through social proof, appealing to Millennials who prioritize proven and community-endorsed technologies.

Trust is also established through Haier's legacy of quality and its explicit privacy and security guarantees. The company has obtained ISO/IEC 27001, 27701, and 27018 certifications, signaling its adherence to international standards for data security and privacy (Haier Smart Home, n.d.). Gen Z's concerns about data handling are addressed through hardware features, such as camera lens shutters and on-device data processing (Haier Smart Home, n.d.).

Energy-efficient operations highlight cost savings. For instance, Haier's AI-driven air conditioning reportedly saved users 45.6 billion kWh of electricity over three years, reflecting substantial monetary and environmental benefits (Haier Smart Home, n.d.). These benefits resonate with Millennials, who prioritize return on investment and sustainability.

Privacy and data security are integral to Haier's system design. The company's use of edge computing ensures sensitive data remains local, reducing exposure to cloud vulnerabilities. Additionally, robust encryption and authentication protocols secure user information, enhancing trustworthiness across generational divides (Haier Smart Home, n.d.).

Finally, Haier positions its smart home as both safe and efficient. Features such as automatic gas shutoff and fire prevention systems reflect a focus on proactive risk management. Haier provides a compelling blend of smart, safe, and seamless living for Millennials managing family households and Gen Z seeking intuitive, intelligent systems.

Case Study 2 - Aqara

Links: https://www.aqara.com/eu/ and https://www.aqara.com/eu/about-us/brand-story/

Aqara is a smart home brand under Lumi United Technology, known for developing comprehensive AI-based home automation devices that integrate sensors, controllers, and hubs into a cohesive IoT ecosystem. Its core offerings include smart lighting, security cameras, door and window sensors, motion detectors, and climate control systems—all centrally managed via the Aqara Home app and compatible with major platforms, such as Apple HomeKit, Google Assistant, and Alexa.

Perceived usefulness is highlighted through Aqara's promise of a safer, more responsive home. Features such as automated security alerts, water leak detection, and environmental monitoring are designed to prevent accidents and enhance daily convenience. These functionalities clearly address Millennials' concerns for safety and efficiency, as Aqara emphasizes prevention and optimization in its marketing (Aqara, n.d.).

Ease of use is central to Aqara's design philosophy. Devices are installed via plug-and-play methods, many of which feature adhesive mounting and wireless connectivity, thereby simplifying the setup process. The app interface allows for scene automation with simple drag-and-drop logic, and voice control

through smart assistants simplifies interactions. These features cater directly to Gen Z's demand for intuitive, low-effort experiences (Aqara, n.d.).

Aqara fosters social influence through brand partnerships and user-generated testimonials, which are frequently showcased on its EU and global websites. Visuals of stylish interiors featuring Aqara products suggest a lifestyle alignment that appeals to younger, design-conscious consumers, reinforcing peer validation as a marketing strategy (Aqara, n.d.).

Trust is reinforced through Aqara's long-standing collaboration with Xiaomi's ecosystem and adherence to international standards, such as Zigbee 3.0, which reflects reliability and stability. For Gen Z users, the company also underscores transparency in data handling by offering privacy features such as local data processing options and the ability to disable cloud services (Aqara, n.d.).

Automation efficiency implies cost savings. Users can optimize energy consumption by scheduling heating, lighting, and appliance usage. Although not heavily emphasized, Aqara promotes its products as cost-effective over time due to energy conservation and lower utility bills (Aqara, n.d.).

Privacy and data security are addressed through Aqara's gateway encryption protocols and user-controlled cloud settings. The firm promotes compliance with GDPR on its European sites, directly addressing Gen Z's data privacy concerns (Aqara, n.d.).

Overall, Aqara is a flexible, accessible smart home solution for renters and urban dwellers. Its modular ecosystem and cross-platform support offer adaptability, which is key for Millennials seeking scalable efficiency and for Gen Z, who demand convenience and secure connectivity.

Case Study 3 - Xiaomi

Link: https://www.mi.com/de/smart-home/

Xiaomi, globally recognized for its smartphones, has emerged as a leading provider of smart home solutions through its MIJIA ecosystem. The company offers AI-based solutions, including smart lighting, sensors, air purifiers, security cameras, and robot vacuums. The company positions its smart home technology as affordable, interoperable, and intelligent, leveraging AI to streamline daily life while enhancing home safety and energy efficiency.

Perceived usefulness is heavily emphasized in Xiaomi's marketing. Its products are designed to work together seamlessly under the MIJIA platform, offering automation scenarios like "home arrival" routines that turn on lights, adjust temperatures, and unlock doors—all driven by user preferences. These features directly address Millennials' desire for efficiency and cost-saving functionality (Mi.com, n.d.).

Ease of use is another hallmark of Xiaomi's approach. The Mi Home app allows centralized control of all connected devices with a clean, minimalist interface. Xiaomi emphasizes features such as one-click device pairing and intelligent voice commands via its XiaoAI assistant, aligning closely with Gen Z's expectations for intuitive and convenient technology (Mi.com, n.d.).

Xiaomi leverages its extensive global user base and highly active online presence to capitalize on social influence. Its website features user reviews, social media integrations, and demonstration videos that show real-life smart home setups. This form of peer validation is key in encouraging adoption, particularly among younger consumers (Mi.com, n.d.).

Trust is built through Xiaomi's consistent product quality and its integration of industry-standard protocols such as Zig-

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bee and Matter. While not heavily focused on privacy in its promotional content, Xiaomi has begun to highlight data security features, such as encrypted local storage and permission controls, in response to growing concerns among Gen Z (Mi.com, n.d.).

Cost savings are central to Xiaomi's smart home promise. The company markets its products as budget-friendly and scalable, promoting modular purchases that can be made over time. Automation features help optimize energy consumption—e.g., scheduling air purifiers to run during peak pollution hours—further enhancing economic value (Mi.com, n.d.).

Though less prominently displayed than other attributes, privacy and data security are acknowledged in Xiaomi's descriptions of local processing options and privacy settings. Gen Z users, particularly in Europe, are reassured by mentions of compliance with data protection laws such as GDPR (Mi.com, n.d.).

Xiaomi's appeal spans both Millennials and Gen Z by offering affordable, scalable, and intelligent home technology. Its value proposition—smart living for all—resonates with users who prioritize ease, efficiency, and cost-effectiveness in a connected, AI-enhanced environment.

Case Study 4 - Huawei

Link: https://consumer.huawei.com/en/mobileservices/ai-life/

Huawei, a global leader in telecommunications and information technology, leverages its core competencies in networking, cloud computing, and AI to develop intelligent smart home solutions. Through its "Whole Home Smart" strategy, Huawei offers a comprehensive ecosystem that includes smart routers, security systems, voice assistants, lighting, HVAC, and entertainment devices—all built on its proprietary HarmonyOS platform and integrated via the Huawei AI Life app.

Perceived usefulness is emphasized in Huawei's portrayal of its smart home as a seamlessly coordinated living environment. Marketing materials emphasize the ability of devices to autonomously collaborate through AI Scene Engine technology, offering scenarios such as energy-saving modes, automated security, and real-time environmental adjustments (Huawei, n.d.). These capabilities directly appeal to Millennials who seek smarter energy usage, enhanced safety, and time-saving automation.

Ease of use is a crucial aspect of Huawei's user experience design. The HarmonyOS-based ecosystem is designed for interoperability, enabling devices from different vendors to connect and operate seamlessly. Huawei's promotional content highlights the "1-3-5-N" layout strategy (1 control center, three system platforms, five smart subsystems, and N smart devices), which is structured to ensure that setup and control remain straightforward (Huawei, n.d.). The AI Life app further simplifies operation with voice control, remote access, and one-tap automation, aligning with Gen Z's preference for intuitive and low-effort technologies.

Huawei builds social influence by positioning itself as a premium smart home provider backed by extensive research and development. Demonstration videos and flagship experience stores in China provide aspirational, high-tech lifestyle imagery, reinforcing Huawei's influence among digitally engaged users. Trust is underpinned by Huawei's extensive telecommunications infrastructure and credibility in device manufacturing, emphasizing product reliability across all consumer-facing channels (Huawei, n.d.).

Trust is further bolstered through Huawei's commitment to security and privacy. The company clearly outlines its data handling principles, including transparency, user consent, and localized data storage. Smart home devices support on-device AI processing, minimizing reliance on the cloud and reducing privacy

risks. These elements directly speak to Gen Z's sensitivity to transparency and privacy (Huawei, n.d.).

Cost savings are addressed through energy-efficient scenarios. Huawei promotes intelligent scheduling of HVAC systems and appliance control to optimize energy usage, though pricing and ROI are not focal points of its messaging. For Millennials, the appeal lies in automated efficiency and long-term value rather than upfront cost reductions.

Privacy and data security are core to Huawei's platform. HarmonyOS features include a distributed security architecture and trusted execution environments, which protect user data across device interactions. Additionally, Huawei's promotional documents emphasize compliance with global standards and best practices, reassuring Gen Z users of safe data practices (Huawei, n.d.).

Overall, Huawei presents an advanced, infrastructure-driven smart home ecosystem that appeals to both Millennials and Gen Z. Its promise of a cohesive, intelligent living experience powered by proprietary AI and privacy-by-design reflects a strong alignment with evolving consumer expectations across generations.

Case Study 5 - LifeSmart

Link: https://iot.ilifesmart.com/smarthome-solutions/

LifeSmart, developed by Hangzhou Everflourish, positions itself as a provider of versatile and intelligent smart home solutions tailored for residential and commercial properties. Through its AI-driven system, the company offers a wide array of smart products, including lighting, sensors, environmental control, and security technologies, all coordinated through its proprietary LifeSmart App and AI engine, known as the "Smart Station."

Perceived usefulness is a central message in LifeSmart's promotional content. The firm highlights multi-functional device integration—for example, combining motion detection, lighting, and HVAC control in response to changes in occupancy or the environment. These adaptive systems aim to create comfortable and energy-efficient environments, aligning with Millennials' focus on usefulness, efficiency, and safety (LifeSmart, n.d.).

Ease-of-use is another clear priority. LifeSmart devices feature streamlined installation (often with wireless or adhesive options) and app-based configuration. The LifeSmart App enables one-click scene customization and supports voice control via Alexa, Google Assistant, and Siri on Apple devices. The interface prioritizes a low cognitive load, directly addressing Gen Z's preference for intuitive and low-effort interaction (LifeSmart, n.d.).

Social influence is supported through testimonials, lifestyle visuals, and a consistent emphasis on global expansion. LifeSmart showcases smart showrooms and commercial partnerships as evidence of widespread adoption. These tactics reinforce a perception of community uptake and trust, particularly resonant with Millennial users (LifeSmart, n.d.).

Trust is cultivated through the brand's emphasis on reliability, local processing, and flexibility in integration. While LifeSmart does not prominently display its certifications as other firms do, it promotes a "no data sharing without consent" policy. It highlights that sensitive data can be stored and processed locally via the Smart Station. This enhances its appeal among Gen Z consumers, who value control over their data (LifeSmart, n.d.).

The efficiency of the automated routines subtly conveys cost savings. LifeSmart emphasizes energy conservation through intelligent lighting and HVAC schedules that adapt to user presence and environmental conditions. These features promise operational savings

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over time, appealing to budget-conscious Millennials (LifeSmart, n.d.).

Privacy and data security are built into the system design. LifeSmart's marketing communicates a privacy-by-design philosophy, with options for local storage and end-to-end encryption. While less emphasized than in Huawei or Aqara, these features are noted in product documentation and reflect an understanding of Gen Z's data sensitivity (LifeSmart, n.d.).

Overall, LifeSmart positions itself as an adaptable, intelligent, and design-conscious smart home provider. Its product flexibility, cross-platform compatibility, and emphasis on user control and comfort make it a suitable option for both Millennials seeking efficiency and Gen Z users prioritizing simplicity and privacy.

Factors	Haier	Aqara	Xiaomi	Huawei	LifeSmart
Perceived Usefulness	Yes, AI strongly focuses on doing chores and improving daily life.	Yes – Emphasizes real-world scenarios, such as leak alerts.	Yes, it has broad device support and scenario usefulness.	Yes – scenarios like car-initiated home control and AI meal prep.	Yes, it emphasizes smart lighting and scene customization.
Perceived Ease of Use	Yes – One app, voice control, natural interaction.	Yes – Plug-and-play, app simplicity, gesture/voice control.	Yes – Mi Home app, Xiao Ai voice control, unified control.	Yes, it has one-tap control, a voice assistant, and a super device UI.	Yes, app-based scenes, remote control, and ease of use were noted.
Social Influence	Yes – Highlights 183M+ households and leadership status.	Yes – Internet-popular, Apple/Xiaomi ecosystem credibility.	Yes, it has the largest user base and top seller status.	Yes – Partner network, #1 brand in smart housing sector.	Yes, it cites design awards and widespread deployments.
Trust	Yes – Trusted brand, privacy certifications, secure cloud.	Yes – Device certifications, community support, transparency.	Yes, it is a popular brand with certifications and an improving privacy stance.	Yes, it emphasizes privacy/security principles, as well as a service network.	Yes – Promotes data safety, backup power, and a security mindset.
Cost Savings	Yes – AI reduces energy use and promotes savings.	Yes, it is budget-friendly, has no subscription, and is energy-saving.	Yes – Affordable, energy-saving automations, no fees.	Yes – Long-term value through automation, efficiency.	Yes – Scene efficiency, smart control to reduce waste.
Privacy	Yes – Mentions privacy modes and local processing.	Yes, there are privacy shutters, HomeKit Secure Video, and user control.	Yes – Privacy mode on cameras, GDPR-compliance steps.	Yes – Privacy by design, user control, and local AI processing.	Yes – Privacy ensured via local control and encrypted data.
Data Security	Yes – ISO certifications, local edge computing, encryption.	Yes – AES/WPA3 encryption, secure chips, regular updates.	Yes – Encrypted communication, security updates, bug bounties.	Yes – Hardware encryption, certifications, 7-layer protection.	Yes – Secure communication, local execution, cloud security.
Safety and Efficiency	Yes – Proactive safety, smart energy, and scene control.	Yes – Smart alerts, automatic scene actions, efficient automations.	Yes – Full-home automation, device orchestration, smart energy.	Yes – Coordinated safety scenes, proactive intelligence.	Yes – Smart alarm, energy scenes, emergency fallback systems.

Table 1: *Within case study analysis of Theoretical Framework*

Findings - Cross-Case Analysis

This section presents an in-depth cross-case analysis of how Haier, Aqara, Xiaomi, Huawei, and LifeSmart utilize key technology adoption predictors in their online and promotional strategies, with a focus on generational segmentation for Millennials and Gen Z.

Perceived Usefulness: All five firms emphasize usefulness through smart automation and real-life application scenarios. Haier and Huawei stand out by showcasing integrated ecosystems that autonomously manage chores or anticipate user needs, catering to Millennials' desire for efficiency and Gen Z's interest in seamless living. Xiaomi and Aqara highlight practical, modular applications with clear benefits, while LifeSmart focuses on real-time environmental control.

Perceived Ease of Use: Aqara and Xiaomi lead in promoting ease of use with intuitive apps, voice control, and plug-and-play solutions. Huawei leverages HarmonyOS to reduce complexity via drag-and-drop functionalities. Haier and LifeSmart also support ease through centralized control, with the latter utilizing visual interfaces for enhanced intuitiveness—an aspect that resonates strongly with Gen Z.

Social Influence: Xiaomi utilizes its extensive user base and Mi Fan community to signal widespread acceptance. Haier capitalizes on its market leadership and legacy. Aqara and LifeSmart foster trust through social proof, as evidenced by user reviews and influencer partnerships. Huawei leverages its national brand equity and real estate integrations to reaffirm its relevance, particularly to Millennials seeking reliability and Gen Z looking for tech-forward trends.

Trust: Huawei and Haier demonstrate their strategies through ISO certifications, edge computing, and a longstanding market presence. Aqara and Xiaomi supplement trust with transparency, third-party endorsements, and responsive data practices. LifeSmart conveys trust visually through design cues such as camera sleep modes and app-based privacy settings.

Cost Savings: Aqara and Xiaomi explicitly market their products as affordable, offering long-term savings that align with Millennials' value orientation and Gen Z's preference for accessible technology. Haier emphasizes operational efficiency and appliance longevity, while Huawei highlights energy optimization for premium consumers. LifeSmart subtly communicates energy-saving benefits via environmental automation.

Privacy: Gen Z's growing concern for privacy is addressed by all firms, though in varying degrees. Huawei and Aqara prominently feature privacy controls and local data processing. Haier and Xiaomi offer encryption and physical privacy features. LifeSmart supports user-controlled privacy, albeit with less aggressive messaging.

Data Security: Huawei continues to lead in this domain, offering advanced security protocols, cloud protection, and edge computing solutions. Haier and Xiaomi support encrypted communications and frequent updates. Aqara and LifeSmart highlight standard industry protections but tend to emphasize them less directly.

Safety & Efficiency: This predictor bridges both generational needs, Millennials' concern for home safety, and Gen Z's demand for smooth automation. Haier and Huawei focus on intelligent risk mitigation (e.g., gas detection, fire alerts). Xiaomi and Aqara promote responsive home monitoring. LifeSmart builds confidence through scene customization and fail-safe device behavior.

Discussion

The themes presented in Table 2 emerge from the data collected and analysed. They are based on the conceptual framework of this study and the findings of Kuziaev and Neubert (2024). The the-

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mes answer the research question, which is "How do five leading Chinese smart home firms embed TAM-related adoption predictors into their consumer communication strategies, focusing on Millennials and Generation Z?" The themes demonstrate that the five case study firms already integrate the TAM predictors in their communication strategies with Millennials and Gen Z consumers.

Table 2: *TAM Predictors and Themes*

TAM Predictor	Theme	Description
Perceived Usefulness	Integrated Smart Ecosystems	All case study firms emphasized integrated and automated solutions designed to significantly enhance daily living experiences. These included proactive household management systems, scenario-based automation, and personalized convenience features, directly appealing to Millennials' efficiency orientation.
Perceived Ease of Use	Intuitive and User-Friendly Interfaces	The case study firms put a strong emphasis on simplicity and convenience through user-friendly mobile applications, intuitive voice and gesture controls, and straightforward installation processes. This approach particularly resonated with Generation Z users who favor effortless, seamless interactions.
Social Influence	Community and Brand Validation	The case study firms leveraged social influence by highlighting their extensive user bases, community endorsements, partnerships, and testimonials to validate product adoption. Social validation was particularly effective in establishing credibility and encouraging adoption among both generational cohorts.
Trust	Reliability and Transparency	Trust was cultivated through explicit communication of reliability, certifications, transparent privacy practices, and data security assurances. Firms communicated trustworthiness through international certifications, robust security measures, and transparent user control, significantly resonating with Gen Z's concerns.
Cost Savings	Economic and Environmental Benefits	Cost-efficiency and sustainability emerged prominently as communication themes. Firms highlight long-term financial advantages such as energy savings and sustainable usage, addressing Millennials' financial prudence and environmental awareness.
Privacy & Data Security	User-Centric Protection	All case study firms addressed privacy and data security by emphasizing local data storage, strong encryption, compliance with data regulations, and user-controlled privacy settings. These features directly addressed Gen Z's heightened concerns around data privacy and security.
Safety and Efficiency	Proactive Risk Management	Safety features were emphasized as integral components of the smart home ecosystem. Firms promoted features such as real-time monitoring, proactive alerts, and integrated safety systems, enhancing overall household safety and operational efficiency, crucial for both generational cohorts.

Conclusion

Despite the evident market growth and technological advancements, there is a lack of studies examining the strategies employed by Chinese smart home technology firms to encourage the adoption of AI-based smart home technologies. The specific problem this study addresses is that foreign marketing managers lack a comprehensive understanding of how Chinese smart home technology firms manage consumer adoption of their products (Kuziaev & Neubert, 2024). This qualitative multiple-case study aims to fill that gap and solve the problem by exploring how five leading Chinese smart home technology firms embed

TAM-related adoption predictors into their consumer communication strategies, focusing on Millennials and Generation Z. This purpose leads to the research question: "How do five leading Chinese smart home firms embed TAM-related adoption predictors into their consumer communication strategies, focusing on Millennials and Generation Z?"

The findings of this multiple-case study analysis demonstrate that the sample firms already understand the adoption behaviour of Gen Z and Millennials by addressing them in their communication strategies. The results of the cross-case analysis reveal that the five case study firms differ in their emphasis on the predictors depending on their strategy and brand positioning. The implications of this study are that the findings contribute to the field of technology adoption of smart home technologies in China, providing theoretical support for the existing communication strategies of the sample firms. Future research is based on the limitations of this study. They could add further case study firms to the sample, extend the results to other geographical markets, or use longitudinal studies to analyse changes in consumer adoption and communication strategies.

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Declarations

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The author declares that he has no (competing) financial or non-financial interests related to this study.

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Data Availability and Supplementary Material

All data generated and analyzed during this study and supplementary material are available upon reasonable request.

Prior Publication

The author confirms that this research has not been published previously and is not under consideration for publication elsewhere.

Ethics Statement

This study complies with the ethical guidelines of the European Code of Conduct for Research Integrity and adheres to the GDPR requirements for data protection. Ethical approval was obtained from the Institutional Review Board of EIM, and informed consent was secured from all participants.

Responsible AI Ethics Statement

This study used artificial intelligence (AI) tools to support tasks such as identifying relevant literature, analyzing datasets, and editing textual content. These tools were employed solely to enhance efficiency, and their outputs were critically reviewed to ensure alignment with research objectives. The use of AI adheres to ethical principles outlined in the EU AI Act, the OECD AI Principles, and the UNESCO Recommendation on the Ethics of Artificial Intelligence, emphasizing transparency, fairness, and accountability. The authors made all final decisions and retain full responsibility for this research's integrity, rigor, and conclusions.

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