

# Construction of Marketing Model for Senior Smart Kitchen Products Based on 4P Theory--Taking the Marketing of Xiaodu Reminder Panel as an Example

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**Abstract.** As the global population aging intensifies, the proportion of people over 65 years old and the number of elderly living alone in China continue to rise. The inadequacy of the traditional elderly care model is highlighted, and the demand for intelligent elderly care devices, especially kitchen scene products, is becoming increasingly urgent. Through literature research and case study analysis, this study evaluates the current situation of smart senior living products around the world. Based on Xiaodu Robot, we innovatively designed Xiaodu Kitchen Intelligent Reminder Panel, and analyzed its suitability with the core needs of the elderly such as safety and protection, ease of operation, personalized care, and remote connectivity from four dimensions: product, price, channel, and promotion. The study points out that the product has potential problems such as simplified operation that may restrict some users and insufficient voice prompt adaptability, as well as future challenges such as single-scene limitations and low user acceptance, and proposes cross-scene linkage, differentiation strategies and other countermeasures. The results show that the panel can effectively meet the safety and convenience needs of the elderly in kitchen scenes, but the study has limitations such as incomplete scene coverage and the impact of the cultural background has not been explored in depth, which can be expanded to multiple scenes in the future to promote the development of intelligent elderly products in the direction of smarter, personalized and integrated.

**Keywords:** smart elderly care products; Xiaodu Kitchen Smart Reminder Panel; marketing strategy.

## 1. Introduction

The global population aging trend is intensifying, with the number of people over 65 worldwide projected to rise by at least 50% by 2030 [1]. In China, the share of those over 65 reached 15.4% in 2023, a notable increase from 11% in 2019, and is expected to grow exponentially alongside the global trend [2,3]. Additionally, China has about 160 million independent-living elderly aged over 60, accounting for 54% of its elderly population; as aging deepens, the number of elderlies living alone will surge, exposing the inadequacy of traditional elderly care models and fueling urgent demand for smart elderly care equipment—especially in high-frequency kitchen scenarios [4].

Research on smart home technologies for aging in place has highlighted that such devices can effectively address the safety and independence needs of the elderly, with a focus on user-friendly design and scenario-based functionality [5]. Memory and cognitive decline make the elderly prone to fire hazards (e.g., forgetting to turn off stoves or expiry date mix-ups), increasing living-alone risks and driving demand for "easy-to-operate" smart furniture [6]. Notably, only 34.9% of the elderly are proficient in using smartphones, which further highlights the need for user-friendly smart devices [7]. The global home healthcare market, which is closely linked to smart elderly care, is expected to reach \$646.13 billion by 2029, indicating a huge potential for smart elderly care products [8]. This essay uses literature research to assess the global status, strengths and weaknesses of smart aging products, innovates products based on Xiaodu robots to meet aging-related needs, analyzes marketing strategies around the new product and provides sales suggestions for Xiaodu Kitchen Reminder Panels.

The current state of smart home research in the silver-haired market shows that it supports the response to an ageing population in multiple dimensions, while also facing significant challenges.

## **2. Literature Review and Market Demand Analysis**

### **2.1. Current Research Status of Smart Home in the Silver Hair Market**

The silver-haired economy has a broad market for smart home development, including many types of products such as smart door locks and smoke alarms. However, there are still obvious challenges in the current application. Some older people are sceptical about new technologies and are worried about data privacy and use value, leading to low acceptance of the technology; at the same time, some products are complicated to operate and have high learning costs, and the design of small screens and multi-step networking has increased the burden of older people's use; in addition, the large amount of personal data collected and transmitted by the devices has also made data security and privacy protection an issue that needs to be resolved urgently. Once encountered network attacks or communication is not encrypted, it is easy to cause family privacy leakage.

### **2.2. In-depth analysis of the needs of elderly users**

From a cognitive and physical functioning perspective, older people face many difficulties in kitchen operations as they age. An interview study with 40 older people aged 61 to 91 found that reaching, bending, dexterity and vision problems were more prevalent among older users, with ironing, cleaning and shopping being the most common difficulties they encountered in the kitchen [9]. Older people aged 65 and over who use conversational agents to assist with cooking, while finding them helpful in providing personalised recipe suggestions and nutritional advice, also have difficulties with confirmation and repetition, questioning and correction, lack of conversational response, and hearing and understanding multimodal interactions [10].

In addition, as China enters an aging society and the number of elderly people living alone increases, the kitchen becomes the most frequently used place in their homes, so the construction of smart kitchens suitable for the elderly needs to be strengthened in order to improve the standard of living and home security of the elderly [11].

## **3. Marketing Strategy Analysis of Xiaodu Smart Screen Kitchen Reminder Panel Based on 4P Theory**

### **3.1. Product**

Xiaodu smart screen kitchen reminder panel is oriented to the core needs of elderly users, and focuses on "safety, ease of use" to carry out the aging design. In response to the problem of vision decline among the elderly, it adopts a large font display and high-contrast interface to ensure that recipes and reminder messages are clearly visible; it simplifies the operation process, eliminates redundant function modules, and sets high-frequency needs such as "turn off the fire reminder" and "medication reminder" as independent entrances; it is accompanied by a clear voice prompt function. It also simplifies the operation process by eliminating redundant function modules and setting high-frequency needs such as "turn off the fire reminder" and "medication reminder" as separate entrances. Meanwhile, the product integrates one-button call and fall detection functions: one-button call supports direct connection to children or emergency contacts, and fall detection relies on infrared detection technology, with an accuracy rate of over 93% in the kitchen area, which can trigger an alarm quickly and effectively respond to the safety risks of the elderly living alone [12, 13].

In order to meet the different needs of different elderly users, the product provides multi-dimensional personalization and customization services: it supports the adjustment of the reminder cycle according to the user's medication frequency and cooking habits, and allows the customization of the speed and volume of the voice prompts; for users with underlying diseases, the product can add the "low-salt recipes", "postprandial glucose monitoring reminder" and other services. For users with chronic diseases, exclusive functions such as "low-salt recipe recommendation" and "postprandial glucose monitoring reminder" can be added. At the software iteration level, it adopts

the "small steps, fast running" mode, regularly pushing out optimization patches, and giving priority to updating the operation pain points that are feedbacked from the elderly. In addition, it plans to introduce value-added services, including "regular health consultation" and "food expiration warning", to further enhance the product's practical value.

### **3.2. Price**

Product pricing abandons the traditional "cost plus" model and focuses on the multi-dimensional value it brings to elderly users and families. In terms of safety value, features such as fall detection and turn-off reminder can reduce the incidence of kitchen accidents and reduce medical and property losses; in terms of health value, medication reminder and healthy recipe recommendation can help the elderly to maintain a healthy lifestyle; in terms of emotional value, the remote connection function can alleviate children's worries about their parents and enhance the emotional connection of the family [8]. In terms of emotional value, with comprehensive reference to the value pricing range of similar intelligent senior care products and its own functional advantages, the basic product is priced at RMB 299, which matches its comprehensive value of "safety + health + emotion" and avoids exceeding the affordability of most elderly families [14].

Adopting psychological pricing strategies to reduce users' purchasing concerns: pricing the basic model at RMB 299 (instead of RMB 300), using "trailing-number pricing" to create the perception of "cost-effective"; launching "lucky-number packages" for traditional festivals (e.g., the Chung Yeung Festival and the Chinese New Year); and offering "lucky-number packages" such as the "RMB 366 Annual Guardian Package". For traditional festivals (e.g., Chung Yeung Festival and Chinese New Year), we launched "lucky number packages", such as the "RMB 366 annual guardian package". In terms of promotional activities, we regularly offer time-limited discounts (e.g., 50 RMB off during the "Senior Citizens' Day" period), and also introduce the "trade-in" policy - old ordinary senior citizen mobile phones can be deducted 30% of the total cost of ownership. The "trade-in" policy, whereby old mobile phones can be exchanged for new ones at a discount of 30-50 RMB, is an incentive for older people to upgrade their traditional devices [7]. These strategies not only fit the consumption psychology of the elderly, but also stimulate short-term sales growth.

### **3.3. Place**

Online channels focus on "convenience and information transparency": open official flagship shops on Tmall and Jingdong, with "exclusive guide for elderly users" labelled on the details page, including operation demonstration videos and graphic answers to frequently asked questions; set up a "senior service zone" on the brand's official website; provide one-to-one online customer service to guide users through ordering and installation appointments; publish product reviews and use cases in senior communities to enhance user trust [15].

The offline channel focuses on "experience and service": it cooperates with senior living communities and community service centers to set up experience points, which are equipped with dedicated personnel to demonstrate product functions and allow seniors to try out operations such as "voice setting reminder" and "one-button call" on-site. The company has also set up counters in senior universities, home appliance stores and telecommunication business halls to provide "on-site purchase + free door-to-door installation" services to solve the problem of the elderly not knowing how to install and not daring to use the products [16]. The online and offline data are connected, so users can scan the code and jump to the online flagship shop to place an order after experiencing the products offline, and they can also book the offline service after purchasing the products online, forming a closed loop of "experience-purchase-service".

### **3.4. Promotion**

Advertisements use "real scenes" to trigger emotional resonance: short video ads show scenes like "elderly living alone forgetting to turn off the fire, with the product reminding in time" and "children checking parents' cooking status remotely and guiding meals", highlighting "safety guarding" and

"family companionship". Ads are placed in senior newspapers, magazines and TV stations, with real users sharing experiences to boost credibility [7]. For children, soft articles convey "giving parents and yourself peace of mind" to stimulate purchase willingness.

Offline experiential activities in communities and retirement institutions: hold "Healthy Kitchen Seminar" to explain "elderly kitchen safety" with product functions, and demonstrate fall detection and home appliance linkage; organise "Intelligent Product Experience Day", inviting the elderly to try for free for a week, collect feedback and encourage sharing; select active elderly as "silver-haired opinion leaders" to spread reputation, e.g., inviting community "enthusiastic elderly" to share tips at seminars and drive neighbourhood purchases [16].

Precise reach via digital platforms: Weibo and ShakeMedia run targeted ads for children (30-50, focusing on "old age" and "family"), with links to "Children's Purchase Zone" for convenience; produce simple operation tutorials on TikTok and Video for children to forward to parents; hold weekly live broadcasts to explain product use and answer questions [15].

## **4. Challenges, Responses and Future Prospects**

### **4.1. Challenges faced**

#### **4.1.1 Product Aging Design Falls Short of Actual Needs**

First, the product aging design does not fit the actual needs. Although large fonts and basic voice prompts are available, the scenario-based pain points of elderly users have not been solved: elderly users with hearing deterioration cannot hear commands in noisy kitchens as the existing voice only supports basic volume adjustment; rural elderly users accustomed to dialects face use thresholds due to the lack of corresponding voice packages for Mandarin commands; users with deteriorated hand joints often have mis-touch or ineffective operations on the touchscreen, which has small click areas and unadapted sensitivity [7, 16].

#### **4.1.2 Data Security and Privacy Concerns Undermine User Trust**

Second, data security and privacy concerns erode user trust. As the device collects home activity data (e.g., operating status, voice interaction), 67% of children worry remote monitoring will disclose their parents' home details, and 38% of the elderly fear their voices are "listened to"; coupled with low market awareness of these kitchen-scene smart aging products, users are susceptible to the myth that smart devices are unsafe, directly reducing purchase willingness [7, 17].

### **4.2. Countermeasure Suggestions**

#### **4.2.1 Optimize Elderly-Friendly Products for Differentiated Needs**

To address the above core issues, we need to solve problems from product optimization and trust construction to ensure practicality and safety. For product optimization, deepen the details of the elderly-suitable product to cover differentiated needs: add 3-5 mainstream dialects (e.g., Sichuan, Cantonese) to the voice package, adjust voice speed to 0.5-1.5 times for users with different hearing and language habits; optimize the touchscreen by enlarging the click area by 30% and adding "anti-touch mode" to solve joint-degeneration users' operation problems; develop "offline basic function" to support core reminders (e.g., turning off the fire, taking medication) without internet, meeting rural areas' insufficient network coverage [7, 8].

#### **4.2.2 Build a Full-Process Security System to Regain User Trust**

For trust construction, build a full-process security system to reshape user trust: technically, adopt "local priority storage" – store daily activity data (e.g., cooking hours) locally, encrypt and upload only key data (e.g., emergency alarms) to the cloud, and support user-defined data uploading ranges; institutionally, issue "Data Security Commitment" to clarify data use, storage cycle and query path, introduce third-party organizations for quarterly audits and result disclosure; meanwhile, produce a

privacy manual to help the elderly understand the security mechanism through simple analogies [7, 13].

### 4.3. Future Prospects

Future development will focus on the two major directions of "AI empowerment" and "scene extension" to enhance the core value of the product: First, AI technology drives personalised intelligent upgrading. Through AI analysis of user behavioural habits, we can realize the transition from "passive response" to "active adaptation". For example, according to the cooking time of the elderly for 1 week, we can automatically adjust the time of fire shut-off reminder; we can judge the user's status through the change of voice tone, and proactively ask whether the function needs to call children or community help, so that the function can be more suitable for individual needs [7, 12]. The user's status is determined by changes in voice tone, and the system can actively ask if the user needs to call his/her children or the community for help, so that the function can be more closely adapted to the needs of individuals [7, 12]. Second, it extends from the home kitchen to the community elderly care scenario. Breaking through a single home scene, the panel is built as a "community serviceportal" in cooperation with community elderly service centres: the elderly can make appointments for hairdressing and rehabilitation therapy directly through voice, and the community can also issue notifications for vaccination and food ordering from the elderly canteen; at the same time, the panel is used in conjunction with smart mattresses and door locks to achieve data interoperability, e.g., the smart mattress detects frequent night-time sleeps. At the same time, smart mattresses, door locks and other devices can achieve data interoperability, such as smart mattresses detecting frequent nighttime **\*\*sleep-ins\*\***, panels automatically push sleep suggestions and synchronise with community commissioners, upgrading it to a "family-community" linked full-scene nursing assistant, which is in line with the direction of the ageing policy [7, 18].

## 5. Conclusion

This study has designed the Xiaodu kitchen smart reminder panel through market research and product feasibility analysis. The product features functional innovations, meeting the elderly's needs for safety, convenience, and personalization in kitchen scenarios, while corresponding marketing strategies have been formulated to ensure a certain level of market competitiveness. However, this study has limitations: it mainly focuses on elderly products in the kitchen scene and does not comprehensively cover other scenes in the elderly's lives, so future research can be expanded to the bedroom, living room and other scenes to develop a more comprehensive system of intelligent elderly products—for example, based on the existing kitchen panel's voice interaction and remote linkage technology, extending to bedroom medication reminder devices or living room safety sensors, forming a scenario-linked product matrix; meanwhile, it did not explore in depth the influence of different cultural backgrounds on product design and marketing, which can be considered in subsequent studies. In terms of product R&D and promotion suggestions, it is proposed to continuously track technological advancements to optimize product functions and enhance compatibility with various devices, while strengthening quality control to guarantee product reliability; in promotion, efforts should be made to increase brand visibility, develop precise promotion strategies for different target groups, and collaborate with government departments and social organizations to expand market share by leveraging policy support and social resources. Looking ahead, as population aging deepens, the market potential for intelligent senior care products is enormous, and such products will evolve toward greater intelligence, personalization, and integration in the future.

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