

# *Opportunities in the Pet Smart Device Market*

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**Abstract:** In order to conduct this research, we identified the popularity of the pet supply market, and developed a product that could be used to locate pets through collars, check their location in real time through online software, and serve as a social platform for users. After several weeks of market research, through questionnaires and comparison, and to broaden the usefulness of the product, we concluded that pet owners need professional services to help them keep their pets healthy. Therefore, a health monitoring function was added to the product. After that, we added more sub-products based on the features that we learned through the questionnaire that our target customers needed and were interested in, and to confirm the cost and feasibility of the product.

**Keywords:** pet collar, location, health, questionnaire, comparison, confirm feasibility.

## 1. Introduction

In the twenty-first century, more and more people want to have pets (CITES). The number of pet owners in China reached 68.44 million in 2021, up 8.7 percent from 2020. For most people, pets are not only beautiful and cute animals but are also partners that keep us company and help us relieve stress. One of the greatest concerns of every pet owner is their pets getting lost or becoming ill, causing devastating psychological stress and even trauma (CITES). Therefore, collars that track the pets have become popular products among pet owners. Thanks to the increasing convenience and prevalence of GPS technology, these pet trackers can now function indoors and in extreme weathers without losing signal. This makes it possible to accurately determine the pet's location. Second, many tracking collars now provide functionality beyond location information of the wearer. Like human smart bracelets, the collars now come with health monitoring and activity logging to allow pet owners to conveniently keep track of their pet's activities remotely. These devices also help owners to identify illnesses early, so they can provide better healthcare to their pets. However, due to a lack of regulation on some pet medicine and food products, consumers can easily buy poor quality products that do not deliver all the advertised functions, and that's why we hope to make more people aware of qualified products through our platform. Therefore, in this study, we look to explore the possibility of developing a pet health smart device which can provide scientifically sound pet recipes and

knowledge about raising pets correctly can help pet owners treat their pets better and avoid unintentional harm.

## 2. Literature Review

Since China has entered a period of rapid advancement, pet ownership is entering the lives of more and more people as GDP per capita increases.

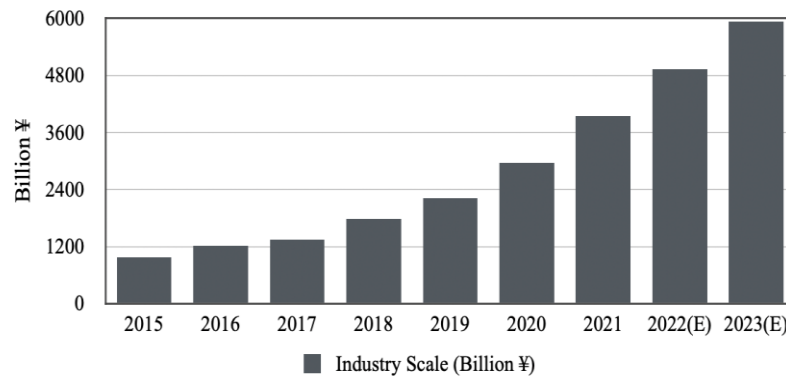


Figure 1: The scale and forecast of pet market consumption.

According to the *iiMedia* [1] research for scale and forecast, from 2015 to 2021, China's pet market consumption grew from 97.8 billion to 394.2 billion, and it is expected to rise to 592.8 billion by 2023.

The number of single people in China has reached high, thus the need for pet companionship has greatly increased. The trend towards smarter pet products is also increasing due to the lower average age of the pet-owning population. According to the data from *ZHESHANG Securities CO., LTD* [2], the post-90s accounted for 46% of the total number of pet owners in 2021.

As Generation Z is often too busy to take care of their pets in the traditional way, such as taking them for regular medical check-ups, which indicates that pet ownership is seeking a more scientific and highly-efficient approach. Compared to 2020, the penetration rate of smart pet products reached 52.9%, and an increase of 9.8 percentage points showed a high growth trend [3]. Smart products that can track and locate pets, and even monitor their health would be an ideal assistant.

The article *Smart Pet Collars Possess Potential* [4] says 'We discovered that there are a few pet collars aimed to locate pets in the Chinese market. Therefore, this product has desirability and potential in China' [4]. At present, pet insurance coverage in China is very low. Pet insurance products are mainly divided into pet medical insurance and third-party liability insurance, which are used to reduce the financial burden of pet owners by reimbursing pet medical expenses and to cover liability for third-party injuries and property damage caused by pets, respectively [5]. It is also pointed out that pet insurance is now undersupplied mainly due to problems such as difficulty accessing pet medical history information, so insurance companies are less willing to develop related products. However, health tracking devices can increase knowledge of pets' health conditions, so more insurance in this case might be willing to be provided by companies. The *China Pet White Paper* [3] shows that in 2021, the pet healthcare market share in China has reached 29.2%. Based on the emphasis pet owners place on their pets' health and the need to mitigate pet healthcare costs, more than 60% of pet owners have expressed a demand for pet insurance. Pet insurance is the most popular specialty service that pet owners are willing to invest in [6]. Swiss Re-insurance Company [7] speculated in October 2021 that the scale of pet insurance premiums in China is expected to reach over 1.2% in 2025 with a growth rate of around 25%.

As people are concerned about their pets and there are no available products currently domestic, our product can meet the specific demand and provide a great experience for pet owners.

### 3. Methodology

When we started to think about the possibility of bringing this designed product to market, our team went through a series of data collection, internet research and product comparison to determine the feasibility, risks and rewards of the product, and to make assumptions about it.

### 4. Hypothesis

Our products have advantages over other pet products.

Two different studies were conducted to test these hypotheses. Study 1 was two different online questionnaires designed to collect data to better assess the level of mass customer demand for the value of our products and to estimate the size of the target market. Study 2 Study 3 is a comparison between our products and similar products in the existing pet market, showing the advantages and novelty of our products through the comparison of different functions.

#### 4.1. Study 1

From a macro perspective, the domestic pet rate has continued to increase in the last decade or so as knowledge has spread and the country's economy has improved, and with it has come a high demand for products in the pet market, as well as revealing a lack of knowledge among pet owners about their pets. In order to understand whether our products can truly solve the pain points of most pet owners, we sent questionnaires to people who have pets at home and some randomly selected unfamiliar pet owners, and collected the most realistic data from a more comprehensive perspective by sending questionnaires to customers from different consumer groups.

To answer this, we collected the following sets of data.

1. How pet owners usually treat their pets' health problems
2. Channels for understanding pet health problems
3. Channels for understanding other than the options (fill-in-the-blank questions)
4. Knowledge of pet raising expertise
5. Problems most troubling when raising pets
6. Whether products currently available in the market can solve pet owners' problems
7. Relevant products & services currently lacking in the market
8. Parts that can be improved

The above data was included in the last month, and the website where we designed the questionnaire provides an automatic analysis of the statistical data straightforwardly with different (histogram, piechart, etc.) display of the data distribution.

The second questionnaire focuses on how highly our products fit with public preferences. Separating out the different functions of the product to test whether the variety of features and flexibility increases the customer's desire to buy, which have a strong correlation with the expansion of the target market. The data we collected are followed.

- 1) Whether there is a need for an online pet owner discussion community
- 2) The desire of pet owners to buy our product (pet smart collar)
- 3) Whether there is a strong increase in pet owners' desire to purchase when the product is sold in a package with pet insurance services
- 4) What other features pet owners think could be added
- 5) The price of the product is acceptable to pet owners

## 4.2. Study 2

We believe that the reason why there is a difference between products in the pet market is that different products have different price points, different target customers and markets, and different product positioning. Then, we compare the products through the following perspectives.

- 1) less than 3,000 yuan in the same category of pet collars (excluding products with different target markets)
- 2) Functional diversity
- 3) Functional effectiveness
- 4) Whether to solve the pain points of customer needs
- 5) Marketing and promotion methods

## 5. Results

### 5.1. Initial Survey Results

We have 27 participants who participated in our first questionnaire survey. The main aim of our product is to monitor and present pets' health conditions for pet owners. Thus, our questions are mainly focused on how pet owners need our product to help them better understand their pets' conditions. We collected that most people (66.67%) cannot handle pets' healthy problems by themselves and always take pets to the veterinary hospitals; only 11.11% of people can take care of pets by themselves when minor injuries and abnormal injuries occur conditions exist. This result shows that most of the time when pets have an unexpected situation, it takes time and effort for pet owners to take them to the veterinarians.

1.平时如何对待宠物健康问题? [单选题] How to deal with pet health problems

选项 # Options	小计 # Number	比例 Proportion
If you find that your pet has minor injuries or abnormal conditions, take care of yourself. 发现宠物有轻微受伤或不正常状况自行处理	3	11.11%
If you find abnormal conditions, you will immediately go to the veterinary hospital for consultation. 发现不正常状况会立即到宠物医院进行问诊	18	66.67%
Go to the hospital regularly to check the indicators. 定期会去医院检查各项指标	6	22.22%
本题有效填写人次 Total number of people	27	

Figure 2: How to deal with pet health problems.

Then we asked channels for pet owners to understand pet health problems. We found that 55.56% of people gain knowledge from watching short videos on TikTok, Weibo, BILIBIL, and etc.; 18.52% access knowledge from reading passages written by public accounts in WeChat, and 7% from other miscellaneous ways. We added a fill-in-the-blank question to find out further how owners get knowledge. It shows that participants also gain understanding from Baidu, veterinary hospitals' websites, veterinarians, communicate with other pet owners and social media. It shows that pet owners have no comprehensive and integrated way to learn pet health-related information.

选项 # Options	小计 # Number	比例 Proportion
Subscribe to the WeChat official account. 订阅公众号	5	18.52%
Short videos (TikTok, Bilibili, Weibo, DouBan etc.) 短视频 (抖音, B站, 微博, 豆瓣等)	15	55.56%
Any other ways 其他	7	25.93%
本题有效填写人次 Total number of people	27	

Figure 3: Channels to understand pet health problem.

In the following question, we ask about owners' knowledge level about pet raising. The result showed that 51.85% understand basic knowledge and can determine the physical condition of the pets by observing them. But the other 40.74% of people are unclear or merely know basic knowledge.

选项 # Options	小计 # Number	比例 Proportion
不太清楚 Not sure	3	11.11%
了解基本相关知识, 但未实践过 Know the basics, but never practiced.	8	29.63%
了解并掌握基本知识, 可以通过观察宠物判断情况 Understand and master the basic knowledge, you can judge the situation by observing pets.	14	51.85%
很清楚, 完全了解宠物生病时应该如何治疗 It is very clear and fully understand how pets should be treated when they are sick.	2	7.41%
本题有效填写人次 Total number of people	27	

Figure 4: Level of pet raising knowledge.

Then, we also investigated problems most troubling owners when raising pets, 74.07% are related to health issues, and others do not have enough time to take care of pets and are disobedient.

The next question is about the pet product market. We asked whether existing products in the market can solve owners' problems; 77.78% of participants believed current products could solve their problems. However, when we asked what kinds of products are lacking in the market, they mentioned the popularization of pet disease knowledge, products to take care of pets' daily health, pet tracking system, custody and foster care, and nutritional products. In the next questions, we asked about parts that the current market needs to improve; owners pointed out that the veterinary industry is chaotic, lacks a platform for pet owners to communicate, and lacks door-to-door pet caring service. In conclusion, from these three questions, we can see the potential success of our products.

The need to track pets' locations, caring daily healthy, custody and foster care, and communication platform for owners, are functions that our product aims to have. Either reach by the collar or the software system and provide a combination of online and offline services.

Our results have supported our assumption that pet owners need a product to help them monitor and report pets' healthy conditions. Because not many owners are very familiar with pet health knowledge, and it is hard to handle pets' healthy problems appropriately by themselves, they worry their pets will get sick and confused about how to deal with their health problems. Moreover, a supporting software system to teach them pets' knowledge is also essential because it can provide a comprehensive way for owners to access knowledge, also, contact the veterinarian anytime and anywhere.

## 5.2. Secondary Survey Results

To further improve our product characters to fit with public preferences, we conducted a second questionnaire that included 32 participants. In this survey, we focus on potential customers' attitudes toward different functions and features of our product. The first question is whether there is a need for an online pet owner discussion community. The result shows that 96.88% of participants believe it is necessary from the data we collected.

选项 # Options	小计 # Number	比例 Proportion
是 Yes	31	96.88%
否 No	1	3.13%
本题有效填写人次 Total number of people	32	

Figure 5: The need for an online pet owners' community.

Then we investigated pet owners' desire to buy our smart collar and informed them that our product could track pets' locations and health conditions. 15.63% people have 20-30% desire of purchasing, 25% have 50-60% desire, 31.25% have 80-90% desire, and 28.13% are 100% to buy. This result provided powerful support for our product.

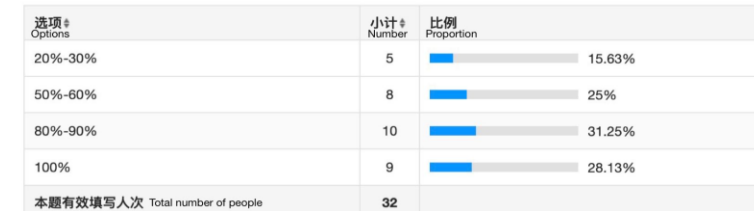


Figure 6: Desire to buy the smart collar.

Moreover, we ask whether the product sold with a package of pet insurance services will increase their desire to purchase; the desired level of 20%-30% decreased to 9.38%, the desired level of 50%-60% increased to 31.25%, 80%-90% desire level fell to 28.13%. However, people who chose 100% to buy increased to 31.25%. The data showed that pet insurance could increase pet owners' desire to purchase our product, proving that insurance service is essential.

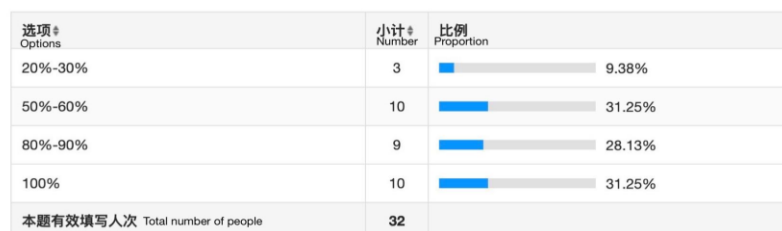


Figure 7: Desire to buy the smart collar with a package of pet insurance services.

This result is similar to research carried in years ago [8]; researchers found that as Chinese people's living standards improved, the rising pet market also increased the desire for pet insurance products. Moreover, they [8] pointed out several problems in China's pet insurance market, including flawed legislation, high barriers to joining in, and a lack of diversity. Similarly, Professor Wang Guojun also mentioned the problems of the pet insurance market [9]. He believed that this market in China is developing much more later and has not met customers' demands.

From Yuan's team's investigations, more than half of the uninsured are willing to take pet insurance, and 75.1% of people indicated they could afford it [8]. These present that the pet insurance market has high potential in the future. If the market becomes mature, many people will be willing and able to purchase insurance. The 2021 Internet Property Insurance Development Analysis Report released by the Insurance Association of China this year also pointed out that [9] due to the lack of standardization of treatment fees in pet hospitals, insurance companies are afraid of information asymmetry. This is a pain point for insurance companies, and the health monitor function of our team's collar could solve this problem. It can reflect real-time pet body data, which increases the transparency for insurance companies to know the condition of pets, and decreases the chance of insurance fraud.

We also investigated what other features pet owners think could be added; participants mentioned product safety, comfort, and durability. This result offers new ideas for how we manufacture and advertise products, and will be the main points to focus.

Lastly, we set four different price ranges and asked about participants' attitudes toward these prices. The data showed that 53.13% of people hope our product sells for, under 3000 CNY, 40.63% of



people hope it in between 500-1000 CNY, 3.13% hope is lower than 500 CNY, and 3.13% people agree it sold higher than 500 CNY. This result gives us a better positioning of our product's final prices.

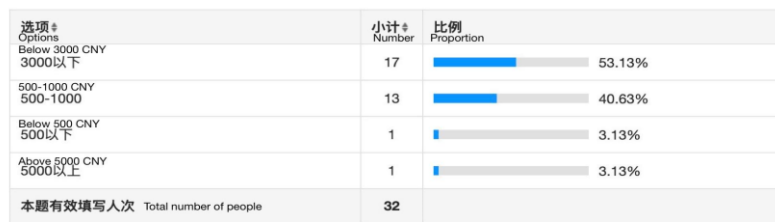


Figure 8: Pricing problem.

### 5.3. Discussion

It is clear from this research that there is still a huge market for pets and pet products in China. A survey of potential users revealed that there are many problems in such a large market, such as the difficulty of finding reasonable channels for customers to learn and understand. This problem gives us the opportunity to enter the market and gives us an advantage. We therefore added an online app to our product to provide a platform for customer-to-customer information. The results of our group's survey were then used to determine the customers' expectations of the product and the psychological price point. The next step for our business is likely to be the addition of a pet insurance option to our existing app. This will, on the one hand, allow us to better link our pet health sector, in a way that is comparable to Apple's AppleCare, and on the other hand, allow us to develop and use pet insurance in a way that is less likely to be misguided than the more mature systems of the traditional insurance industry.

### 6. Conclusions

Since ancient times animals have been inextricably linked to human social behaviour. From the earliest days of hunting with animals to today's emotional attachment to them, the importance we attach to them has grown. This means that the demand for products that protect the safety and health of pets is expanding rapidly. I am sure that in the near future products like ours will be available on a large scale and that one day every pet will be able to stay with its owner for a longer and healthier period of time.

### Acknowledgement

All the authors contributed equally to this work and should be considered as co-first author.

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