# Analysis and Improvement Research of Home Property Insurance Under the Trend of Smart Home

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**Abstract.** Although home insurance is one of the earliest property insurance types in China, its development has been unsatisfactory. At present, the coverage rate of household insurance in China is less than 10%, accounting for less than 1% of the total premium of property insurance. Therefore, the research topic of this paper is the analysis and improvement research of home property insurance under the trend of smart homes. The main contents of the study are as follows. Home property insurance products and existing problems under the condition of existing insurance technology- the form of services about insurance is singular and less attractive than the insurance. The second is to introduce a new product and it can improve the present situation in these aspects- the probability of property loss and the number of property losses will be reduced and moral hazard decreases. The final part is the analysis of the way that the new product solves the problem- customization of underwriting content and intelligent loss settlement.

**Keywords:** Fintech, Property insurance; Smart home; Artificial intelligent.

## 1. Introduction

### 1.1 Background

In recent years, the rapid development of insurance science and technology in China has become an important technical driving force to deepen the structural reform of the insurance supply side. With the support of underlying technologies, insurance technology has penetrated all activities of the insurance value chain, providing consumers with comprehensive, efficient and customized insurance products, and significantly improving the development quality, management efficiency and service capability of the insurance industry. Insurance technology based on artificial intelligence, and blockchain, supported by the underlying technologies such as cloud computing and big data and applications, by insurance companies, third-party platforms and technology business enterprise technology innovation main body exploration and insurance depth fusion, develop all kinds of the conjunction of insurance consumers and the real economy needs the business scenario, To realize functions such as regaining the source, improving operational efficiency, reducing risks and controlling costs, and innovating business models, and finally enabling the high-quality development of the insurance industry.

### 1.2 Relative research

Li and Chen concluded that: the application of blockchain in the insurance industry will bring new opportunities to the insurance industry. On the one hand, the "decentralized" characteristics of blockchain technology can reduce the operating costs of insurance companies and have more profit opportunities. On the other hand, the "tamper-proof" feature of blockchain technology can make insurance companies claim settlement services and risk supervision more efficient, precise and transparent, reducing the possibility of mutual fraud [1]. According to the characteristics of China's economic development and relevant research results, China's Internet insurance market has stepped into a period of deepening transformation with the innovative digital inclusive finance stage, with a significant increase in the number of high-security products, and the market gradually achieves steady development. Wang mentions that China's Internet insurance business development prospects include mobile Internet, scenario-based teaching to tap consumer demand, pricing model insurance technology, business development and commercial sustainability [2]. Through the application of artificial intelligence technology in insurance, claim settlement, risk control and other links, students will be given a more convenient insurance experience. Under the analysis of the SWOT model, Sun and Li believe that the application of artificial intelligence has the following advantages: (1) Product scenario. (2) Personalized policy design. (3) Dynamic settlement of claims. Disadvantages include low customer engagement and poor data quality [3].

Xu and Yao mention some applications of insurance technology: (1) Zhongan Insurance established Zhongan Technology, a wholly-owned subsidiary, in November 2016 to carry out targeted poverty alleviation using modern technological means. (2) The new insurance products launched by Jingdong can accurately judge customer needs through data analysis of customer behavior, realize precise marketing, and provide customers with a tailored user experience. (3) Lemonade offers home insurance services to consumers through a mobile APP, and the entire sales process is handled by its smart chatbot, enabling customers to experience a fully automated insurance purchasing experience. (4) Cape Analytics combines machine learning with computer vision and spatial imagery to provide home surveys for property and casualty companies [4]. Li and Luo compared the traditional insurance business model with the Internet insurance business model. They believe that Internet insurance, as a business model with a new management concept, has incomparable advantages over traditional insurance. And they cite how Internet insurance works. Finally, Lee and Luo analyzed the problems that Internet insurance may face and the solutions to the problems. [5]

Tang and Liu introduced the connotation of the era of insurance technology, the characteristics and development status quo of artificial intelligence technology, and the applied basis of "AI+ insurance" mode, and analyzed the applied exploration of artificial intelligence technology in our insurance industry from various aspects. Tang and Liu believe that there are still some problems in the application of the "AI+ insurance" model in China, and put forward suggestions on accelerating the integration of artificial intelligence technology and insurance operation from two levels: the government and insurance enterprises. Finally, the application of the "AI+ insurance" model in the insurance industry is prospected [6]. Taking a large state-owned financial insurance group as an example, Li illustrates the problems existing in the current scientific and technological personnel team in Chinese financial insurance enterprises, puts forward the core path and solution of the construction of a scientific and technological personnel team, and offers beneficial exploration and thinking on strengthening the construction of scientific and technological personnel team in financial insurance enterprises. [7].

Zhou et al. illustrated that there are also some challenges in the development of insurance technology. We should pay great attention to the possible new risks arising from the application of new technologies, build a regulatory system adapted to the characteristics of insurance technology, and achieve a balance between encouraging innovation and risk prevention [8]. By analyzing the pain points of China's insurance industry, such as the complex traditional insurance process, low efficiency and high cost, Lan summarized the innovative role of blockchain technology in the insurance industry and prospected its future development trend [9]. Shi and Yang mention that the insurance industry needs to apply fintech to be people-oriented and use big data analysis to segment customers' needs so that the services provided by the company can be more humanized. Moreover, digitalization can make insurance coverage and service efficiency higher, so that customers have a better sense of experience. Finally, digitalization can be more convenient for marketing, , some scenario-based promotions can quickly attract customers, promote in an easy-to-understand way, get closer to customers' lives, and finally, the brand image will better [10].

### 1.3 Objective

The main contents of the study are as follows. Home property insurance products and existing problems under the condition of existing insurance technology. The second is to introduce a new product that can solve the problem and improve the customer's experience feeling. Finally, the overall analysis of the new product.

## 2. Company and existing product

### 2.1 Company profile

Zhongan Insurance is the first Internet insurance company in China. It was established by Ant Financial, Tencent, Ping An and other well-known domestic enterprises, based on the original intention of ensuring and promoting the development of the entire Internet ecology, and was approved by China Banking and Insurance Regulatory Commission on September 29, 2013. Zhongan Insurance's business process is all online, and it does not have any branches nationwide. It provides underwriting and claims settlement services entirely through the Internet. Business scope and Internet transactions directly related to enterprise/home property insurance, freight insurance, liability insurance, credit guarantee insurance; Motor vehicle insurance, including compulsory motor vehicle traffic accident liability insurance and motor vehicle commercial insurance, can meet the needs of People's Daily life.

Since its establishment, Zhongan Insurance has won many honors. In 2019, it ranked first in the list of "2019 Chinese Insurance Industry Listed Companies Online Reputation List". The comprehensive strength of the company is worthy of users' trust and can provide users with one-stop insurance services.

### 2.2 Existing product

#### 2.2.1 Introduction of the product

Zhongan Online Property Insurance Co., LTD. Home property insurance includes:

(1) Houses and their indoor ancillary equipment

(2) Interior decoration

(3) Indoor property

In the event of direct material damage or loss of the subject matter insured due to natural disasters or accidents during the insurance period, the insurer shall be liable for compensation following the provisions of this insurance Contract. In the event of the occurrence of the insured incident caused by the causes mentioned in the preceding paragraph, the insurer shall also be responsible for the loss of the subject matter insured as a result of the necessary and reasonable measures taken to rescue the subject-matter insured or prevent the spread of disasters.

#### 2.2.2 Problems of the product

Although there are many kinds of home property insurance products, the forms are too simple, and the product design also has defects. Most importantly, they are out of touch with the needs of their customers. Because the insured area and property structure of home property insurance is different, the products developed in different areas should be different. But the company in the amount of insurance and premium differences are very small, with serious product homogeneity. Investment guarantee type of family property insurance, although in order to better meet the needs of customers and research and development of updated types of insurance, and both investment and protection of the two major functions, but the company launched products are more or less the same, so also failed to grasp the needs of consumers.

China is one of the regions with frequent natural disasters in the world, and catastrophe risk is one of the main risks faced by every family. However, in the family property insurance contract, earthquake insurance and other catastrophe risk are generally listed as exceptional liability, and in this respect, family property insurance fails to play its due role.

## 3. Recommended product

### 3.1 Introduction of a recommended product

The different types of insurance amounts are shown in Table 1, which includes:

(1) Setting personalized insurance rates: abandon the original unified rate and comprehensively consider the impact of different factors on risks.

(2) Setting the insurance amount accurately: given the large differences in housing prices in different areas, the insurance amounts of houses and ancillary facilities are divided into three types: A, B, and C.

**Table 1.** Different types of insurance amount

| | **Type A** | **Type B** | **Type C** |
|---|---|---|---|
| **Maximum insured amount** | ¥5 million | ¥3 million | ¥1 million |
| **City type** | Beijing, Shanghai, Guangzhou, Shenzhen | Hangzhou, and 15 other new first-tier cities | Other cities |

(3) The product operation process is shown in Fig. 1.

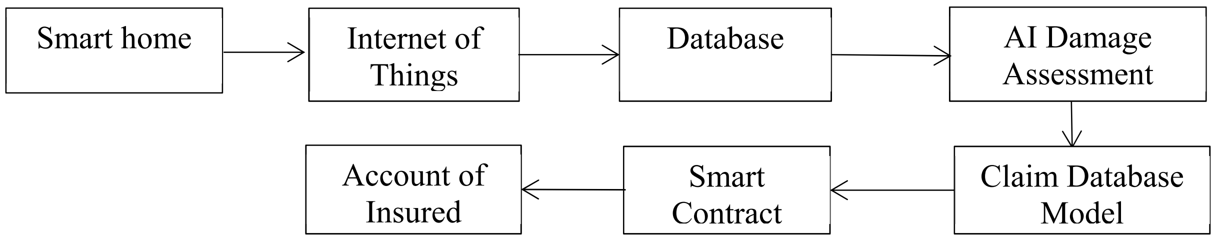


**Fig. 1** Product operation process

(4) Provide diversified After-sales Services: through the intelligent terminal APP of the insurance company & The vast amount of new data generated by smart sensing devices.

(5) Customization of coverage content: With consumers customizing their household property insurance policies use a specifically agreed-upon approach to insurance.

(6) Intelligent loss determination and claims settlement: advanced algorithms allow processing of the initial claim path, increasing efficiency and accuracy.

### 3.2 Advantages for the policyholder

(1) The probability of property loss will be reduced

The greatest significance of the combination of smart home and home property insurance lies in the realization of risk transfer and risk avoidance at the same time. The intelligent security system can initiate loss prevention measures proactively through sensors and alarm devices, so that the family property is greatly reduced from fire, theft and other controllable risk accidents, and can effectively avoid some losses.

(2) The number of property losses decreased

To inevitable property loss and personal casualty after an insurance accident happens, the timely alarm of intelligent systems and automatic emergency measures can timely stop loss and give some remedy. Moreover, the intelligent interconnected home appliances themselves with automatic diagnosis and maintenance can be updated and repaired by themselves, reducing the cost of manual maintenance.

(3) Moral hazard reduction

In family property insurance, moral hazard is mainly reflected in the behavior of policyholders fabricating insurance accidents, false reports, or exaggerating the extent of losses. In intelligent interconnection scenarios, intelligent security systems and cameras can help identify the causes of accidents, while image recognition and intelligent sensing technologies can help determine the amount of property damage and the degree of personnel damage, thereby reducing excess claims and malicious insurance fraud. Moreover, because the smart home can repair itself, it can reduce the number of on-site repairs and protect the privacy of the policyholder.

### 3.3 The way that the problems of an existing product are solved

(1) Customization of underwriting content

With the improvement of people's income level, the improvement of the living environment, the popularization of telematics and home Internet of things devices, and the maturity of pricing algorithms, home property insurance need to be repositioned and customized by special agreement. In addition, in the Internet of Things scenario constructed by different smart connected devices, consumers can customize their insurance needs to cope with changes in living arrangements and travel and can compare the price of products from different insurance companies at any time. Insurance companies can not only enrich the risk assessment dimension based on real-time data to achieve accurate pricing, but also dig out more fragmented demands and truly practice the innovation path centered on customers and risk scenarios.

(2) Intelligent loss settlement

In the smart connected home scenario, sensors and a series of data capture technologies actively monitor key risk factors, and the claim nuclear loss and repair services are automatically triggered when damaged, which to a large extent replaces the traditional manual first loss notification. Advanced algorithms can handle the initial claim path and improve efficiency and accuracy. Blockchain-based smart contracts allow instant authorization to make payments to customers' financial accounts. At the same time, contract processing and payment verification will be simplified or eliminated, reducing insurance companies' customer acquisition costs, and the turnaround time for claims cases will be measured in minutes, making them more efficient.

## 4. Conclusion

Traditional property insurance has some problems that make the demand for property insurance worst. Smart homes have brought new blood to the property insurance industry. It has more protection when customers buy home property insurance. Although this technology is not particularly mature at present, such as private security problems. The maintenance guarantee of the intelligent ecosystem may also lead to privacy leakage. So I suggest that the insurer and company need to negotiate the scope of obtaining private information when signing the contract. Also, due to the novel and unique insurance varieties and the advanced vision of application technology, for the traditional customer groups of other insurance companies, it does not mean that all customers can accept this new technology. Therefore, it is necessary to use more introducing advertisements rather than a conceptual advertisement. The high-cost and high-investment model is also a challenge that may make Zhong An company enter a high-debt operation mode, which may lead to the situation of uneven profit and loss occurs. Cooperating with several smart home companies, so that after customers buy the smart home, the insurance company personnel recommend and introduce the home property insurance to them, it can help to form an industrial chain, which can better promote the Intelligent Interconnected Home Property Insurance. However, this innovation will greatly improve the income of the home insurance market and the market environment of the insurance industry in the long run.

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