

Research on Convenient Service of Fresh Goods in Remote Areas of Fujian Province based on PEST and SWOT Methods

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Abstract

With the progress of science and technology, high-tech has been popularized in most parts of China, but in some remote areas, emerging technologies are still difficult to be popularized and applied. The fresh products in the mountains and the fish harvest in coastal areas need to be processed and refrigerated if they want to be transported to customers, but this will damage the quality of food materials and lose nutrients. Multi party resale will also cause problems such as high product prices. By designing and establishing a contact station, the project uses new technologies such as unmanned aerial vehicles and temperature control vehicles to collect and transport products for fresh-keeping and rapid transportation, so as to ensure the quality of products, control the price of products, and promote the economic development of mountainous areas and coastal areas in China.

Keywords

Fresh Food; Selling Price; Transport.

1. Introduction

With the continuous development of China's economy, people's life is booming, and people's requirements for quality of life are constantly improving, but the supply of high-quality goods cannot meet people's growing material needs. Although there are some high-quality goods on the market, they are very expensive and cannot meet the needs of ordinary wage earners. The scheme proposed by our company is committed to solving the current thorny problem. That is, while providing high-quality fresh goods to meet people's needs, we will reduce the price, so that the quality fresh goods that are usually expected but not accessible can enter the lives of ordinary people, so that people can buy the high-quality fresh goods they want at affordable prices. Zeng Yiming and others proposed the technology required for the construction of the unmanned distribution logistics service system and the related role of the technology to provide guarantee for route planning and safe operation [1]. Liu Shuai and others introduced the optimal payload, structure, function setting and endurance mileage of logistics UAV [2]. Zhang Jingli's research shows the advantages of cableway construction over highway construction, and indicates that cableway is more suitable for transportation in mountainous areas [3]. Cai Yong and others showed that the hydraulic ropeway driving device has the unique advantages of small weight and volume, convenient initial transportation, and automatic operation with double brakes [4]. According to the news, there are refrigerated vehicles with satisfactory functions in the market [5]. The research results of Yao Chengjun and others show that the refrigerator car driven by solar power generation with compressor refrigeration can save energy [6]. Qi Cuihua's research results show that ozone can quickly enter cells, oxidize intracellular enzymes or ribonucleic acid, deoxyribonucleic acid, and thus generate dead mycoplasma, which has a good inactivation effect on viruses, bacteria, molds and other

microorganisms [7]. Literature VIII and IX show that the ultraviolet wave energy of 260-270 nm can be strongly absorbed by nucleic acid of microorganisms, which can effectively eliminate microorganisms [8, 9]. Wang Yiyue and others have shown that low-temperature plasma treatment can effectively inhibit the growth of microorganisms in fresh grass carp meat, and its antibacterial effect increases with the increase of treatment voltage [10]. The research results of Chen Jun and others show that when the cost of fresh-keeping is different, the choice of manufacturers and retailers will be different. Wu Yurong et al. introduced that self-service supermarkets can sell different kinds of goods through the same equipment. It is the need of social credit system construction, and also the concentrated embodiment of national quality and civilization construction, with broad prospects .

2. Existing and Possible Problems

2.1. Industry Status

In China, although the fresh food transportation industry has developed, some industries have relatively complete industrial chains, but only stay in the basic commodity of milk, there is still a lot of demand in the market waiting to be explored and studied. Other industries, such as high-end fish harvest and precious mountain products in the mountains, have big problems in the industrial chain. The freshness of the fish caught in the deep sea gradually declined because the fishing boats could not reach the shore in time or could not be transported in time for other reasons, so that most of the fish caught finally transported to customers were frozen or very low freshness. In addition to the freight and miscellaneous fees, customers could only buy the fish caught at a high price that was not cost-effective. However, most of the high quality fish are caught through fishing friends, and the supply is very small. As for the precious mountain products in the deep mountains, the local residents can't transport them for sale without ensuring the quality of the products. They can only sell them to buyers at a low price. If many middlemen earn the difference, the situation will be the same as that of high-end fish. These are problems to be solved.

2.2. Gap Analysis of Fresh Food Distribution at Home and Abroad

In China, although the fresh food e-commerce has developed rapidly, most of the services are only provided in developed cities. Take the remote areas of Fujian Province as an example, mainly through agricultural suppliers to purchase and then distribute to nearby supermarkets, hotels and customers. This kind of sales group accounts for up to 70% of the whole distribution market, far higher than other sales channels. For developed countries such as Germany and the United States, their supermarket fresh food procurement channels account for a large proportion in their fresh food logistics distribution markets. Supermarket fresh food distribution is for all consumers, and single consumers can also buy the products they want in a short time.

Whether at home or abroad, in the existing fresh product sales channels, fresh fruits and vegetables, seafood, etc. that are easy to purchase and transport are used for sales. Therefore, the supply of mountain products, fish delicacies and sea products in remote areas is still in short supply.

2.3. Problems in Domestic Fresh Food Distribution

The problems in domestic fresh food distribution are as follows:

Table 1. Problems in domestic fresh food distribution

Problems	Detailed description
Low efficiency of agricultural product distribution	There is no mature and sound agricultural product supply chain distribution system in China, and the whole supply chain process lacks standardization.
Low level of intelligent information	Due to the uneven economic development in China's regions and the backward development of informatization in some regions, some agricultural producers cannot grasp the market trend in time, and the rare marine products in some regions cannot be picked and supplied in time, resulting in the loss of raw materials.
More use of third-party distribution logistics model	The third-party distribution logistics model focuses on the core of sales and reduces production costs. But there are also disadvantages, such as logistics enterprises and customers can not share resources, it is difficult to ensure the accuracy and timeliness of supply information, and information technology is not widely used.
High cargo damage rate	In the circulation process, the supply and marketing chain of fresh products is long and the goods are damaged seriously, which has virtually raised the unit price of products and caused social burden.

3. Risk Analysis

3.1. Technical Risk Analysis

(1) Technology development risk. The endurance, maximum carrying capacity, maximum control range, wind resistance and waterproof performance of UAV products require the research and development of high-tech talents. At the same time, the design and operation of APP and website also require the technical support of technical talents. The current tax level is still below the target level.

(2) Technical maintenance risk. When the number of users of the APP platform reaches a certain scale and is well known, the security risks of the platform, how to maintain the security of the platform and how to protect users' privacy become important issues.

3.2. Market Risk Analysis

The platform takes e-commerce as the carrier. In the initial development period, the requirements for manpower, material resources and required technology are too low. If the core competitiveness of the platform is not properly protected, it may encounter failure. Because its development mode is easy to be copied, it is likely to be imitated by other platforms after this platform is mature and promoted.

3.3. Management and Talent Risk Analysis

(1) Manage risk. The transportation of "fresh and fresh products" is a new industry without an established and perfect management system, and some of them, such as information management and the management of "Xianshangda" platform, are very important.

(2) Talent risk. Human resources are an important pillar of the company. However, in the fierce competition environment of human resources, the attraction and accumulation of talents need more investment. Otherwise, there will be brain drain, talent shortage and low comprehensive quality of employees. However, the talent market is highly competitive and difficult to attract and accumulate. Although the group of college graduates is large, the network technology knowledge they learn is relatively old, lacking practical operation experience, and it is difficult to meet the work needs.

3.4. Financial Risk Analysis

To ensure the normal operation of the company, sufficient financial support is needed, and the lack of funds will stop the development of "Xianshangda". As an emerging project, "Xianshangda" is weak in its ability to resist financial risks. The large proportion of accounts receivable in working capital and the uncertainty of the projects invested by start-ups in expanding their scale are the main potential financial risks of the enterprise. With the development of the platform, the company may need to borrow money from banks and other financial institutions to meet the continuous and sustainable development of the platform in the future.

3.5. Legal Risk Analysis

(1) Intellectual property issues. During the implementation of the project and the establishment and promotion of APP, we will inevitably have similarities with other software. Therefore, during the software research and development, intellectual property risk will become the main problem faced by "Xianshangda" APP. "Xianshangda" APP not only needs to face various intellectual property barriers set by powerful competitors, but also needs to prevent infringement by others.

(2) Various labor contracts, labor relations and economic disputes. In order to retain core technical talents, we will adopt some alternative incentive means and methods. Once both parties fail to realize their expectations or make promises in the expected time, various disputes will arise.

3.6. Unexpected Risk Analysis

The operation process of the platform may face many unknown crisis events, which will have an impact on the development and growth of the platform, such as the construction route of mountain cableways, the impact of climate change on fresh products, and security issues.

4. Development Trends of Market Resources

4.1. Technical Support

The development of network communication and transportation technology has provided convenient conditions for the transportation of high-quality fresh food.

4.2. Market Demand Support

Some analysis results of the 1000 questionnaires collected are as follows: The vast majority of people attach importance to freshness, and more than 70% of them pay more or special attention to freshness. Nearly 60% of the population can only accept 5%~10% higher prices than ordinary fresh food, which indicates that most people have an urgent demand for high-quality fresh products at low prices. The survey results show that there is a huge market demand for such products.

4.3. Market Environment Analysis: Macro Environment Analysis (PEST Analysis)

(1) Political environment. The national policy of "mass entrepreneurship and innovation" has provided convenient conditions and fertile soil for small and micro entrepreneurs to start their own businesses. At the same time, sharing economy related legislation is being proposed to help innovation entrepreneurs with mutual benefit. This gives us more opportunities to get the land use right in various places to establish fresh food contact stations.

(2) Economic environment. In recent years, China's economic strength has been greatly improved, with GDP per capita growing continuously and the economic growth rate is fast. The company's operating industry belongs to the first level of the tertiary industry.

(3) Social cultural environment. Consumers have realistic consumption psychology, and people are very concerned about the freshness and price of fresh food; People's lifestyle is constantly changing, and they are gradually pursuing high-quality life. The consumption of rare fresh products is increasing.

(4) Technical environment. The Internet of Things technology has been developing steadily, transportation technology has been developing continuously, artificial intelligence technology has been developing continuously, unmanned aerial vehicles, helicopters and other means of transport have gradually emerged and become popular, and new fresh-keeping technologies have gradually been promoted.

4.4. Analysis of Influencing Factors based on SWOT Model

4.4.1. Strengths

With the development of science and technology and the improvement of technical level, the emergence of new technologies such as unmanned aerial vehicles and temperature controlled vehicles, the Company will make full use of these tools to improve the transportation efficiency of products, so that products in mountains and coastal areas can be delivered to consumers in a timely manner. The Company can ensure the speed and quality of transportation through unmanned aerial vehicles, temperature control vehicles and urban robots, so that consumers can enjoy more fresh products and fully guarantee the quality of fresh products. The unified transportation and diversified transportation modes will reduce the cost of products to a certain extent, which is a great advantage for businesses. The problem of high transportation costs of fresh products can also be alleviated to a certain extent.

4.4.2. Weakness

Although unmanned aerial vehicles and temperature control vehicles and other tools have been put into use in the market, the company's current technical level has not yet fully reached the mature level. To some extent, there will still be some loopholes, and the current technical level is temporarily lower than the required standard level. Because of the particularity of fresh products, the cost of product purchase, transportation and preservation is high. Inappropriate use of funds may lead to insufficient funds at the initial stage of the company. Most of the fresh food is produced in mountains or coastal areas, which are often remote, with poor transportation, terrain and other geographical conditions, adding difficulties to the construction of liaison stations and cableways.

4.4.3. Opportunity

With the continuous development of the economy, the local government actively explores relevant methods to reduce adverse factors, and promotes the development of relevant industries by constantly improving local infrastructure construction. This provides convenience for the transportation of fresh products. Only when there is demand can there be supply. With the continuous improvement of people's living standards in recent years, people's demand for fresh products is also rising, which is a huge business opportunity for the company. The country's rural revitalization strategy, to a certain extent, is the biggest support for remote areas. Many preferential policies will favor these areas. The company should seize this opportunity to introduce advanced technologies such as unmanned aerial vehicles and temperature controlled vehicles, respond to the call of the policy, and promote the development of the company.

4.4.4. Threat

In terms of the development of UAV and temperature controlled vehicle transportation, the relevant industrial chain is not very perfect, there are still many loopholes, and the added value of products is low, which is only limited to product transportation, and other measures to extend the industrial chain are still insufficient. Today, with advanced technology, owning UAVs

and temperature controllers is not a unique advantage of an enterprise. Many peers will use such machines, and the number and quality of machines put into the market are also increasing. Therefore, the competitive pressure is also increasing. Many fresh products are produced in coastal areas or mountain areas. Different regions have different dialects, and the producers are mostly farmers and fishermen, who use more dialects. This will make it difficult for technical personnel of the company to communicate with local producers, and communication problems will also affect development and cause problems to a certain extent.

4.5. Market Potential Analysis

With the advent of community group buying and new retail, e-commerce giants have joined the fresh food market.

Table 2. Layout of Fresh E-commerce of Giant Enterprises

Enterprise name	Go online directly	Investment layout
Suning	Fresh sushi	Yiguo Fresh (the core supplier of Suning Fresh)
Shunfeng	Shunfeng Optimization	Shunfeng Hangzhou International Fresh Food E-commerce Supply Chain Base
Runfa	RT Mart Fresh	/
Alibaba	Boxhorse	Directory of fresh food e-commerce owned, invested, controlled and shared by Alibaba Group: Tmall Fresh Food Supermarket, Meow Fresh Food, Yiguo Fresh Food, Taoxiangtian, Suxiansheng, Hema Fresh Food, RT Mart Youxian, Auchan, etc.
JD.COM	7FRESH	Tiantian Orchard
Baidu	Baiyoupin	COFCO Womao.com
EMS	Fast Fresh	/
Tencent	/	List of fresh e-commerce businesses owned by Tencent, invested, controlled and participated in: Jingdong, Tiantian Orchard, Pinduoduo, Yonghui, Weidian, etc
Meituan	Fresh Elephants, Meituan Vegetables, and Palm Fish	/
CR Vanguard	ewj.com	/

4.6. Development Trends

4.6.1. Current Situation of Fresh Food Distribution Market

At present, the penetration rate of e-commerce in fresh food distribution market in China is low, and the whole market is still in the blue ocean stage. The known fresh food distribution platforms in the market, such as Su Xiansheng, Jisuxian and Hema, are all developed by relying on well-known enterprises such as Suning and Ali. In recent years, due to the development of high-tech and deeper research on artificial intelligence, the transportation cost of fresh food distribution has been gradually reduced, the consumer population has gradually expanded from the first and second tier cities to the third and fourth tier small cities, and the types of fresh food are no longer restricted to fruits and vegetables. However, the fresh food distribution market has not reached saturation, and technological reform is still in progress. The fresh food industry still has a lot of room for development in the next few years.

4.6.2. Fresh Food Distribution Market Development Trend

Table 3. Future development trend of fresh food distribution market in China

Trend	Reasons
The market scale will be further expanded	With the upgrading of cold chain logistics technology and the rapid development of the network, the fresh e-commerce industry has gained higher level of technical support.
Users gradually turn to online consumption	With the expansion of the market scale and the gradual increase of the penetration rate of the fresh e-commerce industry, online purchase of fresh products will become a trend.
Further improve the warehousing management mode	In the future, the market scale of fresh electrical appliances will be further expanded, the number of commodity category management models will also increase, and the warehouse management model also needs to introduce new technologies and models to further improve.

5. Solutions

5.1. Technical Risk Countermeasures

The technical level is the most important part of the development of "Xianshangda". With sufficient funds, it is necessary to invest heavily in technical development, attract outstanding technical talents in UAV technology, intelligent application and unmanned management with high salaries and other preferential treatment, and improve and develop relevant technologies. Constantly optimize the "Xianshangda" APP to make it run smoothly, reduce the probability of jamming, reduce the difficulty of APP operation, solve some problems that conflict with online purchase of fresh products due to operational difficulties, and improve the user experience. During the operation of APP, a professional team shall be set up to regularly inspect the system and update it, so as to check the deficiencies and make up for leaks. For internal information, ensure high confidentiality and strengthen firewall functions; For external information, it needs to be fully shared.

5.2. Market Risk Countermeasures

Always pay attention to the dynamics of competitors and the market, keep abreast of the market trend, constantly improve the marketing strategy, keep the creativity and execution in a first step state. At the beginning of the development, the specific characteristic service and quality guarantee attract the public, constantly establish their own brand image, and then combine their own advantages to develop and strengthen the overall structure.

5.3. Management and Talent Risk Countermeasures

Establish a management department and a complete management system. The management department shall manage all kinds of information on the platform to ensure that there are no gaps in management and improve management efficiency. Flexible use of "performance pay", "variable salary system" or "incentive plan" and other forms will closely combine the salary with the business performance of the enterprise, the employees' personal skills and contributions. Give preferential treatment to talents, carry out scientific and reasonable vocational training for employees, especially technicians, and improve their comprehensive quality and professional skills. Establish a strict supervision organization, conduct regular self-examination and reflect the inspection results, adjust the member structure in a timely manner, allocate work according to the members' personal abilities and skills, and improve the service ability.

5.4. Financial Risk Countermeasures

The company should improve the relevant planning scheme, including the analysis of the current situation of sales and facilities construction in each period, and make assumptions and propose solutions for each possible situation. In order to enhance the financial risk resistance

of the project, we should try to seek help from the government and banks. With the promotion of national policies and new technologies, we believe that the financial risk resistance of the project will be greatly enhanced. At the same time, we should also expand our business in an all-round way to enhance the competitiveness of the enterprise.

5.5. Legal Risk Countermeasures

For a series of technical services belonging to our company and our service process, if it is our newly designed technology, we should make a good patent layout in advance, eliminate patent barriers and apply for patent protection. We should improve the awareness of patent protection, improve the company's patent protection measures, and formulate relevant patent protection provisions to ensure that the company's rights are not infringed. The management shall establish an effective system to reflect the situation, streamline the institutions and cultivate talents. At the same time, a strict supervision organization shall be established to conduct regular self-examination and reflect the inspection results, so as to solve disputes and contradictions in a timely manner.

5.6. Countermeasures Against Unexpected Risks

Hire a risk manager to estimate the possible risk situation in the future and propose solutions according to the current operation status of the enterprise; The enterprise must have a detailed and comprehensive emergency plan to ensure the normal operation of the company under extreme circumstances.

Purchase accident insurance for employees and construction workers, sign relevant safety agreements, relax the construction time limit, suspend construction in case of natural disasters or poor weather conditions, and put workers' safety first.

6. Summary

Based on the existing problems of fresh food transportation industry in remote areas, this paper proposes an optimization scheme: establish multiple liaison stations in mountain areas and use unmanned aerial vehicles and cableways to transport mountain goods out of the mountain; The rare fish and mountain products are classified according to their value, and temperature control vehicles or aircraft are selected for transportation; Some measures have been formulated to ensure the healthy operation of the industrial chain, reduce the wholesale turnover to reduce the price difference of products, and use new fresh-keeping technology to ensure the quality of products. In order to achieve the goal of enabling people to buy high-quality fresh goods at affordable prices; It is committed to finding out the development path suitable for the fresh food transportation industry and achieving the demonstration effect, so as to promote the establishment of the industrial chain of the fresh food logistics industry.

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References

- [1] Zeng Yiming, Lin Li, Zhu Zhenfeng, et al. Based on the innovation of logistics service mode under the unmanned express vehicle [J]. Shandong Industrial Technology, 2019 (12): 221+230.
- [2] Liu Shuai, Li Qiuwei, Cheng Lintao. Research on unmanned distribution logistics service system based on driverless technology [J]. China New Communications, 2021,23 (01): 73-74.

- [3] Zhang Jingli. Advantages and Application Analysis of Cargo Rope Transportation in Railway Construction in Steep and Inconvenient Mountainous Areas [J]. *Railway standard design* 2021, 65 (04):99-103.
- [4] Cai Yong, Yu Zhanyu, Wang Aiqin. Research on freight aerial ropeway transportation [J]. *Henan Science and Technology* 2018,(17):86-87.
- [5] Zhou Chen. SAIC Hongyan Jiebao H6 4 × Release of 26.8m refrigerated truck [J]. *Logistics technology and application* 2021,26(S1):39.
- [6] Yao Chengjun, Hou Shaobo, Zheng Shujie. Design and selection of refrigerated vehicles using photovoltaic power generation refrigeration [J]. *Gas and heat* 2021,41(04):38-40.
- [7] Qi Cuihua. Ozone sterilization and its application in food industry [J]. *Food Science and Technology*, 1998 (6): 3 – 5.
- [8] Gurzadyan G G, Görner H, Schulte-Frohlinde D. Ultraviolet (193, 216 and 254 nm) photoinactivation of *Escherichia coli* strains with different repair deficiencies[J]. *Radiation Research*, 1995, 141 (3): 244–251.
- [9] Wang C, Lu S Y, Zhang Z W. Inactivation of airborne bacteria using different UV sources: Performance modeling, energy utilization, and endotoxin degradation[J]. *Science of the Total Environment*, 2019,655:787–795.
- [10] Wang Yiyue, Jiang Zhumao, Qian Jing, Dai Junjian, Zhang Jianhao, Yan Wenjing. Effect of plasma treatment on sterilization efficiency and storage quality of fresh fish [J]. *Food and fermentation industry* 2022, 48(08):166-172.