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Express parcel packaging waste recycling platform

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Abstract---Along with China's rapid economic development, express parcel packaging waste has placed a constant strain on environmental protection. With increased environmental awareness and policy-driven, the express parcel packaging waste recycling platform was created in response to residents' high willingness to recycle and the relative lack of recycling channels. The platform will act as an intermediary between residents and express companies, allowing for the safe separation and recycling of express parcel packaging waste. The platform has an RMB 640,000 start-up capital and plans to cover major Chinese cities within five years. The investment has a net present value of 33.16 and an internal rate of return of 301 percent and will be repaid within 153 days of the project's start date. Investing in this project is both economically and socially beneficial.

Keywords---express parcel, packaging waste recycle, business plan, China, environmental protection, internet.

Introduction

As a result of the implementation of the "Internet+" strategy, e-commerce has emerged as a new economic growth pole in China. While the thriving e-commerce industry propels the development of the express industry, the exponential growth of express parcel packaging waste places constant strain on environmental protection. China's express industry consumes over 9 million tons of paper waste

and approximately 1.8 million tons of plastic waste each year (Zhao, 2020) with an overall recycling rate of less than 20 percent (Zhu, 2021a). The central and local governments have enacted a slew of laws and regulations to protect the environment, prevent pollution, and deal with the increasing scarcity of resources, the most important of which is the People's Republic of China's Circular Economy Law, which serves as a legal foundation for addressing the environmental challenges posed by express packaging.

Pion Star Environmental Technology Liability Limited Company is a start-up company focused on the recovery and recycling of express parcel packaging waste. The company will be located in Beijing and will be jointly funded by the three co-founders. The company intends to develop a platform based on the Internet's time domain and big data analysis, using an open-source applet provided by the WeChat platform, as well as a "community to logistics" express parcel packing waste recycling route and to achieve harmless sorting and recycling of express packaging waste. In the recycling process, the company will play the role of "intermediary", connecting communities and express companies to realize the recycling of express parcel packaging waste. The platform is an innovative waste recycling project with a public welfare nature and business model. The company's service consists of three parts, namely "One Click Recycling", "Online Shop" and "Eco Tips".

Industry analysis

PEST analysis

Political Factors. Internet shopping has given rise to a new economic phenomenon known as "Internet + Delivery," in which the waste generated by express delivery packaging has put constant pressure on the classification and disposal of urban garbage in China. China's government has published several laws and regulations for implementation by the guidelines of national goals. Policymakers at the national, provincial, and municipal levels are taking the lead in developing policies and frameworks that will enable businesses to achieve a circular economy. By linking packaging waste to the e-commerce sector, the Chinese government hopes to promote a prosperous future. **Economic Factors.** The consumption habits of Chinese residents have shifted as the Internet has grown in popularity. China's Internet users reached 1.011 billion as of June 2021, with a 71.6 percent Internet penetration rate. The number of online shopping users among them reached 812 million, accounting for 80.3 percent of total Internet users (CNNIC, 2021b). The Company's initial target market is Beijing, with operations spreading to Tianjin and Hebei.

Social Factors. Residents' environmental awareness and social responsibility for recycling express parcel packaging waste are gradually increasing. The environmental protection industry has gained widespread public support. These circumstances have created favorable conditions for the growth of the "Internet + Recycling" industry. The increased environmental awareness has also aided in the full implementation of the recycling model. **Technical Factors.** Recycling has gained popularity in both the public and private sectors, and recyclable packaging is becoming more standard. The integration of modern information technology, such as the Internet of Things, with the recycling industry, will accelerate the

pace of innovation and development. With China emphasizing the concept of green development, many companies are focusing on this business opportunity for early intervention.

Five forces model

Competitive rivalry

The main types of renewable resources in China are waste iron and steel, waste non-ferrous metals, waste plastics, waste paper, waste tires, waste textiles, waste glass, and waste batteries (except lead-acid batteries). In contrast to traditional businesses that recycle renewable resources, the Pion Star parcel recycling platform recycles reusable parcel packaging waste, primarily paper and plastic. It sends it directly to express companies for repackaging. Based on the analysis presented above, it is concluded that the existing competitors have limited capacity.

The threat of new entry

The "Interim Regulations on Express Delivery" were revised and implemented on May 1, 2018, to encourage companies and senders to use degradable and recyclable environmentally friendly packaging materials. In 2010, the State Council issued the "Decision on Accelerating the Cultivation and Development of New Strategic Industries," which included the recycling industry. More express companies are expected to join the express parcel packaging waste recycling industry in the future. Based on the foregoing analysis, it is concluded that potential competitors pose a high risk of entry.

Threat of substitution

The scale of recycling by major express companies is small in comparison to the scale of China's domestic express parcels, and most of these activities are short-term, with no sustained promotion after the event. Express and e-commerce companies also organize sporadic express packaging recycling activities, primarily for corrugated paper, but no measures are taken for materials with low recycling value, such as plastic. Based on the analysis presented above, it is concluded that the threat of alternative services is low.

Power of suppliers

The renewable resource recycling market is dominated by self-employed individuals who pick up or recycle recyclable waste from homes or residential areas. Pion Star's profit model does not rely on the recycling and resale of express parcel packaging waste to generate revenue. Simultaneously, the company provides a platform for connecting individual residents with express companies, and it collects shares based on the amount of package waste recovered from express packages.

Power of buyer

The rise of e-commerce has altered people's consumption patterns, and enterprise behavior is an important factor in shaping consumer behavior. E-commerce companies can choose to recycle their packaging parcel waste or purchase brand new express parcel packaging. The main components of express parcels, namely corrugated boxes, foam boxes, and cushioning materials, are recycled by a recycling platform. According to the preceding analysis, the buyer's bargaining power is medium.

SWOT analysis**Strength**

The Company uses a market bidding model through C2B to recycle express parcel packaging waste. As residents' awareness of environmental protection has grown, the "Internet + Recycling" business model has gained widespread acceptance. The Company employs Internet technology and big data analysis to efficiently discover and analyze waste.

Weakness

Many businesses in China are already experimenting with the "Internet + Recycling" business model. The Company entered the industry late and thus missed out on an opportunity, which is a disadvantage for the Company. Although Pion Star's express parcel packaging waste recycling platform complies with China's national policy, it may receive government support. In the market, due to a lack of funds, a small company scale, and low brand awareness, the company's initial development is difficult.

Opportunities

"Internet + Recycling" has its innovations and characteristics when compared to the existing express parcel packaging waste recycling industry. It enables the seamless connection of online and offline resources and provides more convenient and intelligent services for both supply and demand parties. Chinese residents' living standards and education levels continue to improve, and the consumer value concept includes not only material but also spiritual needs.

Threats

China's express parcel packaging waste recycling market has enormous development potential, and the industry's growth is bound to be accompanied by a strong influx of competitors. As national policies and residents' concepts continue to emphasize environmental issues and resource recycling, China's waste separation and recycling industry are still in their infancy.

Market analysis and marketing plan

As a recycling intermediary, the company analyzed the market in terms of both residents and express companies.

Sell-side market segmentation

The waste providers were divided into four categories based on their frequency of online shopping and willingness to recycle packaging waste, using both behavioral and psychological factors. Providers who have a high-frequency online shopping habit with a high willingness to express packaging recycling. This demographic is the driving force behind online shopping and, at the same time, has a strong sense of environmental and social responsibility. While they enjoy the convenience of "Internet + Shopping," they are eager to recycle and reuse recyclable courier packaging waste. This group will be the primary users of the recycling platform.

Providers who have an online shopping habit and support express parcel packaging waste. This demographic is concerned about environmental and social responsibility, and the low frequency of online shopping leads to a low frequency of express parcel packaging waste recycling. This group of people will be long-term users of the recycling platform. They will be able to promote the recycling platform through word-of-mouth marketing based on their personal experience with it. Providers who have a high-frequency online shopping, but with a low willingness to express parcel packaging waste recycling. This is because they are concerned that their privacy will be compromised during the recycling process, or that secondary contamination will occur, posing a risk to their own or others' health. The company will use the platform's recycling case studies, as well as word-of-mouth communication from existing users, to increase their support for recycling. (Kerdpitak et al., 2022). Providers who make infrequent online purchases and are unwilling to recycle express parcel packaging waste. The company will promote environmental knowledge to this group via the platform's "Eco Tips" module to increase their willingness to recycle express parcel waste.

Buy-side market selection

The business relationships between express companies and e-commerce platforms can be classified into two types: traditional e-commerce models and warehouse delivery e-commerce models (Plastic Free China, 2021c). Because of their different business models, retail e-commerce platforms have adopted different processes and links to serve end consumers and thus have adopted different approaches to express packaging management. The primary distinctions between the two are reflected in each platform's willingness to collaborate with other participating entities, their ability to control, and the strength of the influence they can wield.

Merchants sell products and services to end consumers via the retail e-commerce platform's communication, trading, and promotion services, and the products are delivered to end consumers via a third-party express company in the traditional e-commerce model. Merchants have little bargaining power with express companies because of their limited influence, and they are unwilling to recycle express parcel packaging. Because the company rarely launches consumer activities on express parcel packaging waste, express companies' distribution outlets lack unified recycling plans and guidance. Based on the foregoing

analysis, it is possible to conclude that the Company's primary purchasing users will be express companies that work with traditional e-commerce platforms.

Overall marketing strategy

The "Internet + Recycling" industry has only recently emerged in China, but it is growing rapidly. A combination of strategies is used in the development of the company's marketing plan. In terms of cost and price, the company employs a differentiated marketing strategy to avoid direct head-to-head competition with large recycling and reprocessing companies downstream in the industry. Use of the "community to express" strategy to achieve sales. Public relations and advertising strategies are used to promote the service to residents. Use a direct sales strategy to close sales to the express companies. By specializing and localizing its services, reducing the recycling process, improving recycling efficiency, and avoiding secondary pollution of express parcel packaging waste, the company has gained a competitive advantage.

Management team and company structure

Management team

The company's management team will consist of three co-founders. TONY has a law degree and an MBA, as well as 15 years of experience in international trading company management and project investment. Cindy has a bachelor's degree in economics as well as a master's degree in human resource management. She has 12 years of experience working in foreign companies and is skilled at applying human resource management knowledge, with her strong suits being staff training and performance appraisal management. Simon holds a Bachelor of Science in Software Engineering and is a Microsoft Certified Engineer. He has 8 years of industry experience and has a strong background in programming, web application development, and Internet e-commerce. (Kerdpitak, 2022)

Company structure

The project is a new start-up and the Company's size is very small, resulting in a flattened organizational structure that allows the organization to be more flexible and efficient. Due to the small number of management levels and employees, this inevitably leads to a reduction in operating costs. It also improves the organization's responsiveness and coordination, decreases the time lag between decisions and actions, and allows it to reflect competitive and dynamic market changes.

Operations and production plan

Operations plan

The company develops a recycling platform to connect the community with the express company. Residents find the recycling platform by scanning a QR code or searching for the applet's name. Residents take photos of packaging waste and upload them to the platform, then post the recycling information. Using the location function of smartphones, the platform recommends nearby couriers for residents. After receiving the order, the courier will contact the resident by phone

confirmation and collect the waste. The recycled waste will be sent to the express outlet for repair and reuse.

Each day, express company outlets submit statistics on the completeness and amount of recycled express parcel packaging waste that can be reused from the previous day to the database of the Pion Star recycling platform. The database is used as the basis for the monthly settlement between the express company and Pion Star. Social norms will play a large role in the waste recycling process, as people are more likely to seek help and help others if they are part of a social community. The company does not pay cash directly to residents as payment. Studies show that when people are in a world of social norms, they are more likely to be more attracted to helping others.

Development plan

Developing a 5-year plan will help the company to use its limited resources effectively to grow rapidly. Short-term plan. The company will rely on government support policies and use a variety of methods to promote the platform and raise awareness in the region. With a large number of higher education institutions and communities in the surrounding area, combined with the differentiated services provided by the company, we will quickly gain a foothold in the regional market. The period of 6 to 12 months after the establishment of the company will be the first stage of the firm's development. Medium-term plan. The second year after the establishment of the company will be the second phase of the company's development. As the company grows, the company should expand its recycling services throughout Beijing and the surrounding cities. Long-term plan. Consider the 3rd to 5th year of the firm's existence as the third stage of its development. The company should take full advantage of the time domain of the Internet to expand its services to other cities in China. With the validation of the company's business model, the company already has a certain influence in the express parcel packaging waste recycling industry.

Financial analysis and feasibility analysis

Financial analysis

The project requires RMB 640,000 in start-up capital - all funds will be raised through self-funding by the company's three shareholders. During the launch of the company, investments will be required in the design, development, maintenance of the recycling platform, purchase of fixed assets, rental of office space, marketing, publicity, and so on. The company's monthly revenue break-even analysis for year 1 is RMB60,034 (see table 1). Sales are expected to increase by 4 percent per month from years 2 to 5 as a result of the company's internal expansion and corresponding advertising campaigns. The company is a limited liability company with an estimated income tax rate of 25 percent.

Table 1
Break-even Analysis

Break-even Analysis	
Monthly Units Break-even	165,100
Monthly Revenue Break-even	¥60,034
Assumptions	
Average Per-Unit Revenue	¥1.21
Average Per-Unit Variable Cost	¥0.36
Estimated Monthly Fixed Cost	¥51,111

Feasibility analysis

The rapid growth of the express industry has resulted in a constant strain on China's environmental protection. The internet + recycling model has become a trend in China's recycling industry as technology has advanced. The Pion Star express parcel packaging waste recycling platform was created in response to this scenario. Several analytical models were used in writing this business plan. The PEST analysis was used to analyze the Chinese recycling industry. The Five Forces model and SWOT analysis were used to analyze the Company's competitive environment. The STP strategy was used to segment the express parcel packaging waste recycling industry's market, identify the target market and market positioning, and provide the foundation for the subsequent marketing plan, financial analysis, and risk analysis. According to the static payback period projection, the investment will pay for itself 153 days. The investment cash flow projection was used to calculate the project's operating cash flow for the five years of shipment. It yielded a net present value of 33.16 and an internal rate of return of 301 percent, which indicates that it has investment value.

Conclusion and Future Work

Conclusion

The entire Pion Star express parcel packaging waste recycling platform business plan has been completed at this point, demonstrating the project's viability through theoretical research from the inside out and rigorous financial arguments. The business plan will serve as an internal guide for the company's initial operations.

Future Work

Business management is a dynamic and complicated process. A thorough business plan is an important part of the startup process, but it is not the end of the story. In the future, it will be critical to analyze specific issues and respond scientifically and quickly to the company's internal and external environments to ensure that the company remains unbeatable in the face of fierce business competition.

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