

Strategic Business Mode Innovation of Small and Micro Enterprises Based on Data Mining Technology under the Internet Environment

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Abstract: A new round of technological revolution led by Internet technology is breeding to rise. The Internet has gradually become the leading driving force of economic growth. The change of Internet innovation mode has profoundly changed people's way of life and vigorously promoted the progress of society. Small and micro entrepreneurial enterprises play a vital and indispensable role in the development of China's market economy, providing sufficient and diverse employment opportunities and improving the diversification of the market, which all play a vital role. This paper aims to study the strategic business model innovation of small and micro enterprises based on data mining (DM) technology under the Internet environment. Based on the strategic theories at home and abroad, this study analyzes the importance of making long-term strategic plans, strategic objectives, conducting strategic implementation, and the evaluation of strategic implementation effect. Combined with the characteristics of small and micro start-ups, it shows that small and micro start-up enterprises carry out long-term strategic planning from the beginning of their establishment, determine the strategic goals of enterprises at different stages in the future, so that the enterprises can successfully survive the survival period, achieve rapid development in the growth period, and formulate long-term and overall strategic goals and strategic implementation plans. Enterprise business strategy is the goal to determine the future development of the enterprise. The DM algorithm is used to design scientific and carefully planned methods used to achieve these goals, and the methods used to achieve these goals, so as to reasonably allocate the disposable resources of the enterprise. The strategy of the enterprise is to coordinate the relationship between the external political environment, economic environment, social environment and the internal resources and organizational structure of the enterprise, so that the external and internal coordination, promote the development of the enterprise, and achieve strategic goals.

1. Introduction

Small and micro entrepreneurial enterprises, with their own small unit scale, fast

decision-making, and wide distribution, play an important complementary role in many industries of national economic development. Although the single output value of small and micro entrepreneurial enterprises is not high, but because of their large ownership, for small and micro entrepreneurial enterprises, how to survive and develop growth is the core concern of every small and micro entrepreneurial enterprise entrepreneur. Small and medium-sized enterprises will encounter a lot of crises in the development, there is a danger and opportunity, there are internal enterprises, but also external enterprise, how to turn the danger into an opportunity, is the smooth development of small and medium-sized enterprises must study the topic. Generally speaking, the policies, economic environment, and market environment of small and micro entrepreneurial enterprises play a vital role in the survival and development process of small and medium-sized enterprises. How to be in the market competition, find relative with its enterprise technology, and few competitors, high profit margin market, and use the founder of the enterprise and the enterprise itself resources, quickly occupy the market, and improve the management level of the enterprise, improve the supply chain management, the cultivation of professional personnel, to make the enterprise stability survive, to enterprise development [1-2].

In the Internet environment based on DM technology of small micro enterprise strategic business model innovation research, many scholars to its research, and achieve good results, such as: Whistance B innovation system environment is not a single existence, to enterprises, university, government, third party institutions, and other departments, form a relationship of multiple forces, thus enterprise technology innovation core competitiveness, improving the ability of regional technology innovation [3]. Lettieri E builds the financing framework of small and micro enterprises through the method of supply chain finance, to study the financing channels and processes of small and micro enterprises, including [4].

In the writing idea, on the one hand, from the perspective of enterprise business strategy, the importance and necessity of enterprise business strategy for small and micro entrepreneurial enterprises are proposed through DM technology. On the other hand, we study the niche market in detail. According to the characteristics and advantages of the niche market, through 5C analysis, small and micro startups use the characteristics of the early development of the niche market to survive the survival period. First, the political and economic environment background of this paper is expounded. Research ideas and research methods. And take a small and medium-sized company as an example, through the successful case of a single project market, to build a small and micro entrepreneur how to use resources to grasp the niche market and form a suitable niche strategy method. Finally, the results of the niche strategy construction of small and micro entrepreneurial enterprises are summarized, mainly from the internal and related customer concerns, and concluded that the small and micro entrepreneurial enterprises must focus on the niche market for business operation strategy construction, and finally put forward suggestions for the niche market strategy of small and medium-sized enterprises.

2. Research on the Strategic Business Model Innovation of Small and Micro Enterprises based on DM Technology under the Internet Environment

2.1 Internet-Based Enterprise Strategic Innovation Mode

In enterprise strategic planning, the key to the success or failure of the enterprise management is the ecosystem can gather and attract a large number of enterprise group connection platforms, make the ecosystem organized, hierarchical and enterprise strategic planning, form a chain interconnection mechanism, design to match the customer group business products or services, to complete the enterprise strategic goals. In the process of platform operation, customers of enterprises connected to the platform will bring more customers to the platform over time, which is

called positive network effect; customers of enterprises connected to the platform will bring fewer customers to the platform over time, which is called negative network effect. When enterprises have a significant positive network effect in the ecosystem, one of the goals of their production planning and business strategy is to obtain subsidies. Under the guidance of the subsidy structure, enterprises will attract more enterprises to join the ecosystem and further improve the positive network effect of the platform. If the peer-to-peer network effect between users is strong and positive, people will follow by friends, otherwise, when charging starts, the increase in user traffic will be severely hindered, and users may lose [5-6].

2.2 Strategic Business Model Innovation DM System

In the development of this system, the search module is used to guide to search information on the Internet, of course, also need to set the information source, but the information source setting and classification decoupling, no direct impact on the classification results, search zhi can be in the specified information source like a spider crawl data, of course, also can not specify the information source, let its free search on the Internet. The classification module includes two levels to automatically classify the search information and save the classification results in the classification database. The automatic delivery module is used to classify the data in the classification database of [7-8] in the company's various websites.

Website real-time sex and content update frequency is the soul of a website, a website to survive to retain users, must immediately update the website content, and to update the content, the content source is mostly obtained through online search, therefore, the search speed must be fast and real-time, at least can basically follow the kaleidoscope of the Internet. It can be seen that in the design of this system, speed and efficiency are the first [9-10] under the premise of considering accuracy. The system design is shown in Figure 1.

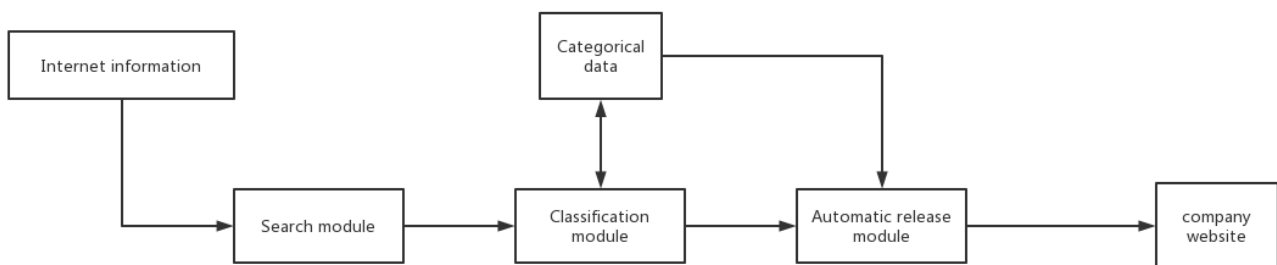


Figure 1: Software development master plan

2.3 The Significance of Niche Strategies

Niche strategy is an effective supplement to the whole business strategy, it can serve as the vanguard of the whole business strategy. At the beginning of small and micro entrepreneurial enterprises, establishment, management experience, financial strength, external and internal resources are not very sufficient, niche strategy is a good way to grasp the market to improve the gap to improve the enterprise. The main significance of implementing the niche strategy is to ensure that some enterprises that are in a weak position in the large competitive environment but have certain expertise can make flexible and clever use of the segmented niche market and achieve high profits. Experts for more than 20 very successful medium-sized enterprises for research and development, now, these companies have a special liking for niche market, they to a market segment customers provide unique high-quality products, and charge certain additional costs, in the process of trading with market segments, establish their good corporate image and enterprise culture [11-12].

2.4 Enterprise Strategy Lotka-Volterra Model Establishment

Based on the above basic ideas, assumptions, and methods, the following platform strategy evolution model of group A and B platforms is constructed as follows:

$$\frac{dR_1}{dt} = r_1 R_1 \left(1 - \frac{R_1}{K_1} - \frac{\sigma_1 R_2}{K_2} + \frac{\lambda_1 R_2}{K_2} \right) \quad (1)$$

$$\frac{dR_2}{dt} = r_2 R_2 \left(1 - \frac{R_2}{K_2} - \frac{\sigma_2 R_1}{K_1} + \frac{\lambda_2 R_1}{K_1} \right) \quad (2)$$

R_1 and R_2 are the market resource ownership or technical level of A and B in the platform ecosystem, r_1 and r_2 are the relative growth rate of A and B, respectively, K_1 and K_2 are the maximum capacity without competition; competitive effect coefficient ($-1 < a < 1$), B and cooperative effect coefficient ($-1 < a < 1$), and B of A in the platform ecosystem, [13-14] can be explained accordingly. $\sigma_1 \sigma_1 \lambda_1 \lambda_1 \sigma_2 \lambda_2 \lambda_2$

3. Research and Design Experiment of Strategic Business Model Innovation of Small and Micro Enterprises Based on DM Technology under the Internet Environment

3.1 The Construction Method of Enterprise Strategic Innovation

The enterprise strategic innovation construction method can redesign the structure of value creation and value distribution through the platform and induce the network effect to add value. Under this thinking, we adopt three methods, such as direct connection, stimulating diversification, and collaborative integration, to transform [15-16] in traditional industries. In traditional industries, they can eliminate unnecessary intermediate links, create more direct connections, improve the operation efficiency of the value chain, and bring the overall value added of the ecosystem. Direct connection is the most direct strategic innovation mode, but also the most exposed strategic innovation mode. Bending the value chain and directly connecting the supply and demand sides is the core of enterprise strategic innovation. Specific practices include: take out the information shield, eliminate the cost of inflating [17-18].

3.2 Experimental Design

This paper first analyzes the customer attrition rate of small and micro enterprises. Through the analysis of the proportion of different customer groups of the two small and micro enterprises. Secondly, the new value chain based on DM technology is analyzed in this paper. By comparing the production cost comparison of the old and new value chains, the benefits of the new value chain for small and micro enterprises are analyzed.

4. Experimental Research and Analysis of Strategic Business Model Innovation of Small And Micro Enterprises Based on DM Technology under the Internet Environment

4.1 Customer Turnover Rate

This paper analyzes the customer turnover rate of small and micro enterprises. Select two different small and micro enterprises in the same industry in the same region. For their different groups of customers, the survey data are shown in Table 1.

Table 1: Proportion of customers in each group of two companies

	Customers who purchase twice	One year customer	Two year customer	Three year customer	Four year customer	Five year customer
Company 1	95	70	50	35	20	10
Company 2	93	67	45	32	22	14

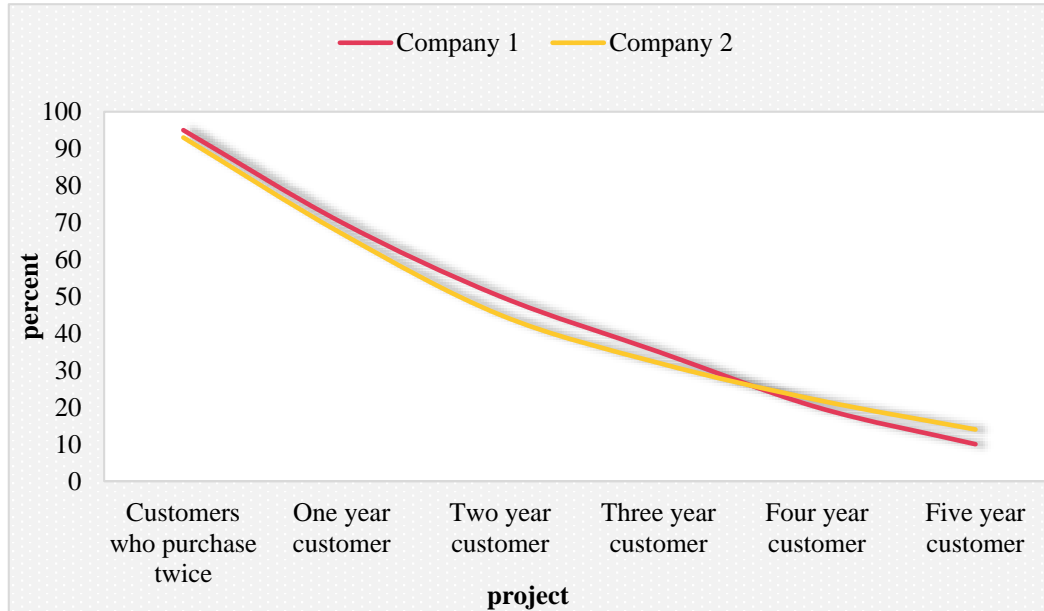


Figure 2: Proportion of customers in each group

It can be seen from Figure 2 that the secondary users of two small and micro enterprises have a high purchase rate, which proves a good user base. In contrast, the second company has relatively many new users in the past five years, proving that the product quality of the company may be relatively high.

4.2 New Value Chains

This paper presents a new structure to the value chain of small and micro enterprises through DM. Through data comparison, the cost change of a small and micro enterprise before and after the value chain structure is targeted. The survey data are presented in Table 2.

As it is clear from Figure 3, the main changes in the old and new value chains are the changes between procurement and R & D. The new value point puts greater production costs on research and development. This will help enterprises to produce more and better products and rely on innovation to occupy the market for the corresponding products.

Table 2: Cost changes of old and new value chains

	purchase	research and development	production	sale	market
Old value chain	50	10	20	15	5
New value chain	20	50	20	5	5

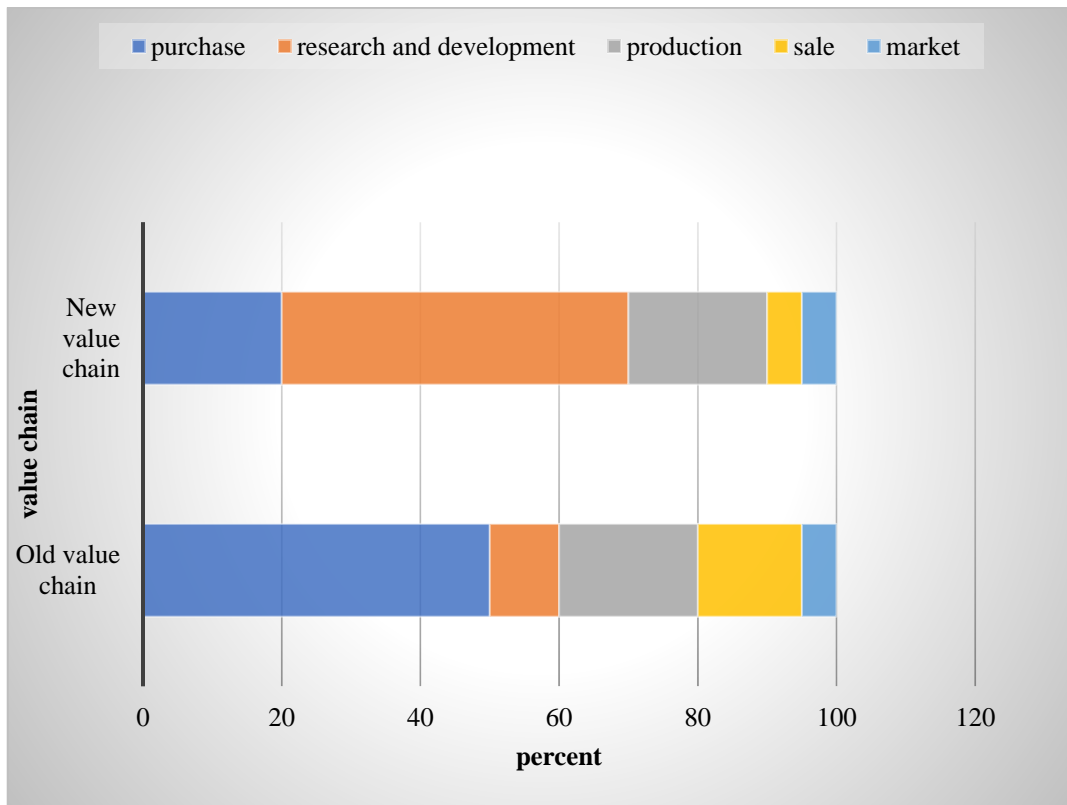


Figure 3: Comparison of the cost proportion of the new and old value chains

5. Conclusions

Small and micro startups should not only look at the present, "treat the head", but should take a long-term view. First of all, the enterprise is a detailed, scientific, and detailed analysis, to get the advantages, disadvantages, opportunities, and threats of the enterprise. Then the external market environment of the enterprise is analyzed by using DM technology to determine the market suitable for the survival and development of the enterprise and can be grasped at the present stage. This market is preferably a niche market with little competitiveness, and is consistent with the long-term business goals of the enterprise. After selecting the market, the enterprise must, according to the market development strategy, develop a feasible strategic implementation plan, establish a scientific and efficient organization structure, a scientific division of labor for the work of the implementation process, and track the implementation progress in real time; after the completion of internal construction, a perfect the marketing plan, effectively deliver products or services to the target customer, so that the target customer product perception, understanding, trial, use, to achieve the sales target of the enterprise. This paper is only limited to the niche market strategy research of small and micro startups. In the future, it can also be promoted from the following aspects: This research selects a niche market for market activities, to improve the structure of the enterprise itself. This development of niche market can also be used for new product innovation of large and medium-sized enterprises, and occupy a new market. This paper mainly studies to discover and occupy the niche market, not only is the importance of the enterprise to a single project, but also should grasp this opportunity, improve the management process of the whole enterprise, talent training, supplier training, establish a good brand image, to lay a foundation for the subsequent development of the enterprise. This paper mainly studies how to grasp and occupy a new market for a new market due to the development of technology. Research shows that technical power,

entrepreneurial management level, and financial level are the key considerations of customers. Follow-up research can start from the collaborative niche market, potential niche market, and alternative niche market, and study their common points and differences, to better occupy the market and accumulate experience for enterprises.

References

- [1] Xin L, Yaoteng Z. *Research on green innovation countermeasures of supporting the circular economy to green finance under big data* [J]. *Journal of Enterprise Information Management*, 2022, 35(4/5):1305-1322.
- [2] Tang L. *RETRACTED: Research on the Innovation Path of University Ideological and Political Work Based on Big Data Technology* [J]. *Journal of Physics: Conference Series*, 2020, 1648(2):022132 (5pp).
- [3] Whistance B, Khalil S, Whistance M, et al. *Digital NHS Wales: a coding reliability analysis based on the voices of 22 978 patients and clinicians on the benefits, challenges and sustainability of video consulting*[J]. *BMJ Open*, 2022, 12(4): E3-4.
- [4] Lettieri E, Marone L, Gheno I, et al. *The market access of innovation in health care: insights from EC-funded research* [J]. *Journal of Business & Industrial Marketing*, 2022, 37(8):1717-1733.
- [5] Hasanov M, Isakhanyan G, Dolfsma W, et al. *A smart web of firms, farms and internet of things (IOT): enabling?collaboration-based business models in the agri-food industry*[J]. *British Food Journal*, 2022, 124(6):1857-1874.
- [6] Kazemargi N, Cerruti C, Grieco C, et al. *Business model innovation and digital transformation in global management consulting firms*[J]. *European Journal of Innovation Management*, 2021, 25(6):612-636.
- [7] Zhao L, Yang P, Zhang Z, et al. *How user personality and information characteristics influence the creative information quality on open innovation platforms: an elaboration likelihood model*[J]. *Kybernetes: The International Journal of Systems & Cybernetics*, 2022(7):51.
- [8] Muller C G, Cruz A D, Canale F. *Green innovation in the Latin American agri-food industry: understanding the influence of?family involvement and business practices*[J]. *British Food Journal*, 2022, 124(7):2209-2238.
- [9] Takehara H, Suto M. *Impact of corporate social responsibility intensity on firm-specific risk and innovation: evidence from Japan* [J]. *Social Responsibility Journal*, 2022, 18(3):484-500.
- [10] Frassetto M, Calderon H, Kolbe D. *The role of market orientation and innovation capability in export performance of small and medium-sized enterprises: a Latin American perspective* [J]. *Multinational Business Review*, 2022, 30(2):289-312.
- [11] Pratono A H. *The strategic innovation under information technological turbulence: the role of organisational resilience in competitive advantage* [J]. *Competitiveness Review: An International Business Journal*, 2022, 32(3):475-491.
- [12] Reade C, Mckenna M. *Pandemic stress and the role of resources in expatriate-local interaction adjustment: an extension of Berry's model* [J]. *Journal of Global Mobility: The Home of Expatriate Management Research*, 2022, 10(2):265-285.
- [13] Ng P Y, Dayan M, Makri M. *Influence of socioemotional wealth on non-family managers' risk taking and product innovation in family businesses*[J]. *Cross Cultural & Strategic Management*, 2022, 29(2):297-319.
- [14] Mikelson E, Uvarova I, Segers J P. *Four-step approach to idea management sequencing: redefining or reinventing values in a business model* [J]. *Journal of Innovation and Entrepreneurship*, 2022, 11(1):1-20.
- [15] Pizzi S, Valenza G, Venturelli A, et al. *A dynamic framework for? Sustainable open innovation in?the food industry*[J]. *British Food Journal*, 2022, 124(6):1895-1911.
- [16] Zhou Q, Deng X, Hwang B G, et al. *System dynamics approach of knowledge transfer from projects to the project-based organization*[J]. *International Journal of Managing Projects in Business*, 2022, 15(2):324-349.
- [17] Mahdiraji H A, Beheshti M, Boudlaie H, et al. *A process-based guide for international entrepreneurs while?investing in the agrifood?sector of?an emerging economy: a?multi-layer decision-making approach*[J]. *British Food Journal*, 2022, 124(7):1984-2011.
- [18] Al-Abrow H, Halbusi H A, Chew X Y, et al. *Uncovering the antecedents of trust in social commerce: an application of the non-linear artificial neural network approach* [J]. *Competitiveness Review: An International Business Journal*, 2022, 32(3):492-523.