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Research Article

The Role of Information Management in Strategic Operational Decisions for Corporate Crisis Prevention

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ARTICLE INFO	ABSTRACT
	The purpose of this thesis is to explore the role of information management in strategic operational decision-making for corporate crisis prevention. Information management has an important role in the strategic decision-making of enterprises, and it can help enterprises to obtain, analyze and utilize key information, provide accurate data and intelligence support, and thus effectively prevent potential crises. The purpose of this paper is to explore the role of information management in strategic operational decision-making for corporate crisis prevention and to reveal the specific application and effectiveness of information management in crisis prevention through case studies and theoretical research. Taking the prevention and response to supply chain crisis and the prevention and recovery of brand crisis as case studies, this paper analyzes in detail the specific applications and effects of information management in crisis prevention. In the section on the study of strategic operation optimization decision analysis models, we discuss the design and application of strategic operation optimization decision analysis models and the importance of strategic decision analysis in comprehensive operation sandbox simulation of enterprises. These models and methods can help enterprises to better optimize their decisions and improve the effectiveness of crisis prevention and response. **Keywords:** Information Management, Corporate Crisis Prevention, Information Management, Strategic Operational Decision-Making.

INTRODUCTION

With the continuous development of modern science and technology and social economy, especially the rapid advancement of informatization and globalization process. Human society has entered a period of uncertainty with rapid changes (Cosgrove & Loucks, 2015). Various crises hidden behind this uncertainty are increasing and are increasingly rising from the hidden state to the explicit state, which has a great impact on the survival and development of enterprises (Allouche, Middleton, & Gyawali, 2015). Moreover, once a crisis breaks out, it may cause a huge impact on the enterprise in a short time under the promotion of traditional media and the rapid spread of the Internet (Defourny & Kim, 2011; Tai & Sun, 2007; Schlesinger & Doyle, 2015). It can be said that the probability of crisis and the degree of harm that enterprises may suffer nowadays are far more than in any other period in history (Runyan, 2006; Ullman, 1983). How to be proactive before a crisis occurs and prevent it before it happens, and how to deal with it

effectively after it happens, to minimize the harm caused by the crisis and even turn the crisis into an opportunity, has attracted the attention of many scholars and a lot of research has been done (Pforr & Hosie, 2008). However, most of these studies have not paid attention to the huge role of information in crisis management (Lee, Bharosa, Yang, Janssen, & Rao, 2011). The impact of a crisis is a process of crisis information transmission, and crisis management depends on the ability to exchange information and the ability of crisis managers to develop effective courses of action based on the information collected. In today's information age (Comfort, Sungu, Johnson, & Dunn, 2001; Roche, Propeck-Zimmermann, & Mericskay, 2013). Whether an enterprise can integrate information management into crisis management and use information management ideas to transform the crisis management process directly determines the effectiveness of the enterprise's response to the crisis (Ritchie, 2004; Hao, Xiao, & Chon, 2020).

The choice and implementation of business strategy directly affect the success or failure of business operations (Froehle, Roth, Chase, & Voss, 2000; Nofal & Yusof, 2013). There are mature methods for formulating and selecting operation strategies, such as SWOT analysis and Porter's five forces competitive analysis model, but so far there is no better model to solve the problem of optimizing operation strategies (Indiatsy, Mucheru, Mandere, Bichanga, & Gongera, 2014; Helms & Nixon, 2010). Under the influence of the global financial crisis in 2008, enterprises are also more sensitive to cost changes (Horn, 2010; Tambunan, 2011). Therefore, it is particularly important to study the optimization of enterprise operation strategy to guide enterprises to develop lower costs and better operation strategies with practical and theoretical significance (Ageron, Gunasekaran, & Spalanzani, 2012).

The role of information management in strategic operational decision-making cannot be underestimated (Hill & Scott, 2004; Priemus, 2010). It covers the collection, storage, processing, analysis, and utilization of information, aiming at providing accurate, timely, and reliable information support for enterprise decision-making (Delen & Demirkan, 2013). In terms of crisis prevention, the application of information management can help enterprises identify potential risks, strengthen risk assessment, develop crisis warning mechanisms, establish contingency plans, optimize supply chain management, and enhance brand image, thus minimizing the probability and impact of crises (Dwivedi et al., 2020).

The purpose of this paper is to explore the role of information management in strategic operation decision-making for enterprise crisis prevention and to reveal the specific application and effect of information management in crisis prevention through case studies and theoretical research (Boin & McConnell, 2007). In the introduction section, we introduce the risks and challenges faced by companies and emphasize the importance of crisis prevention and response. Then, we discuss the relationship between information management and corporate crisis prevention and explore the role and position of information in crisis management, as well as the importance of environmental information and corporate crisis management analysis (Coombs, 2010). In the section on theoretical studies of operational strategic management, we describe the importance of strategic operational decisions and introduce the important role of strategic operational decisions in corporate management (Pagell, Katz, & Sheu, 2005).

In the section on case studies on the application of information management in crisis prevention, we analyze in detail the specific application and effect of information management in crisis prevention with the case studies of supply chain crisis prevention and response and brand crisis prevention and recovery. Through the analysis of supply chain crisis cases, we found that information management can help companies achieve supply chain visibility, improve the transparency and responsiveness of the supply chain, and thus reduce the risk of supply chain disruption (Epler, Andrejić, Milenkov, & Sokolović, 2017). And in terms of brand crisis, information management can help enterprises

monitor market voices and public opinion promptly and formulate effective brand protection and recovery strategies (Do et al., 2021).

In the section on research on strategic operation optimization decision analysis models, we discuss the design and application of strategic operation optimization decision analysis models and the importance of strategic decision analysis in comprehensive operation sandbox simulation of enterprises (Beirman, 2020). These models and methods can help enterprises better optimize their decisions and improve the effectiveness of crisis prevention and response (Sheng, Amankwah-Amoah, Khan, & Wang, 2021). Through the discussion in this paper, we hope to draw the attention of enterprise managers to the importance of information management in crisis prevention and provide them with useful guidance and insights to enhance their crisis management capabilities and ensure their sustainable success and development in the competitive market.

What is the role of information management in the operational decision-making of enterprise crisis prevention strategies? Although this issue has gradually become clear under the research of many scholars, further in-depth research is still needed, which is also the focus of this paper. This paper examines the relationship between the role of information management in strategic operational decision-making and corporate crisis prevention. Information management plays an important role in supporting enterprise crisis prevention in strategic operation decision-making. Enterprises should pay attention to the construction and optimization of information management, enhance crisis management capabilities through scientific information management systems and methods, and ensure that enterprises maintain sustainable development in the competitive market.

THE RELATIONSHIP BETWEEN INFORMATION MANAGEMENT AND CORPORATE CRISIS PREVENTION

Analysis of Environmental Information and Corporate Crisis Management

Generally speaking, management work can be seen as a process of obtaining information, transmitting information, generating information, and giving feedback. Only with certain information as the basis, management can drive its operation mechanism and ensure the full play of management function (Oztemel, & Gursev, 2020; Abiodun, 2014; Alvarez, Hollick, & Gardner-Stephen, 2016). Any enterprise is in a certain environment, which includes not only the external environment but also the internal environment (Cao & Chen, 2019). The external environment of an enterprise can be divided into two parts: general environment and specific environment. The general environment is the sum of various factors that have an indirect influence on the realization of enterprise goals, including economy, culture, politics, technology, nature, etc. The specific environment is the sum of various factors that have a direct impact on the achievement of corporate goals,

including customers, competitors, suppliers, government, media and other stakeholders. The internal environment generally includes corporate culture (group consciousness, values, etc.) and business conditions (including personnel quality, financial strength, research level, etc.) (Mehrajunnisa, Jabeen, Faisal, & Mehmood, 2022). Accordingly, from the information point of view, the internal and external environment of the enterprise is full of various kinds of information (**Figure 1**).
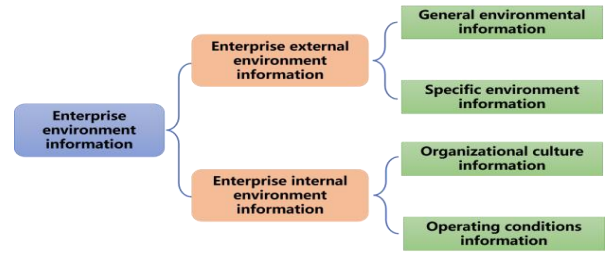

Figure 1. Components of Corporate Environmental Information

Corporate Crisis Prevention and Reversal Strategies

Bibeault summarizes three "operational turnaround"

remediation strategies for companies in crisis: cost reduction strategies, revenue enhancement strategies, and asset reduction strategies, as shown in **Table 1**.

Table 1. Operational Turnaround Strategy

Type / Condition	Cost reduction Strategy	Yield Enhancement Strategy	Asset Reduction Strategy
Breakeven(%)	60-85%	30-60%	≤35%
Additional Conditions	Direct costs and expenses are high and financial resources are lacking.	Should be used in conjunction with asset reduction strategies unless sufficient funding sources are available.	Close to bankruptcy.

Crisis companies usually respond to a decline in performance in two different ways: the first is a stop-loss strategy, which is used to completely reverse all the negative consequences of the crisis. The second stage is a recovery strategy, which is used to re-establish the company's competitive position in the industry. It is important to note that the successful implementation of the stop-loss strategy is a prerequisite for achieving the recovery strategy (**Figure 2**).
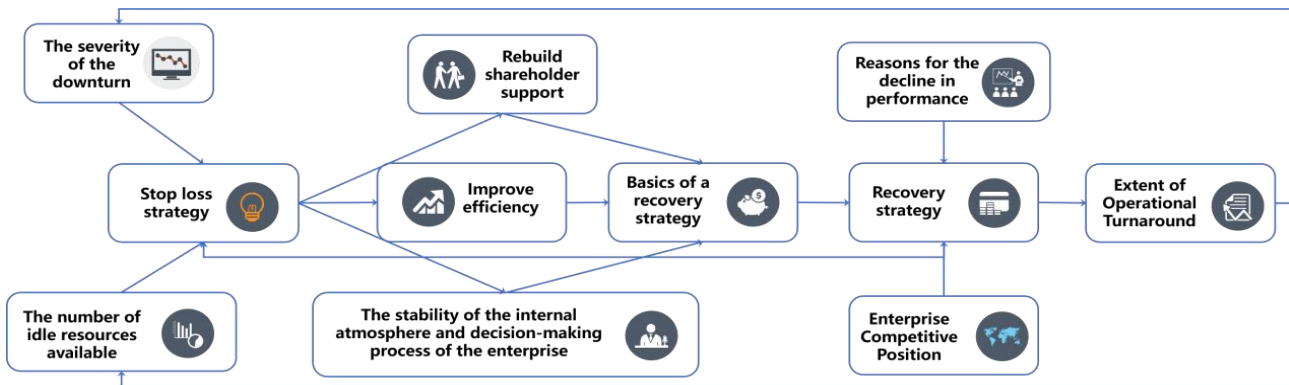

Figure 2. Two-Stage Operational Turnaround Model

In the first stage, two uncertainties (the severity of the downturn and the number of idle resources available) are identified in **Figure 2** as affecting the firm's use of stop-loss strategies. First, the severity of the downturn is determined by three logical inferences about the downturn: the degree of instability in the firm's internal climate and decision-making process, the loss of shareholder support, and the firm's inefficiency. Second, **Figure 1** also shows that the need for a stop-loss strategy is determined by the amount of idle resources available to the firm. In general, fewer available idle resources lead to higher demand for stop-loss strategies in crisis firms, and vice versa.

CASE STUDY OF THE APPLICATION OF INFORMATION MANAGEMENT IN CRISIS PREVENTION

Case 1: Supply Chain Crisis Prevention and Response

As an important part of business operations, supply chain undertakes key tasks such as logistics, production, and procurement. However, there are various potential risks and crises in the supply chain, such as supplier bankruptcy, natural disasters, transportation disruptions, etc., which may have serious impacts on the production and supply of enterprises. Therefore, the prevention and response of supply chain crises becomes an important issue for enterprise management.

There are several modes of diffusion of enterprise supply chain crisis as follows:

1. Chain Diffusion Mode

The chain crisis diffusion model is the simplest model, also called chain crisis propagation, which can be divided into downstream chain diffusion and reverse chain diffusion according to the different directions of crisis transmission, as shown in **Figure 3** and **Figure 4**. The former diffuses from the upstream enterprises of suppliers to the final retailers and users, while the latter diffuses from the downstream retailers and users to the upstream supplier enterprises.

Figure 3. Main Body Type Chain Diffusion (propagation)

Figure 4. Event-Based Chain Diffusion (transmission)

2. Network-Based Diffusion Model

The network-based diffusion model is further divided into three types: centralized radial diffusion (dispersed), centralized diffusion model, and interactive diffusion model, as shown in **Figure 5**. This type of model means that the crisis is transmitted from the core company to all the member companies in the other parts of the supply chain with which it has business connections in a dispersive and radial manner. In this diffusion mode, the crisis being transmitted may be the same crisis or not; the starting time of the first transmission may be different; the carrier of each transmission may not be the same; all the secondary crises are transmitted by radiation again plus the influence of the previous radiation, and the radiation transmission greatly enhances the complexity of crisis diffusion. In this complex diffusion process, the same nodal enterprise is the crisis sender and the crisis receiver, and the crisis carrier and crisis dynamics are not necessarily the same when the crisis is transmitted between two nodal enterprises; the crisis size and crisis transmission path are also changing constantly.
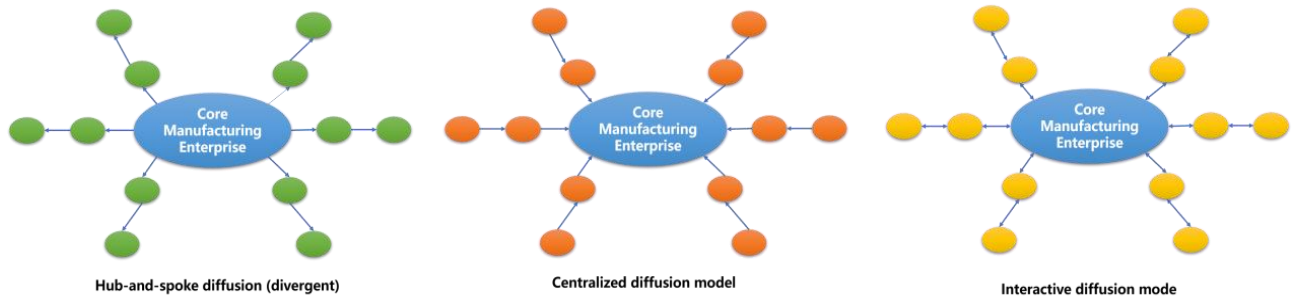

Figure 5. Networked Diffusion Model

In short, after the outbreak of a supply chain crisis based on small and medium-sized manufacturing enterprises, the process of diffusion is accompanied by the coexistence of four modes from the beginning to the end, both in time and space, and there is no single mode, and in reality, a pure diffusion mode does not exist. Here, this paper focuses on the study of radiation decentralized diffusion mode, which is also the one most in line with the actual situation of the supply chain of small and medium-sized enterprises as the research object, and several other forms will also participate in it incidentally.

Prevention and Response Strategies

1. Diversified suppliers: Establish partnerships with multiple suppliers to avoid over-reliance on a single supplier. By establishing partnerships with suppliers from different regions and of different sizes, companies can quickly transfer orders and resources when one supplier encounters a crisis, reducing risk.

2. Improve supplier evaluation and monitoring mechanism: Establish a supplier evaluation system to assess suppliers' financial status, production capacity, on-time delivery, and other key indicators to ensure the reliability and stability of suppliers. At the same time, establish a supplier monitoring mechanism to identify potential supplier problems and take measures to solve them through regular supplier performance evaluation and site visits.

3. Establish emergency backup plan: Develop supply chain crisis contingency plans, and clarify the response measures and division of responsibilities in various crisis situations. Establish standby suppliers and standby logistics channels in case of emergency. Meanwhile, organize regular

simulation drills to improve the emergency response capability of the team.

4. Implement supply chain visibility and information sharing: Realize real-time visibility of supply chain links through information technology and supply chain management system. Share data and information of supply chain parties, including inventory, delivery time, order status, etc., in order to detect abnormal situations and take countermeasures in a timely manner. Establish a supply chain collaboration platform to promote information sharing and cooperation and improve the flexibility and responsiveness of the supply chain.

5. Strengthen partnership: Establish good cooperation and communication mechanism with partners upstream and downstream of the supply chain. Establish long-term and stable partnerships to face supply chain crises and challenges together. Strengthen the communication and coordination with suppliers, logistics service providers, customers, etc., and jointly develop risk response strategies to ensure the stability of the supply chain.

Case 2: Prevention and Recovery of Brand Crisis

Brand is one of the most valuable assets of an enterprise, however, brand crisis may occur at any time, such as product quality problems, false propaganda, social responsibility issues, etc., which may cause significant damage to brand image and reputation. Therefore, preventing and responding to brand crises in time becomes an important task for enterprise management.

For enterprises, the crisis is as inevitable as taxation, so is the prelude, beginning, development, climax, ending, and epilogue of crisis without any rule? This is not the case. Managers always find in the reflection after a crisis, the seemingly sudden crisis is often a series of small events gradually developed. In other words, the outbreak of a corporate crisis is a long process of accumulation - in this process, there will be some omens (only people either consciously or unconsciously ignore these omens, or due to the limitations of human understanding and do not interpret these omens). Therefore, the distinction and identification (even if somewhat simplistic) of cyclical processes of crisis development are of great theoretical and practical importance. Steven Fink explained the crisis life cycle vividly in medical language in his article "Crisis Management: A Plan for Unforeseen Crises", known as the 4-stage life cycle model:

The first stage is the Prodromal stage when there are clues that a potential crisis may occur.

The second stage is Breakout or Acute, when a damaging event has occurred and triggered a crisis.

The third stage is Chronic, where the crisis continues to have an impact and is also a process of trying to clear the crisis.

The fourth stage is the healing period (Resolution), the crisis event has been completely resolved.

According to the 4-stage crisis life cycle model proposed by Fink, the typical brand crisis life cycle can be roughly divided into four stages: latency, trigger, duration, and
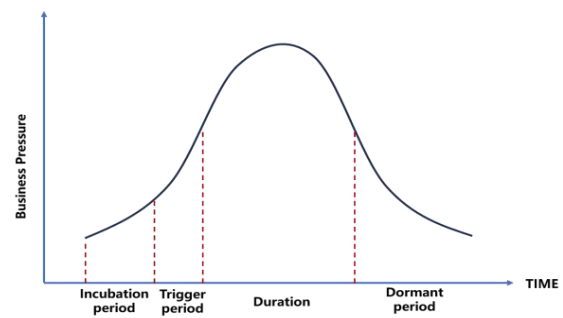
dormancy, as shown in **Figure 6**.

Figure 6. Brand Crisis Life Cycle Diagram

Prevention Strategies

Quality management and quality control: ensure that the quality of products and services meet the standards and commitments, and establish a sound quality management system. From product design, raw material procurement, and manufacturing to after-sales service, strictly control every step to improve product quality and customer satisfaction.

Honest publicity and communication: Establish honest publicity and marketing strategies to avoid false propaganda and exaggerated promises. Brand promotion and communication should be truthful and accurate in conveying the core values of products and enterprises and establishing honest and stable relationships with consumers.

Establish a crisis early warning mechanism: Establish an effective monitoring and early warning mechanism to identify potential brand crisis signals in a timely manner. Use market research, consumer feedback, social media monitoring, and other means to continuously pay attention to market dynamics and consumer attitudes, and timely adjust and improve brand strategies.

Establish a crisis management team: Set up a special crisis management team to be responsible for the prevention and response of brand crises. This team should have professional knowledge and skills in crisis management, and be able to respond and handle brand crises quickly to protect the company's reputation and image.

Response Strategies

Rapid response and open communication: When a brand crisis occurs, companies need to respond quickly and actively communicate with affected consumers, media, and stakeholders. Openly and transparently explain the causes of problems, measures taken, and improvement plans to restore consumers' trust and satisfaction.

Apologize and remedy: If a company's mistake or error leads to a brand crisis, it should promptly apologize to the affected consumers and take effective measures to remedy the situation. This may include refunds, product replacements, after-sales service improvements, etc. to make up for consumer losses and repair the brand image.

Active participation in social media and public opinion: In a brand crisis, social media, and public opinion have significant influence. Companies should actively participate

in social media discussions and interactions, listen to consumers' voices, and take active measures to respond and solve problems to maintain brand reputation.

Restoring trust and rebranding: After a brand crisis, companies need to take long-term measures to restore consumers' trust and rebrand their image. This may include efforts to strengthen product quality control, improve internal management, and focus on social responsibility in order to win back consumer recognition and support.

Preventing and responding to brand crises in a timely manner is critical to the continued development of a company. By establishing preventive strategies such as quality management, integrity promotion, and crisis warning mechanisms, companies can reduce the probability of brand crises. Meanwhile, through response strategies such as quick response, open communication, and active participation in social media, companies can respond and recover from brand crises as soon as possible to protect and enhance the brand value. In the era of globalization and digitalization, companies should strengthen the importance of brand management and continuously optimize their brand strategies and operations in order to build strong brand resistance and sustainable competitive advantages.

ANALYTICAL MODEL STUDY ON STRATEGIC OPERATION OPTIMIZATION DECISION-MAKING OF ENTERPRISES

Strategic Operations Optimization Decision Analysis Model Design

According to the idea and working method of value engineering, combined with the status and role of enterprise strategic operations, the optimal decision of enterprise strategic operations based on the idea of value engineering should be oriented to the strategic objectives of the enterprise, and on the basis of comprehensive and in-depth analysis of the effectiveness and corresponding cost of specific strategies in each strategic operation of the enterprise, seek to achieve the enterprise objectives with a reliable combination of operation strategies with the lowest possible cost expenditure. The value engineering-based strategic operation decision analysis model established in this study is shown in **Figure 7**.
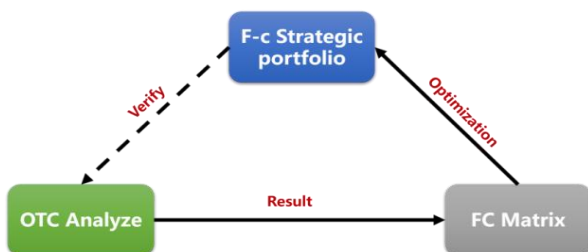

Figure 7. Operational Warfare to Accompany the Optimization of the Decision Analysis Model

OTC analysis refers to the "Object - Tactics - Cost"

analysis of strategic operations; its main purpose is to analyze whether the objectives of strategic operations are consistent with the overall strategic objectives of the company, whether the functions of specific strategies of strategic operations support strategic operations to achieve their specific objectives and the cost components of implementing specific strategies of strategic operations. The main purpose of the analysis is to analyze whether the objectives of strategic operations are consistent with the overall strategic objectives of the company, whether the specific strategic functions of strategic operations support strategic operations to achieve their specific objectives and the cost components of implementing specific strategic operations and their amount. The functional value (preferably expressed in monetary terms) of each strategic operation-specific strategy is evaluated based on how well the strategic operation-specific strategy function matches the strategic objectives and the possible benefits (including economic and non-economic comprehensive benefits) of the strategy. At the same time, for each specific strategy, its cost components are carefully divided and the amount of cost is determined, and finally, the functional value evaluation of each operation strategy and the corresponding total cost expenditure amount are derived. The value evaluation of function can refer to the scoring method, expert scoring method, fuzzy comprehensive evaluation method, etc. to get a more scientific evaluation result.

Strategic Operations Optimization Decision Analysis Model and Applications

In order to make the application process of the model clearer, the following abstract example is used to illustrate the application process of the value engineering-based strategic operations optimization decision analysis model.

Suppose the strategic operation of a company is analyzed by OTC, and the structure of strategic operation composition is shown in **Figure 8**. The four basic strategies and their respective activities are interlinked to form an organic whole of the strategic operation of the enterprise. Each strategy requires a number of specific activities to support its strategic function, and the cost of each activity can be calculated to a definite amount. Meanwhile, the size of each strategy's contribution to the achievement of strategic goals is Fa, Fb, Fc, and Fd, respectively; the costs of each activity are evaluated and allocated relative to each strategy as Ca, Cb, Cc, and Cd, respectively.

Figure 8. Operational Strategy Structure

Based on the results of the strategic operation structure diagram, the F-C matrix is constructed with the coordinates

of the strategy function and cost of strategic operation, and the coordinate area is divided by one-half of the average value of each function and cost, i.e., F = (F. + F + F+ Fa)*1/8; C = (C, + C + C + C)*1/8. At the same time, the specific position of each strategy is determined according to the size of its corresponding function and cost values. The F-C matrix is shown in **Figure 9**, and the circle is drawn with the size of the function value as the radius, representing the importance of the function of the strategy to the strategic operation goal.
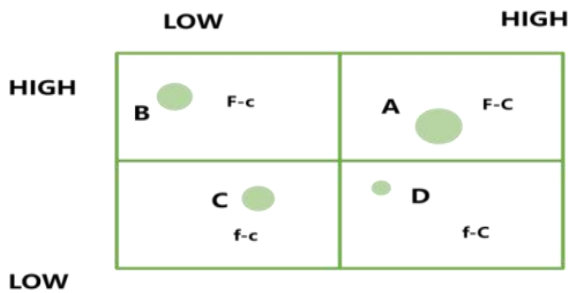

Figure 9. F-C Matrix of Operational Strategy

It can be intuitively seen from the F-C matrix that Strategy A is in the F-C strategy area and has a greater impact on the operational objectives of the company, so Strategy A is most in need of optimization. Strategy C and D. Strategy optimization can be done by referring to the working principles and methods of value engineering, organizing relevant personnel and experts with different backgrounds, and through a series of organized activities, seeking the lowest possible action plan for strategy implementation costs while ensuring and improving the basic functions of the strategy. Finally, the basic strategies of strategic operations are all in the F-C strategy area to maximize the strategic value of strategic operations, so that the company can also achieve its strategic goals and improve operational efficiency at the lowest possible cost.

Strategic Decision Analysis of Comprehensive Operation Sand Table Simulation

It is also known as sandbox simulation, which uses visual and intuitive sandbox teaching aids, introduces market competition, and combines scenarios and role simulation to practice business management, as shown in **Table 2**.

Table 2. Strategic Decision-Making in a Comprehensive Business Simulation

Funding	Obtain Cash for Daily Operations by Rolling Short Term Debt, Supplemented by Discounted Receivables and Long Term Loans	
Investment	Production Line	By the fourth year, all 10 production lines will be in production, with a maximum of 2 flexible lines and the rest as individual door moving lines.
	Factory	Purchase a large factory in the first year, rent a small factory at the beginning of the third year, and purchase a small room at the beginning of the fifth year.
	Market Development	All markets start in the first year and continue to develop over the next.
	ISO Certification	ISO 9000 certification in the first and second year, ISO 14000 certification in the second and third year.
Operations Management	Product Portfolio	The main sales products P1, P2, P3, the fifth and sixth years of the main P4, after the fifth year can be withdrawn from P1 or P2 products. Specific decisions are made based on market conditions and peer competitor product portfolio analysis.
	Advertising Competition	Determine the amount of advertising based on market forecast and analysis, peer competitors' related letters and styles, as well as your own company's market share, status and strategic objectives, and analyze the specific situation according to the actual battle.
	Market Leader	Concentrated sales of products, to ensure that we can become a market leader (i.e., the highest sales of all products in a market in the previous year and no breach of contract), but also to ensure that all markets have a certain market share, so that we can reduce advertising expenses, but also conducive to the next year's selection list.
	Zero Inventory	Ensure zero inventory of raw materials and finished goods in previous years, avoid backlog of products and raw materials and use funds.

Analysis of the Effectiveness of Corporate Financing

The company's financing channels are mainly: long- and short-term loans; discounts; financial leasing; and emergency sales of products and raw materials. The loan amount of long and short-term loans is three times the owner's equity of the enterprise at the end of the previous year. The interest rate of long-term loans is 10%, the interest rate of short-term loan is 5%, and the discount rate of accounts receivable: is 10% for 1 and 2 accounts, and 12.5% for 3 and 4 accounts. Because we ultimately seek to maximize the owner's equity and interest rate is the item of loss of equity, we calculate the effective interest rate for different financing methods based on the amount of loss of equity and also consider the benefit period

of each financing method. The formula is based on the present value coefficient of compound interest.

$$\text{Real interest rate} = 1 - \frac{1}{(1+i)^n}$$

The effective interest rate of discounted accounts receivable for the four book periods can be derived. From the above analysis, it can be found that the short loan financing method is the best, with the lowest effective interest rate and the smallest loss (the lowest opportunity cost). The effective interest rate of discounted receivables is high, but its loss is small and the opportunity cost is low; while the effective interest rate of the long-term loan is lower than discounted, but it has to bear long-term interest, interest loss is larger

than discounted receivables and opportunity cost is larger, so long term loan is suitable for the long-term strategic capital shortage. The discounted plant is the next best funding solution, both in terms of effective interest rate and interest loss. Therefore, the optimal solution for financing is short-term loan > long-term loan > discounted receivables (4Q > 3Q > 2Q > 1Q).

Analysis of Investment Efficiency of the Production Line

For the analysis of the investment benefits of production lines, we use the increase in enterprise value as the basis for comparison. Here we take the PI product as an example, and let the average price of the P1 product be 5M. **Table 3** is the comparison of the value created by the four production lines.

Table 3. Investment Efficiency Analysis of Four Production Lines

Types of Production Lines	Acquisition Cost	Depreciation/year	Maintenance Fee/year	Production Cycle	Transfer Cost	Value Created/year
Handmade	5M	1M	1M	3Q	0M	3
Semi-automatic	11M	2M	1M	2Q	1M	2
Automatic	15M	3M	1M	1Q	2M	8
Flexibility	22M	4M	1M	1Q	0M	7

The analysis shows that the production efficiency of the manual line is too low, which is not conducive to increasing production capacity; the semi-automatic line does not have an advantage in production efficiency and turnaround time; the automatic and flexible lines create significantly more value than the semi-automatic and manual lines. In a comprehensive turnaround and installation cycle, it is not difficult to find the benefits of each line: automatic > flexible line > manual line > semi-automatic. In the competitive market environment, the market situation is different from the expected, there will be a product backlog and another product production shortage, then the advantages of the flexible line will be reflected, easy to occupy a stronger position.

Market Development Benefit Analysis

For the development of the market, the main factors to consider are market demand and product prices. Market demand forecast information is shown in **Table 4**.

Table 4. Five Market Development Benefit Analysis

Market Classification and the Cost and Time Required to Develop	Local 1M/year*1 year		Regional 1M/year*1 year		Asian 1M/year*1 year		International 1M/year*1 year	
	Total Demand	Average Price	Total Demand	Average Price	Total Demand	Average Price	Total Demand	Average Price
P1	132	4.8593	86	4.2586	59	3.6982	76	5.2368
P2	135	8.2364	152	6.3287	63	6.3698	48	7.3698
P3	102	7.2648	76	8.2368	58	8.6971	36	8.3694
P4	36	9.2568	49	9.2587	35	9.3647	16	9.6847

We use the product demand, average price, and development cost of each market to evaluate the effectiveness of market development. We have developed an efficiency index model:

$$\text{Benefit Index} = 3/2 \times \frac{\sum \frac{\text{Market demand for each product}}{\text{Total demand for each product}} \times \frac{\text{Averge price for each product in the m}}{\text{Averge price for each product}}}{4} \times \frac{\text{All marketing fees}}{\text{All Market Expenses - X Market Expenses}}$$

The greater the elasticity coefficient, the higher the development efficiency.

The average price of each product is the average price of each product in all markets, set the average price of P1, P2, P3, P4 are 5, 7, 8, 9. Calculated E = 0.469, E2 = 0.373, E3 = 0.430, E4 = 0.292, E5 = 0.278. Therefore, the comprehensive benefits from high to low order: are local > domestic > regional > Asia > international. But in practice, we can not exactly in accordance with this model to implement, because the market development is not only considered when the comprehensive indicators, but also individual products will be taken out of the separate analysis, such as the Asian market P3, P4 average price is higher, the number of relative to the international market to more; and the international market P1, P2 higher prices. For example, the average price of local and domestic P2 is relatively low compared to the international, but because of its high demand, the competitive pressure will be much smaller. Therefore, we should also consider these factors when developing the market, so as to form a market to mainly sell a certain product or several products, the formation of products, and market optimization portfolio.

CONCLUSION

This paper investigates the correlation between information management and strategic operational decision-making in corporate crisis prevention, leading to the following key findings:

Firstly, information management plays a vital role in corporate crisis prevention by facilitating accurate, timely, and reliable information support. It enables companies to anticipate, identify, and respond to potential crises effectively. Through the analysis of environmental information and internal data, information management assists in developing risk management strategies, thereby reducing the likelihood and impact of crises.

Secondly, information management is instrumental in preventing and addressing supply chain crises. Establishing supply chain visibility, enhancing supply chain management practices, and optimizing response mechanisms enable companies to mitigate the risks of supply chain disruptions and maintain uninterrupted business operations.

Furthermore, information management significantly contributes to brand crisis prevention and recovery. By actively monitoring market voices and public opinion, promptly addressing and resolving issues, companies can safeguard and restore their brand reputation, minimizing the adverse effects of brand crises on the organization.

Lastly, the strategic operational optimization decision analysis model and the enterprise comprehensive operation sandbox simulation strategic decision analysis method offer valuable insights to enterprises, enabling them to optimize their decision-making processes and enhance the effectiveness of crisis prevention and response efforts.

In summary, information management plays a critical role in supporting corporate crisis prevention through strategic operational decision-making. It is imperative for enterprises to prioritize the development and optimization of information management systems. By leveraging scientific information management methods, companies can enhance their crisis management capabilities, ensuring sustainable development within the competitive market environment.

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