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Commercial Development Plan of S Explosion Proof Electrical Communication Company

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Master in Business Administration

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PhD, Rui Manuel Vinhas da Silva, Full Professor
ISCTE - Instituto Universitário de Lisboa

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BUSINESS SCHOOL

Department of Marketing, Operations and General Management

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Resumo

Desde há muito tempo que o carvão é a principal fonte de energia da China, garantindo ao país um fornecimento estável. A procura chinesa por carvão baseia-se principalmente na mineração feita no próprio país. Devido à elevada taxa de acidentes nas minas de carvão, a operação inteligente, autónoma e a monitorização remota emergem como os principais objetivos da indústria, sinalizando uma transição para uma produção mais segura e inteligente. Nesse contexto, a S Explosion Proof Electrical Communication Company, por meio de inovações próprias e um sólido portfólio de patentes, oferece equipamentos de monitorização e comunicação inteligentes que asseguram a segurança das operações em minas de carvão, alinhando-se às exigências de modernização e segurança impostas pelas políticas nacionais. Apesar da intensa concorrência de grandes empresas, a S Company mantém vantagens competitivas, embora o seu modelo tradicional de vendas, baseado em abordagens geográficas diretas, não atenda às necessidades de expansão do negócio. Este projeto utiliza as teorias clássicas de marketing – PEST, SWOT, STP e os 4Ps – para analisar detalhadamente o ambiente interno e externo da empresa e a dinâmica competitiva do setor. Ademais, amplia o foco para a aquisição e retenção de clientes, por meio da análise de dados históricos, entrevistas com clientes e pesquisas de mercado, evidenciando lacunas nas estratégias de segmentação, personalização de serviços e gestão da relação com os clientes. Propõe-se a construção de um sistema de gestão do ciclo de vida do cliente, baseado na segmentação de mercado, estratégia de preço flexível, diversificação dos canais de marketing e melhoria dos serviços pós-venda, com o intuito de aprimorar a eficiência na captação de novos clientes e fortalecer a fidelização dos clientes já existentes, elevando, assim, a competitividade e a participação de mercado da empresa.

PALAVRAS-CHAVE: Plano comercial, aparelhos elétricos à prova de explosão em minas de carvão, vendas

CLASSIFICAÇÃO JEL:M31

Abstract

Coal has long been the main energy source in China, and coal mine safety and intelligent production are gradually replacing the traditional mode. In this context, S Explosion-proof Electric Communication Company, with its independent research and development and a number of patented technologies, provides coal mines with highly efficient and intelligent safety monitoring and communication equipment, in line with the national strategic demand to promote intelligent transformation of mines. Despite facing fierce competition from large enterprises, S still maintains a certain advantage in the market, but its traditional marketing model based on geographical direct sales is difficult to meet the needs of business expansion. this project further expands the research on customer acquisition and retention based on an in-depth analysis of the company's internal and external environments and the competitive situation in the market by applying classical marketing theories such as PEST, SWOT, STP and 4P. Through comprehensive analysis of the company's historical data, customer interviews and industry research, the study reveals the deficiencies of existing marketing strategies in customer segmentation, personalised service and customer relationship management. The thesis proposes that Company S should build a customer-centred full life cycle management system, and through accurate market segmentation, flexible pricing, multi-channel marketing and after-sales service improvement, it should realise the improvement of customer acquisition efficiency and the construction of long-term customer loyalty, and thus enhance the core competitiveness and market share of the company.

KEYWORDS: Commercial plan, coal mine explosion-proof electrical appliances, sales

JEL CLASSIFICATION:M31

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1 - Introduction

1.1 Background to the selection of topics

According to preliminary estimates from China's National Bureau of Statistics (NBS), the total national energy consumption in 2024 was approximately 5.96 billion tonnes of standard coal, a 4.3% increase compared to the previous year. Coal consumption accounted for about 53.2% of the total energy consumption, amounting to 3.17 billion tonnes, a decrease of 1.6 percentage points compared to 2023. Meanwhile, the share of clean energy (including natural gas, hydropower, nuclear power, wind, and solar energy) rose to 28.6%, an increase of 2.2 percentage points. Despite these improvements, coal remains a major energy source in China, heavily relying on domestic mining. However, the country continues to face significant challenges in terms of safe coal mining, as coal mine accidents still occur relatively frequently.

From 2011 to 2023, there were a total of 8,232 coal mine accidents in China, resulting in 4,913 fatalities. Coal mining companies have one of the highest accident rates and most serious safety issues within China's industrial and mining sectors. In February 2023, a collapse accident occurred at a coal mine in Alashan Left Banner, Inner Mongolia, leading to 53 deaths or missing persons. Other incidents, such as explosions and fires, further underline the ongoing safety concerns in the industry. These challenges highlight the need for further improvements in safety management and technological application in coal mines.

To address these safety challenges, the Chinese government has accelerated the development of intelligent mining technologies. In 2018, the General Technical Specification for Intelligent Mine Information System was released, setting out technical requirements for intelligent mining construction. In March 2020, the "Guiding Opinions on Accelerating the Intelligent Development of Coal Mines" were jointly issued by eight departments, outlining goals for the intelligent transformation of existing coal mines. By 2025, the target is to establish intelligent coal mines, focusing on reducing the number of frontline workers, enhancing productivity, and enabling unmanned operations with remote monitoring. This shift is designed to increase safety, improve efficiency, and reduce the number of workers exposed to hazardous working conditions.

Many companies that manufacture explosion-proof electrical equipment seek innovation to meet the demand for coal mine intelligence.

Company S, the company under study, is an SME that specializes in explosion-proof communication equipment. It integrates RandD, production, sales, and service. The management of company S is optimistic about the new product market, starting from selling explosion-proof telephones, explosion-proof monitoring, and other low-end products to the launch of the "intelligent remote control system for tunneling machines" that meets the requirements of coal mine intelligence. This initiative helps reduce staff and boost efficiency.

This essay will investigate the issues concerning the marketing of company S, and recommend some improvement strategies.

1.2 Objective of the study

This thesis aims to develop a commercial development plan for S Private Explosion-proof Electrical Communication company.

The study focus on three main areas:

1. Identifying relevant theories for the special marketing needs of underground coal mine explosion-proof electrical communication company. The approach includes studying classical models like PEST analysis, SWOT analysis, 4P analysis, STP analysis, etc. and combining them with special marketing target customer needs, product usage areas, and government policies in this field to ascertain the appropriate theories to adopt in future practice.
2. Analyzing the marketing environment faced by the company and current problems based on corporate data and surveys. Systematically analyse the internal and external environment of the company using the above theories in order to solve problems.
3. Develop a new marketing programme for the company by applying the above marketing theories and the current situation.

Through comprehensive use of diversified theoretical frameworks and empirical analyses, this study will provide S private explosion-proof electrical communication company with a comprehensive plan to improve their commercial and marketing strategy. This plan will assist company in gaining a foothold in the competitive marketing environment and contribute to the intelligent transformation of China's coal mining industry.

1.3 Structure

The structure of this thesis is as follows. Chapter 1 is the introduction, which describes the background of this study, the research objectives, and the structure of the thesis.

Chapter 2 is the theory and literature review, which focuses on the recent advances in related research fields in China as well as globally. A large amount of relevant literature and studies were deeply interpreted in order to organize the core ideas, research methodology and key findings of the study.

Chapter 3 is the methodology, which systematically describes the research methodology that will be used in this thesis in order to clarify the direction of the research.

Chapter 4 is the internal and external analysis of the company, which presents the basic information of Company S, such as organisational structure and main business. As well as through interviews and with the help of PEST and SWOT analysis models, we comprehensively assessed the company's external and internal environments and the causes of the problems.

Chapter 5 is the commercial development plan.

Chapter 6 presents the marketing-mix proposals.

Chapter 7 focuses on the concrete implementation of the commercial and marketing strategy, describing how to implement the proposals presented in Chapter 6.

Chapter 8 is a summary and reflection of the study, providing a comprehensive overview of the whole process and the results it has produced, as well as exploring the limitations of this study and providing suggestions and outlooks for further research in this area in the future.

2 - Literature Review

2.1 Relevant theoretical foundations research

2.1.1 STP theory

Target market positioning (STP) theory, the core component of modern strategic marketing theory, is a basic analytical framework in the field of marketing.STP theory consists of three stages: market segmentation, target market selection and product positioning. This theory was first proposed by American marketing scientist Wendell Smith (Wended Smith) in 1956. Subsequently, American marketer Philip Kotler further developed and improved Smith's theory, and eventually formed the STP theory known today.

The STP theory emerged mainly due to the diversity of consumer needs in the markets. Since the distribution and needs of consumers vary from market to market, it is difficult for companys to produce or offer one product to satisfy the needs of all consumers. Therefore, the main objective of the STP theory is to identify specific target markets by segmenting the market, thus helping companys to position their products effectively and develop matching marketing strategies. This process can be seen in Figure 2.1 and is divided into three steps.

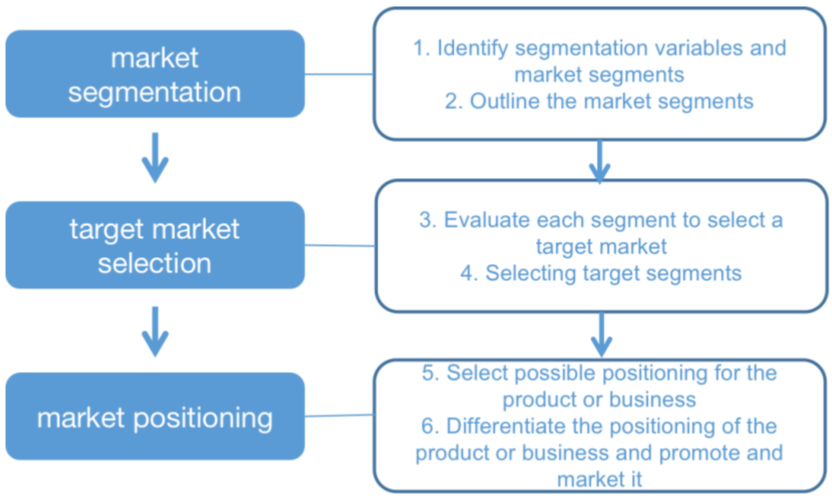

Figure 2.1:Schematic diagram of STP theory

Source: Author (2025)

To sum up, STP theory provides a comprehensive and effective marketing analysis framework for companies to help them understand and satisfy consumers' needs, achieve precise positioning of products, and ultimately succeed in the market.

2.1.2 4P theory

The 4P theory, also known as the marketing mix, is one of the most fundamental and widely recognized concepts in marketing management. The theory was first proposed by American marketer Borden (1964) and was later refined by McCarthy. The 4P theory divides the components of marketing strategy into four broad categories: Product, Price, Place, and Promotion.

Product: This refers to the goods or services provided by the company, including the design, branding, packaging, service and other characteristics of the product. In a product strategy, a company needs to understand and meet the needs and expectations of its target market, and to continuously innovate and improve its products in order to maintain and improve its competitiveness in the market.

Price: Price is the amount of money a consumer pays for a product or service. Pricing strategies should take into account production costs, competitive conditions, the purchasing power of the target market and the perceived value of the product. Price can also be used as an effective marketing tool to attract and retain consumers.

Place: This P refers to how the product reaches the consumer. Companies need to consider the logistics and supply chain management of their product distribution to ensure that the product is available to consumers in the right place at the right time.

Promotion: Promotion involves all communication activities designed to enhance consumer awareness of the product, stimulate demand, and build a strong brand image. Promotional strategies may include advertising, sales promotion, public relations activities, direct marketing, and so on.

2.1.3 Customer acquisition and retention

Customer acquisition and retention are critical components of sustainable business growth, focusing on attracting new consumers while maintaining long-term relationships with existing ones.

Kotler's Loyalty Ladder model conceptualizes the progression of customer relationships through five distinct stages (Kotler & Keller, 2016):

- Prospects – potential customers who are aware of the brand but have not yet made a purchase;
- First-time buyers – customers who make an initial purchase, often influenced by marketing campaigns or promotions;
- Repeat customers – individuals who return to make additional purchases, indicating a positive experience;
- Loyal clients – customers who consistently prefer the brand over competitors and demonstrate habitual purchasing behavior;
- Advocates – highly satisfied customers who voluntarily promote the brand through word-of-mouth or social media.

The model emphasizes that businesses must tailor strategies to move customers upward on the ladder, transforming transactional interactions into emotional loyalty (Kotler, 2005).

Customer Lifetime Value (CLV) quantifies the total value a business can expect from a customer over their entire relationship. It underscores the importance of retention by highlighting that acquiring new customers costs 5–7 times more than retaining existing ones (Kotler and Keller, 2016).

Rooted in the work of Berry (1983), relationship marketing shifts focus from short-term transactions to fostering enduring connections and long term relationships. Key principles include trust-building, two-way communication, and co-creation of value. For example, brands like Starbucks use membership programs and personalized offers to deepen emotional bonds, thereby reducing churn rates (Berry, 1983).

Data analytics enables businesses to predict customer behavior, identify churn risks, and personalize interactions. Techniques like segmentation analysis, predictive modeling, and sentiment analysis empower companies to deliver hyper-targeted campaigns.

2.2 Research on the explosion-proof electrical communication industry in China

Research on the explosion-proof electrical communication industry in China mainly focuses on the following aspects.

Zhang (2019) believe that intelligent products are the development trend of the explosion-proof electrical appliances industry. With the advancement of supply-side reform, explosion-proof products will also be upgraded and transformed by relying on technologies such as the Internet of Things, big data and cloud computing.

According to Wang (2020) in order to enhance the safety and efficiency of coal mines, the state should promote the intelligent construction of coal mines. This involves the deep integration of the latest information technologies, such as artificial intelligence, cloud computing and big data, with coal development and utilization. A comprehensive intelligent system for coal mines, including intelligent perception, analysis, decision-making and execution, can not only significantly improve the safety level of coal mines, but also protect the occupational health of miners.

According to He and Yang (2020), an intelligent safety management approach is a dynamic management model capable of real-time prevention, control and feedback. They emphasize the importance of a real-time monitoring system, which grasps the operating status of the equipment in real time, thus reducing the operational risks.

Lv (2022) believes that accelerating the improvement and upgrading of the coal industry structure is imperative, and that rationalizing the application of intelligent parameters in coal mining work is essential, and that there will be more and more research with information technology as a support point, and the combination of digital mining and unmanned guarding will also become a hot topic.

Zhan (2023) believes that in order to alleviate the problem of mining imbalance that exists in all existing coal mines in China, it is possible to realize efficient and precise navigation of underground digging equipment through a variety of navigation sensors and working attitude monitoring technology, and to realize the precise measurement of the position between each mechanical device and the movement mode of the equipment in the digging face by the help of ultrasonic wave, laser ranging, etc. Through the compilation of procedures to realize that, the digging face is controlled by complete sets of equipment, so as to achieve the purpose of rapid digging. Through programming, it can control the complete set of equipment to achieve the purpose of rapid digging.

Cai et al. (2023) argues that coal mine intelligence is a new stage of the revolution of coal production mode and productivity, and will become the 4th major technological change in coal mining. The construction of coal mine intelligence will strongly support the high-quality development of large coal enterprises.

China's research on explosion-proof electrical communication industry in the coal industry shows that intelligent mining is the development trend of the coal industry, the intelligent construction of coal mines and the intelligent mode of safety management is an important direction.

The marketing research of explosion-proof electrical appliance industry in China has found some problems and challenges.

Zhu et al. (2016) suggests that there are problems with the agent sales model in the explosion-proof electrical appliance industry, where agents tend to focus on lower prices, which may force manufacturers to produce lower quality products, thus bringing risks to safety production. In order to ensure product quality and safety, it is necessary to strengthen co-operation with agents to jointly improve the industry's safety and quality standards, and help enterprise reputation and competitiveness.

Li (2017) believes that the phenomenon of competitive marketing in explosion-proof electrical appliances enterprises is relatively serious, and in the bidding process and marketing process, many small and medium-sized enterprises appear to suppress each other's prices and compete at low prices. This phenomenon not only harms the interests of the enterprise itself, but also is not conducive to the progress and development of the whole industry. It is recommended that enterprises focus on value creation, differentiated competition, reduce competition and promote the healthy development of the industry.

Wang et al. (2022) After analyzing the current situation of marketing in an explosion-proof electrical appliances group-type A enterprise, it was concluded that the internal marketing organizational system of the enterprise was not perfect and the enterprise had deficiencies in marketing coordination. There is a need to improve the organizational structure and to enhance collaboration and information sharing across regions.

China's research on industrial marketing theory and 4P, STP marketing theory mainly focuses on the following aspects:

(1) Research on Industrial Product Marketing in China:

Explosion-proof appliances as a special industrial goods, in its marketing process and other industrial goods have commonalities.

Li (2017) study, companies in the industrial goods industry also need to classify their target customers and develop individual marketing programs based on different customer types. By proposing different marketing programs for different customer types, companies can manage customer relationships in a more refined way and improve customer satisfaction and loyalty.

Wang et al. (2018) believes that China's industrial marketing still has some problems, including traditional marketing concepts, backward marketing means, insufficient support for brand building and unfair competition. These problems affect the competitiveness and development of industrial products enterprises in the market.

According to Liu (2020), the industrial products market is mainly dominated by large customer marketing, including "golden calf customers" such as government departments and large enterprises. For these customers, companies should provide personalized services based on their needs. To achieve this, it is crucial to emphasize close communication with decision makers and other stakeholders. By communicating on a regular basis, companies can get accurate feedback from their customers and improve their products and services, thereby increasing customer satisfaction. It is also crucial to develop a good corporate reputation and brand image. Focusing on brand building and maintaining reputation can win customers' trust. High-quality products and deep partnership can enhance the competitiveness of enterprises in the market.

An (2021) that the traditional industrial marketing only "sales", no "camp". Because industrial products have the characteristics of strong technical products, relatively fixed types of users and prudent purchasing decisions, many companies tend to wait for customers to come to their doorsteps on their own initiative, waiting for potential customers to come to consult with their needs and then accordingly, without taking the initiative to guide the customers or help them to create new needs.

Research on industrial product marketing in China shows that in the explosion-proof electrical appliances industry, as well as in other industrial goods industries, marketing needs to focus on customer needs, provide differentiated services, strengthen communication and contact with customers, and focus on quality and reputation building in order to enhance corporate competitiveness and performance.

(2) Current status of research on 4P and STP marketing theories:

Yan (2019) believes that industrial and mining-related enterprises should also use STP marketing strategy to establish a control structure suitable for their own characteristics of marketing management through scientific planning and market segmentation.

Peng (2020) believes that the STP theory is a trilogy of marketing, and is also a cascading relationship, accurate market segmentation is the premise and foundation of the subsequent target market selection. The success of target market selection is a problem, but how to get within the precise market to obtain access to customer enterprises to the product recognition and retention to become loyal users is another problem faced by enterprises. Only in the precise segmentation of the market to obtain customer recognition, to maintain customer loyalty, enterprises can achieve long-term market competition and sustained performance growth.

Meng (2020) states that products are the key to marketing and companies should not only manage existing products but also keep updating them in order to expand their market share. Adapting to changing consumer needs through product innovation is the way to win competition and growth. Price strategy has a direct impact on profitability and needs to take into account costs, market competition and consumer demand. Each distribution channel should have corresponding promotional activities to increase sales. Collaboration with distribution can further promote the product and the integration of these factors helps the company to compete and grow in the market consistently.

The research on 4P and STP marketing theory in China shows that through precise market segmentation, target market selection, market positioning, and improvement of product strategy, pricing strategy, channel strategy and promotion strategy, companies can better meet customer demand and achieve competitive advantage in the market.

2.3 Research on international industrial marketing

Because coal mines in other countries are mainly open-pit coal mines, while coal mines in China are mainly shaft mines, the development status of foreign coal mining industry in China is relatively low reference. Therefore, in the review of foreign research status, mainly focused on the application and development of foreign industrial product marketing and 4P, STP marketing theory.

(1) The current state of international industrial marketing research

Kowalkowski et al. (2015) emphasizes the importance of implementing a service-led growth strategy in product companies. The concept of service transformation, a one-way repositioning from basic, product-oriented services to more customized, process-oriented services. Through service transformation, companies can offer customers more comprehensive solutions that go beyond the product itself to include value-added services and support related to the product. The authors also point out that in order to achieve service transformation, companies need to offer differentiated products. This means that product companies need to develop products with unique characteristics based on customer needs and market trends. At the same time, these differentiated offerings need to be standardized to some extent in order to improve repeatability and scalability so that they can better meet the needs of a large number of customers.

Raghavan (2017) stated that in industrial product marketing management, it is important to consider not only the seller's point of view and interests, but also incorporate the buyer's and other relevant stakeholders' perspectives. This means gaining a deeper understanding of customers' needs, preferences and challenges, as well as other stakeholders' expectations and requirements for products and services. By considering the perspectives of multiple stakeholders, a more comprehensive and effective marketing strategy can be developed that meets the needs of all parties and increases the stability and win-win effect of the partnership. In a competitive market, in addition to high-quality products, industrial companies need to provide value-added services such as technical support and training to differentiate themselves from their competitors and increase their market share.

De Jong et al. (2020) argue that services are an integral part of industrial marketing, and with the development of digitalization, there is a clear need for theoretical concepts and frameworks to guide companies in developing contemporary and strategic roadmaps for their B2B services marketing strategies and performance practices. "Personalisation is also the future of industrial marketing. By gaining a deeper understanding of their customers, companies can offer customized services that enhance customer satisfaction and loyalty and differentiate them from their competitors. Digital technologies present new opportunities for companies to improve the efficiency of their services through tools and platforms, and to use data analytic to understand their markets and customers, develop strategic marketing programs and achieve sustained competitive advantage.

Ray (2021) believes that predictive maintenance solutions will transform traditional sales and marketing. Sellers need to focus on early adopters of innovation among their customers. They also need to engage with existing customers early in the buying process and emphasize how PM can reduce the total cost of ownership.PM can sell effectively to transactional, value-oriented and collaborative customers. To gain a competitive advantage, marketing teams need to properly pitch predictive maintenance programs, understand the needs of each type of customer and highlight the value of the programme. They also need to work closely with customers to form long-term partnerships, adjusting and refining programs based on feedback to ensure that they meet the needs of all parties and build lasting relationships.

(2) The current state of international marketing safety and security products

There is a relationship between the marketing of safety and security products and the marketing of explosion-proof electrical appliances industry. Explosion-proof appliances is a special category of safety and security products, mainly used to protect the safety of personnel and equipment in explosive hazardous environments. Therefore, the marketing strategy of the explosion-proof electrical appliances industry and the marketing of safety and security products have certain similarities.

Yang (2019) made an analysis of the marketing situation of 3M's PPE products in the coal mining industry market, and the internal analysis was done by analyzing the segmentation, targeting, and marketing mix of 3M Indonesia's PPE products. Whereas the external analysis is done through Porter's five forces analysis, PEST analysis and customer analysis. The solutions proposed to 3M Indonesia were to manage its sales force, improve distribution channels, conduct several promotional activities, and maintain customer relationships by building customer intimacy.

Mahamudul and Sheikh (2019) used the 4P theory to analyse the marketing strategy of Provenance's security and surveillance products, arguing that firms need to focus on the quality of the product, use the value of the product to determine the price of the product, and use the service of the product as one of the firm's promotional tools. The study emphasizes the importance of product quality, value pricing and service and provides guidelines for applying the 4P theory in the marketing of security and surveillance products. These ideas provide useful references for companies to develop effective marketing strategies.

Neacsu and Madar (2021) analyses the marketing strategies for integrated security system products, for security category products, the authors concluded that product quality is the core competence of a company. In the market for security-based products, customers attach particular importance to the reliability and performance performance of the products. Therefore, firms should be committed to providing high-quality products to ensure the stability, reliability and safety of their products in order to win the trust and loyalty of their customers.

Safety and security products and explosion-protected appliances are both closely centred around the safety core. Explosion-proof appliances industry to ensure product safety and reliability as a selling point, and safety and security products also as a sales target. In terms of marketing strategy, both attach importance to market segmentation and target market positioning. Explosion-proof appliances will be segmented according to the characteristics of each industry and application, and then accurately marketed. Safety and security product marketing also segments and selects markets according to the needs of target customers to ensure that their strategies are relevant. In customer service and relationship management, both are equally focused. Explosion-proof appliances industry emphasizes a full range of services, from pre-sales to after-sales, and maintains a good relationship with customers to increase their trust. Safety and security products, on the other hand, focus on the customer service experience, including technical support and follow-up services provided, with the aim of building lasting customer relationships.

(3) The current state of international research and application of 4P marketing theory

Philip and Keller (1967) in Marketing Management: Analysis, Planning, and Control proposed the 4P marketing mix theory, which identifies product, price, channel, and promotion as the core elements of marketing.

On the price side of the 4P theory, Cai (2016) based on the purchase value theory, the author argues that offering low price discounts for non-essential purchases reduces the perceived transaction value, which in turn reduces the consumer's propensity to buy. However, this reverse effect is reversed when the purchase is large or when the purchase is necessary.

Guan et al. (2020) applied the 4P theory to the field of insurance sales and found that customer attitudes also moderated the relationship between marketing incentives and purchasing behaviour, and that the marketing mix of product, price, place, and promotion affects customer attitudes, which in turn affects customers' willingness to buy. Therefore, marketing should also carefully develop their marketing mix to increase sales.

Overall, the international research shows that the 4P marketing theory has important value in guiding the marketing strategy and enhancing the competitiveness of enterprises.

2.4 Summary

Through the generalization of the above literature on the development status of the explosion-proof industry in coal mines in China and international, it is found that: the China's research mainly focuses on the development status of explosion-proof electrical appliances in the coal industry, the research of marketing strategies and the use of industrial marketing theories. In the study of the coal industry, attention is paid to the development trend of intelligent mining, underground robot technology, intelligent control technology of the working face, and the importance of coal mine safety and security and intelligent construction. In the marketing strategy research, it pays attention to the marketing organization system, channel conflict, competing sales phenomenon and other problems in the explosion-proof electrical appliances industry, and puts forward solutions to improve service quality, segmentation of target customers, differentiated marketing and so on. At the same time, the research of China's industrial marketing theory also involves the explosion-proof electrical appliances industry, exploring how to apply 4P and STP theory and other marketing tools to enhance competitiveness and meet customer needs. International research is mainly concerned with the explosion-proof electrical appliances industry, safety and security products marketing, international 4P marketing theory research and application of the current situation. In the study of safety and security products marketing, researchers have explored the marketing strategies of personal protective equipment products, integrated safety system products, etc., emphasizing the importance of product quality, service quality and value-added services. In the study of 4P marketing theory in international, researchers focus on the impact of product, price, channel and promotion factors on the willingness to buy and market competitiveness, through questionnaires and analysis methods to explore the degree of influence of different factors and the role of the mechanism. China and international research on the current situation of the explosion-proof electrical communication industry presents certain differences and characteristics, the China's research mainly focuses on the development of the coal industry and marketing strategy research, involving the application of industrial marketing theory; while international research mainly focuses on the marketing of safety and security products and the current situation of the research and application of 4P marketing theory in international. These studies provide important theoretical support and practical guidance for the development and marketing of explosion-proof electrical communication industry.

Comprehensive analysis of explosion-proof electrical products and coal industry marketing aspects, combined with the current development of the coal industry and the development trend, it can be concluded that China's coal industry will develop in the direction of intelligence, and as the upstream of the development of coal mine explosion-proof electrical equipment companies will also undergo intelligent transformation. In this context, the development of marketing strategy becomes particularly important. In terms of industrial marketing, the development of international products compared to China much earlier, so the marketing theory of industrial products is also relatively early in the development of some. Explosion-proof appliances is also a special industrial goods. China and international literature agrees that industrial marketing needs to start from customer needs, and through differentiated services to meet these needs. In terms of safety and security products, product quality is the core of company competition. Based on the above research results, this thesis will take the marketing STP theory and 4P theory as the main theoretical basis, and use a combination of qualitative and quantitative methods to comprehensively study and analyse the marketing strategy of S private explosion-proof electrical communication company.

3 - Methodology

3.1 Research methodology

In order to formulate the commercial development plan of S private explosion-proof electrical communication company in the coal mining industry, the following methodology was adopted.

Literature research method: various types of literature, studies and thesis are comprehensively sorted out. This study is based on the existing marketing and industrial marketing theories, and refers to the China’s explosion-proof electrical appliances related companies, to provide S company with the reference of market strategy.

Interview method: We have repeatedly conducted in-depth communication with the staff and management of S company to understand the internal status and development dynamics of the company. Communicate with relevant industry personnel and external customers to obtain a comprehensive understanding of company S and the field of explosion-proof electrical appliances in the coal industry.

Date analysis method: The market data of company S from 2018 to 2022 is analyzed using cluster analysis. The data covers contracts, sales, product information and customer details. Through data analysis, problems in the company's marketing strategy, such as untimely product updates and unclear target markets, are identified and provide a basis for subsequent strategy development.

4 - Internal Analysis and external Analysis

4.1 Internal Analysis

This chapter will analyse the internal environment of Company S in terms of its growth trajectory, product lines, organizational structure and business units, and sales performance.

4.1.1 Company development history

S company mainly produces and sells explosion-proof electrical communication equipment, and has developed into a scientific and technological small and medium-sized company integrating research and development, production, sales and service.S company owns a lot of independent patents and high and new technology products, and has already provided services for many industrial and mining companies in China, and has accumulated a solid reputation.

However, looking at the development process of the company, despite continuous technological innovation, company S remains flat or in the red during 2012-2020, and does not improve until 2021 when new products are launched. Analysis the current policy environment, market demand and the updating of the company's new products, company S has a lot of potential for expansion, but the marketing segment needs to be strengthened.

4.1.2 Business organization

As shown in Figure 4.1, the organizational structure of company S mainly consists of seven senior managers, including the production director, the technical director, the head of the personnel department, the director of quality management, the head of the office, the head of the operation department and the financial director, who are in charge of different areas and report uniformly to the general manager and the deputy general manager.

Company S's product sales rely on project targeting and long-term relationships, so frequent co-operation and communication between the technical and operational departments becomes necessary in the business development process. Through close collaboration between the two parties, they can provide customers with better quality and more accurate solutions, which in turn will win new projects and business opportunities for company S.

From an organizational structure point of view, company S, based on the current business situation, the manager of the technology development department and the manager of the operation department are in an equal level relationship, both reporting directly to the general manager. This structural arrangement helps to improve communication efficiency and responsiveness, and also reflects the company's balanced emphasis on the two key aspects of marketing and technology development.

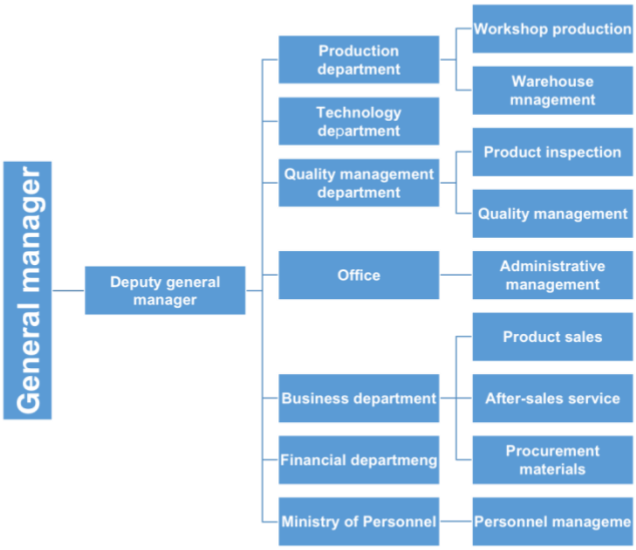

Figure 4.1:Organizational chart

Source: Author (2025)

4.1.3 Product line structure

S company has launched five major product categories in the coal mining sector, as shown in Table 4.1: mine monitoring systems, mine electrical equipment, mine instrumentation, retrofitting of old equipment, and mine communication systems.

In the past, S company's sales focused on mining electrical equipment and monitoring systems, such as explosion-proof junction boxes and explosion-proof monitors. However, by 2021, the company's revenue streams begin to shift towards mining communications equipment and the retrofitting of old equipment.

Table 4.1 Display of Product Categories of company S

Product Category	Product name (list)	Product display (listing)
Mining Monitoring System	Flame-proof optical transceiver for mining Mining Flame-proof Monitor	 
Mining electrical equipment	Flame-proof Low-voltage Cable Junction Box for Mining Use Mining Intrinsically Safe Remote Control	 
Mining Instrumentation	Mining Intrinsically Safe Inclination Sensor Mining Intrinsically Safe Wireless Pressure Sensor	 

Retrofitting of old equipment	Intelligent transformation of roadheader Upgrading of the integrated machine for digging and anchoring	This kind of product according to the customer company requirements to do specific transformation programme, no product display picture
Mining communications signalling equipment	Remote control system for synthesizers Remote control system for IMC	

Source: Internal company data

4.1.4 Performance review

From 2017 to October 2024, Company S's sales of mining products are shown in Figure 4.2, demonstrating an overall growth trend. According to Table 4.2, sales of 18 million yuan in 2017 reached 20 million yuan in 2018, an increase of 11%. sales in 2019 rose to 25 million yuan, an increase of 25%. However, due to slow product renewal, the growth rate slips to 8 % in 2020, with sales of $27 million; it further declines to 5.6 % in 2021.company S increases its research and development on new products during 2019-2020, and its new products are launched in late 2021. By 2022, sales of new products increase, but sales of old products decrease. By October 2022, sales totaled $30.5 million, an annual growth rate of 7%, which deviates from management's expected growth target and implies that Company S has problems with sales management. From 2022 to 2024, sales continued increasing reaching almost $3,5 million.

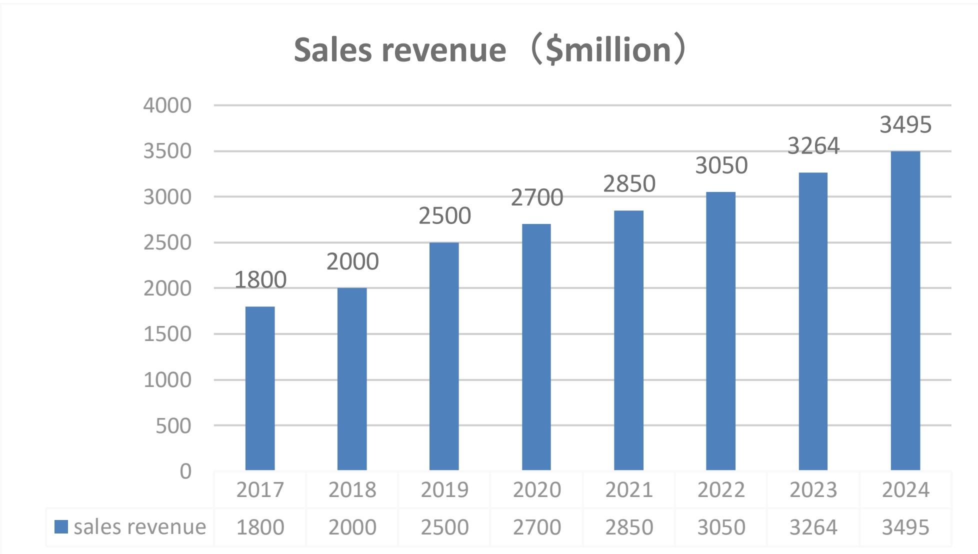

Figure 4.2 Sales Revenue of Company S, 2017 to 2024
Source: Internal corporate information

Table 4.2 Sales Revenue of company S

Year	sales revenue	sales growth rate	Original product sales	Sales of new products
2017	1800	/	/	/
2018	2000	11%	82	0
2019	2500	25%	110	0
2020	2700	8%	188	0
2021	2850	5.6%	155	2
2022	3050	7%	125	23
2023	3264	7%	95	63
2024	3495	7%	65	105

Source: Internal corporate information

4.1.5 Company business segments

This thesis focuses on the improvement of marketing strategies for underground explosion-proof products in the coal mine segment, so the following will mainly introduce the company's coal mine business segment

As shown in Figure 4.3, in the field of explosion-proof monitoring and control equipment for underground coal mines, S company are divided according to product types, mainly including the following five major product series:

Mining monitoring system: This series of products relies entirely on the existing core technology of S company, and its core customers over the past five years have included mining equipment companies and coal mine terminal businesses.

Intelligent Retrofit for Mining Equipment and Intelligent Communication Equipment for Mining: these two categories of products were newly developed between 2019 and 2020 and launched to the market in late 2021. These products are being iterated as customer needs evolve. The main customer groups are coal mine end-users, especially large coal mine producers.

Mining Electrical Equipment and Mining Instrumentation: These two types of products are usually sold as ancillary equipment for the above products and are often considered as accessories to the company's products.

The current market situation and customer composition of these five product lines provide valuable reference information for the subsequent improvement of our market strategy for downhole explosion-proof products.

Table 4.3 Table of Coal Mining Products of company S

Num	Equipment name	Category
1	Mining screen divider	Mining monitoring system
2	Mining flame-proof monitor1	Mining monitoring system
3	Mining flame-proof monitor2	Mining monitoring system
4	Explosion-proof DVR for mining	Mining monitoring system
5	Mining explosion-proof camera	Mining monitoring system
6	Explosion-proof housings for vision traffic cameras	Mining monitoring system
7	Mining Intrinsically safe camera	Mining monitoring system
8	Flame-proof low-voltage cable junction box for mining use	Mining electrical equipment
9	Flame-proof optical transceiver for mining	Mining monitoring system
10	Mining intrinsically safe LED lighting	Mining electrical equipment
11	Mining explosion-proof and intrinsically safe control box	Mining electrical equipment
12	Mining Intrinsically safe wireless pressure sensor	Mining instrumentation
13	Mining explosion-proof and intrinsically safe control box	Mining electrical equipment
14	Mining intrinsically safe remote controller	Mining electrical equipment
15	Solenoid for mining casting type valve	Mining electrical equipment
17	Mining Intrinsically safe inclination sensor	Mining instrumentation
18	Explosion-proof and intrinsically safe operator console for mines	Mining electrical equipment
19	Explosion-proof housings for vision traffic cameras	Mining monitoring system
20	Retrofitting of IMMs	Retrofitting of old equipment
21	Upgrading of the integrated digging and anchoring machine	Retrofitting of old equipment
22	Intelligent transformation of roadheader	Retrofitting of old equipment
23	Remote control system for synthesizers	Mining communication signal equipment
24	Mining belt visualization monitoring system	Mining communication signal equipment
25	Intelligent retrofit system for roadheaders	Mining communication signal equipment
26	Intelligent remote control system for roadheaders	Mining communication signal equipment
27	Intelligent control system for roadheaders	Mining communication signal equipment
28	Remote control system for IMC	Mining communication signal equipment
29	Remote control system for roadheaders	Mining communication signal equipment
30	Intelligent remote control system	Mining communication signal equipment

Source: Intra-company data

4.1.6 Analysis of marketing problems of S company

Survey programme design and data collection

First,in this thesis, the statistical data of Company S was collected from Company S from 2018 to 2022, with a total of 217 pieces of marketing data , which includes indicators such as mining products sold, the number of products sold, the type of purchasing Company, the region of purchasing Company, the amount of contract incurred, and the number of re-purchases.

Second,from the perspective of target customer segmentation, this thesis analyses five years' worth of data from Company S and categorizes the individual metrics.

Third,from a product perspective, this thesis breaks down and collects information on all products.

Fourth, from the perspective of product distribution, this thesis considers factors such as distributors' regions, total order amount, single order amount, number of transactions and length of cooperation, and carries out statistics and clustering on distributors' data, so as to identify and propose problems in distribution management and their solutions.

Basic procedures for interviews

The interviews started at the end of May 2023 and continued until mid-June. Throughout the process of preparing the thesis, I maintained close communication with the frontline salespeople and sales managers of the organisation and compiled the key points into a thesis. These interviews were based on the STP and 4P theories, but other issues were also covered in the actual interactions. Some of the specific interview questions can be found in Appendix 3 for specific interviewee information, interview themes and reasons for the interviews.

Interview results and analysis

The company's mining explosion-proof equipment, such as mining monitoring systems and mining electrical equipment, has long been a core product and the main product supporting the company's survival and development. The company's recently launched retrofit services for old equipment as well as mining communication and signalling equipment mark the future trend of the business. These new products have been available in the market since the end of 2021 and have gradually taken up a considerable share of sales. Regarding these two products, the interviews focused on four perspectives: product range, pricing, distributor management and product promotion. The interviews covered five topics, details of which can be found in the summary of interview questions in Table 4.4.

Table 4.4 Summary of interview questions

Issues involved	Concrete issue
Market segmentation	1. Company rely only on geographic location to divide the target market, and lack of marketing efforts to divide the target customers.
	2. In addition to Henan and Shandong, the rest of the provinces and cities sales are not satisfactory. Shanxi market is huge, but the market share is not ideal.
	3. company S's target markets for new and old products are not clearly delineated.
Offerings	4. Slow updating of existing products and slow introduction of new products.
	5. Introducing company researchers oriented to product renewal, the original recruitment

	criteria are single and ineffective
	6. The updating of products currently remains under the guidance of national policy guidelines, overdue to meet the needs of business users weak.
	7. The product application scene is relatively single, and there are restrictions on the future development of the company.
	8. company product support services have room for improvement
Prices	9. Inflexible corporate pricing mechanisms and difficulties in pricing for customized products
	10. Product prices are not competitive and scientific enough
Retail store	11. Lack of a distributor management system
	12. Fewer distributor locations
Promote	13. Difficulty in implementing product promotional programs due to the competitive bidding model of the industry and the fragmented management of client companies
	14. Customers buy the company's products on demand, which is difficult to achieve through promotional programs in the form of prices

Source: Author's own production

4.1.7 Main problems in marketing of S company

Through the above survey research and data analysis, and combined with the STP and 4P theories to sort out the problems, to find out the five major problems of the company, and the reasons for the existence of the problems are analyse.

Unclear segmentation

At present, the products produced by S company are mainly divided into two categories, one is mining monitoring products and electrical products, which can be sold to coal mining company, used in coal mining production, but also can be sold to the supporting company of mining products, and other mining products supporting the production of sales. The other category is company S's current latest product series, which is mostly sold to coal mining company as a complete set of system sales or transformation projects for roadheaders and synthesized excavators. In Table 3.4, the summary of the interview questions, we can see that the current sales activities of the company are mainly centred around the geographical location of the address customer company, and there is no re-segmentation of the target customers and target markets in terms of the characteristics of the customers and the characteristics of the products.

Considering the external environment, the degree of urgency and progress in intelligent transformation varies among provinces and cities, which requires company S to re-segment the coal mining market. In addition, company S's existing old and new products are on the market and they have different target customers, but the company has not yet segmented these different target markets, resulting in some lag in target market management.

Products update slowly

Company currently have a total of 31 mining products, as can be seen from Table 4.5, S company in 2019 to 2021, to increase R and D investment in 2020, the number of new products launched in 2021 to reach the peak in the last five years, but due to the existing products according to the project requirements to be done to make a specific update, constrained by the conditions of the company's R and D, R and D personnel shortage and other issues, after 2021, the time of the new product development is slow and there are no new products Launch.

Table 4.5 Number of new products in company S from 2017 to 2022

Year	2017	2018	2019	2020	2021	2022
Number of new products	2	4	5	9	10	0

Source: Internal company data

No competitive prices

From Question Summary Table 4.4, it can be seen that the customer and most of the employees believe that: company S currently lacks a flexible pricing mechanism, there is no specific pricing standard for different types of company in different regions, and there is a lack of pricing advantage compared with competitors' products. The main reason for this is that company S mostly approaches the pricing process from a cost perspective.

The actual situation of company S is:

1.Higher operating costs, company S focuses on research and development of new products from 2018 to 2020, and invests a lot of research and development funds.

2.As most of its competitors are large company, the cost of raw materials and other materials for its products is higher than that of large company, and it is not possible to obtain more room for cost reduction on the raw material side.

Narrow marketing channels

Company S currently uses a combination of direct marketing and distribution, and mainly focuses on direct marketing to carry out marketing activities. The direct marketing mode adopts the way of point-to-point connection, the sales staff visit the target company directly, although the communication with the customer company is relatively smooth in this way, but the marketing efficiency is low, and the cost of marketing staff is high. At present, the company has 24 long-term distribution agents, the distribution of more concentrated but relatively good performance of 6.

Difficulty in implementing promotions

As seen in Interview Table, sales employees of company S described the difficulty of implementing promotions based on price. For example, Shanxi Province B Coal Group Company, in 2020, the first phase of the intelligent transformation of coal mines has reached a partnership with S company, and in December 2021, the second phase of the project is still going through the same bidding mode. Regarding the mining monitoring system and mining electrical equipment of S company, all the sales staff believe that these products are essential for coal mine safety and have low failure damage rate, and the current procurement method of the customer company is to buy on demand and take the bidding method, so it is difficult to implement the promotional activities through the price method.

4.1.8 Analysis of the reasons of marketing problems

Lack of segmentation on marketing management

Company S currently divides its sales target markets by customer location. Figure 4.3 shows that S is expanding its market mainly in East China and North China from 2018-2022. East China accounts for 58% of sales, mainly in Shandong and Shanghai; North China accounts for 25% of sales, mainly in Shanxi; and Central China accounts for 9% of sales, favouring Hebei. However, S has not further segmented its market within the region in response to differences in business nature, size and product demand.

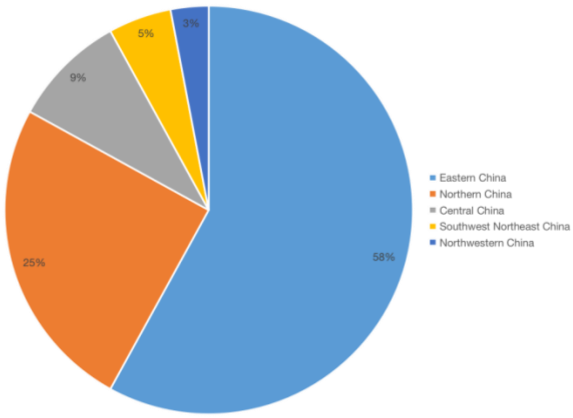

Figure 4.3 Regional Distribution of Sales Contracts of company S, 2018-2022
Source: Intra-company Data

As the industry barriers of the coal mining industry are high, and the target customers of the products sold by company S are all coal mining-related company, the current characteristics of the original customers of company S are also the characteristics of the future target customers. In this thesis, the marketing receipts of S company are collected, and a total of 217 marketing data are obtained from S company from 5 January 2018 to 20 December 2022. In the 217 data, a total of 88 company customers are counted customer data, and through the method of cluster analysis in spss, the customers with similar characteristics are divided into a number of groups, and their commonalities are researched to find the characteristics of the target customers, as shown in table 4.6.

Table 4.6 Characteristic items and scales for cluster analysis of S client companys

Scale content	value of a score	descriptions	Scale content	value of a score	descriptions
Date of Establishment	1	1-5 years	Time with the company	1	1 year
	2	6-10 years		2	2 years
	3	11-15 years		3	3 years
	4	16-20 years		4	4 years
	5	More than 20 years		5	5 years and above
Customer's region	1	Northwestern China	Number of customer repurchases	1	No buybacks
	2	Southwest Northeast China		2	2-6 times
	3	Central China		3	7-11 times
	4	Northern China		4	12-16 times
	5	Eastern China		5	17 or more
Client's industry	1	Bulk trade	Average order value	1	Within 10, 000
	2	Retail trade		2	10000-50000
	3	Software and information technology services		3	60000-100, 000
	4	Manufacture of Special-purpose equipment		4	More than 100, 000
	5	Other industries			
Client Company Size	1	Small and micro company			
	2	Corporate group			
	3	Public institution			

Source: Author (2025)

In the scale, the time of establishment of the company is according to the time of establishment from the longest to the shortest, the longer the establishment of the company, the lower the business risk. The region where the customer is located by the number of customers have more or less distribution, such as East China customers is the most 5, the number of customers in Northwest China is at least 1. The industry where the customer is located can be seen in the business scope of the customer's company. The time of cooperation with S company can reflect the stability of S company and the stability of the cooperative relationship with the company, the higher the score is the longer the cooperation time, the better the stability. The number of customer repurchase can also reflect the customer's satisfaction with the products of S company, the average order amount can reflect the consumption level of the company, also from more to less in order to set the score. According to the scale respectively after scoring data excerpts such as Table 4.7(raw data see Appendix 1: S company customer raw data and scoring table).

Table 4.7 Customer Scoring Scale for company S

Num	Date of Establishment	District (not necessarily formal administrative unit)	Sector	company size	Cooperation time	Buyback	Order Amount
1	4	5	2	1	5	5	1
2	3	4	2	1	4	4	2
3	2	5	5	1	3	3	1

4	4	5	5	1	2	2	2
5	5	3	5	2	1	2	4
6	1	4	3	1	5	2	2
7	3	3	5	1	5	2	2
8	4	5	1	1	2	2	1
9	1	5	3	1	2	2	2
10	2	3	1	1	2	2	1

Source: Internal company data

Cluster analysis of customer company by IBM SPSS Statistics 25 software to complete. After clustering calculations, the 88 client companies of company S can be broadly classified into four types, and the results of the analysis are shown in Figure 4.4.

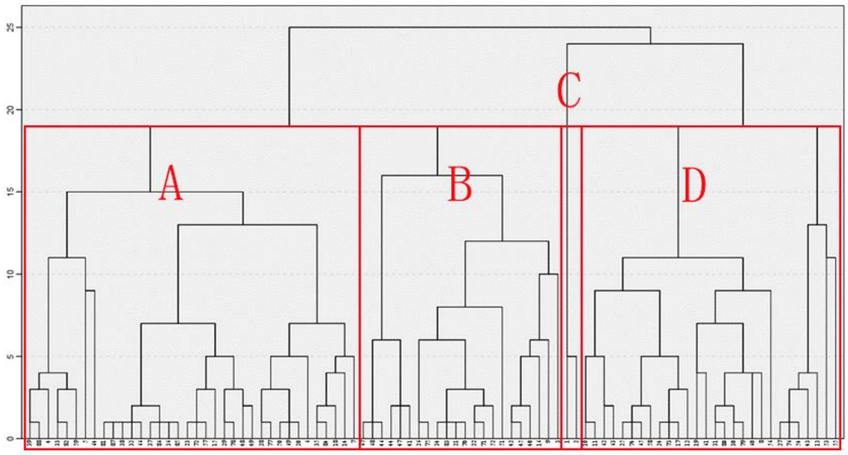

Figure 4.4 Client cluster analysis diagram
Source: Author (2025)

Category A customers, totalling 36 or 40.9%, are mainly coal mine end-users. They have been cooperating with S company since 2020, with a preference for purchasing 4 or 5 types of products. Despite the short cooperation period, the single order volume is high. They pay close attention to new products, so they need to communicate with them more to understand the demand.

Category B customers, 22 or 25%, are mainly integrates. They mainly purchase 1, 2 and 3 types of product parts for reassembly, and have a long and stable cooperation with S company.

There are only 2 customers in category C, accounting for 2.2%, but they have the longest cooperation with company S and buy back frequently, specializing in purchasing explosion-proof low-voltage cable junction boxes. Although the profit is small, the cooperation is solid. In product development, other supporting needs can be explored.

Category D customers, 28, accounting for 31.82%, focusing on coal mine software development, purchasing components such as explosion-proof junction boxes for reassembly.

In the aforementioned ABCD category enterprises, there are differences in enterprise sizes such as small and micro enterprises, group companies, and so on. This thesis once again conducts a correlation analysis to determine the relationship between enterprise size and the amount of individual contracts. through the correlation analysis, as the table shows, the correlation coefficient r between the contract amount and the client company's size is 0.476, with P=0.000<0.05. This indicates a significant positive correlation between the contract amount and the client company's size, that is, the larger the client company's size, the relatively higher the contract amount. Therefore, in subsequent marketing activities of the enterprise, focus should also be placed on developing group enterprise clients through various channels.

Table 4.8 Correlation analysis between the contract amount and the size of the client's business

		Contract amount	company size
Contract amount	correlation coefficient	1.000	0.476**
	Sig.		0.000
company size	correlation coefficient	0.476**	1.000
	Sig.	0.000	

Source: Author (2025)

Lack of clarity on product iteration goals

From the interview questions , it can be seen that the current S company product follow-up ability is weak, product iteration and update direction is mainly dependent on the needs of company customers and national policy guidance, such as the current company launched the intelligent tunneling system and other equipment, are dependent on the specific needs of the customer company and national standards, and for the development of overdue to meet the needs of the company customer products ability is weak, the company is still lack of a more Clear product iteration goals.

Lack of a scientific pricing strategy

For the China’s underground explosion-proof monitoring equipment market, company S currently does not have a perfect and scientific pricing mechanism, bidding for the product offer is basically through the marketing staff of the standard market or competing companies in the past bid to give the market price. At present, S company lack institutionalized pricing process, lack of review and investigation work verification, very easy to cause quotation deviation.

Lack of direction in the marketing channels

In terms of the current promotion status of company S, in addition to point-to-point visits to customers by marketing personnel, the other main publicity through the annual coal industry exhibition, but from past experience, the short-term effect of participating in industry exhibitions is better, but it is difficult to obtain the attention of the target customer's long-lasting. In addition, according to the information from the interviews with internal staff and customers, company S lacks core competitiveness in its current basic products and does not highlight its brand well. Therefore, different promotion methods should be adopted for different target market demands, and there are great limitations for company S to rely only on visiting customers and the more traditional exhibition methods.

Lack of promotion due to industry purchase restriction

According to Article 7 Item 2 of the Tendering and Bidding Law of the People's Republic of China, "Procurement of important equipment, materials and other goods, products with an estimated price of more than 1 million yuan for a single contract" shall be subject to bidding and procurement. Therefore, the "triple one" system of major groups requires that they launch company bidding norms, and projects larger than 1 million can only be carried out through bidding. For the equipment transformation products and intelligent system products in S company, the projects involved in the products are more than one million, so they can only be carried out by bidding in the industry, and the promotion plan is difficult to achieve.

4.2 External Analysis

4.2.1 PEST Analysis

The PEST model provides a systematic framework for companies to quickly understand the external macro-environment in which they operate.

Table 4.9 PEST Analysis of explosion-proof Equipment Industry in Coal mines

Dimension	Key Driving Factors	Impact on S Company
Political (P)	The 2023 Three-Year Action Plan for Intelligent Construction in Coal Mines requires over 70% penetration of intelligent systems in large-scale coal mines by 2025.	Policy incentives create a strong demand market for intelligent retrofitting products; increased certification requirements squeeze the survival space for small and medium competitors.
	The 2024 revision of the Safety Production Law mandates a 100% explosion-proof certification rate for underground equipment.	
	The "dual carbon" policy promotes subsidies for retrofitting outdated equipment.	
Economic (E)	The fixed asset investment growth in the coal industry reached 6.2% in 2024 (National Bureau of Statistics).	Enhanced downstream customer payment capacity, but cost pressures force optimization of the local supply chain.
	Coal mining enterprises' profit margins rebounded to 12.3% (China National Coal Association).	
	RMB exchange rate fluctuations have led to a 5-8% increase in the cost of imported components.	
	GDP growth projected to decline to 4.5% by 2025, yet coal industry intelligent investments counter-trend (9.8% CAGR)	

Social (S)	Increased safety awareness among miners, with a 23% year-on-year decline in underground accident fatality rates in 2024.	Boosts the demand for high value-added intelligent explosion-proof equipment; brand ESG performance becomes a key criterion in bidding.
	"Generation Z" technical workers now account for 38%, driving a surge in demand for digital operations.	
	ESG investment standards are pushing coal mining companies toward green procurement.	
Technological (T)	Commercialization of 5G+UWB underground precise positioning technology (led by Huawei and ZTE).	Accelerated technological iterations shorten product lifecycles to 2-3 years; increased threats from cross-industry competitors.
	In 2024, the penetration rate of AI diagnostic systems in explosion-proof equipment reached 45%.	
	Graphene materials have reduced the weight of explosion-proof housings by 40%.	

Source: Author (2025)

From the table content can be analysed, intelligent transformation policy window (2023-2025) and 5G technology maturity to form a strategic opportunity, but need to be vigilant against Huawei and other technology giants through the 'technological downgrading blow' into the field of anti-explosive communications. In the context of the rigid rise in raw material costs, pure cost pricing model will fail, we must reconstruct the value chain through intelligent value-added services.

4.2.2 Sector Analysis

Demand stratification:

High-end market (unit price >500, 000 yuan): dominated by Huawei, CITIC Heavy Industries, etc., focusing on 5G communication + AI diagnostic system

Mid-end market (100, 000-500, 000 RMB): the main battlefield for S-companies, with competition focusing on regionalised service capability

Low-end market (<100, 000 RMB): fierce price war, gross profit margin below 15%

Industry pain points are mainly around three perspectives, first, the fragmentation of technical standards, the existing explosion-proof standard GB3836 and IECEx system coexist, SMEs certification costs increased by 30%; second, the deterioration of the billing period, the industry's average accounts receivable turnover days in 2024 amounted to 187 days (extended by 45 days compared with 2020); third, the service radius limitations, downhole equipment requires a 72-hour emergency response, the restricting cross-regional expansion.

Table 4.10 Demand Driver Matrix for Coal Mine Explosion Protection Equipment (2024)

Driving Type	Specific Manifestation	Impact Strength (1-5)
Policy-Driven Forced Replacement	The National Coal Regulatory Bureau requires that non-intelligent monitoring equipment be eliminated by 2025.	4.8
Safety Production Requirements	Single mining accidents incur direct losses exceeding ten million, forcing equipment upgrades.	4.5

Energy Efficiency Improvement	Intelligent systems can reduce coal energy consumption by 8-12% per ton.	3.9
Rising Labor Costs	Underground workers' wages increase by 9% annually, driving unmanned transformation.	4.2

Source: Author (2025)

4.2.3Competitor Analysis

Table 4.11 Benchmarking Analysis of Key Competitors (2024)

Metric	S Company	Huawei Mining Division	Shandong Energy Machinery	Changzhou Lianli
RandD Investment Ratio	8.20%	22.50%	5.70%	6.30%
Intelligent Product Revenue Ratio	34%	89%	18%	9%
Number of Provinces Covered	8	27	12	5
Service Response Time	48 hours	72 hours	36 hours	60 hours
Accounts Receivable Turnover Ratio	2.1 times/year	4.8 times/year	1.7 times/year	1.9 times/year

Source: Author (2025)

As can be seen from the table above, the head of the enterprise through the technology ecology to build a moat (such as Huawei's 'mine Hong operating system'), while regional enterprises rely on government relations, S company to position in the mid-market need to strengthen the 'rapid location + localized service' advantage. The industry average cash cycle of 214 days, S companies need to be vigilant about Shandong Energy Machinery's 'equipment leasing + share' mode of impact on cash flow.

4.2.4Porter's Five Forces Analysis

Table 4.12 Quantitative assessment of the Porter's Five Forces model (on a scale of 1-5, 5 = highest threat)

Force	Key Basis	Score
Supplier Bargaining Power	Imported explosion-proof chips are monopolized by Infineon/NXP (CR3 = 82%).	4.2
Buyer Bargaining Power	Large domestic coal mining groups, such as China Energy Group, have significant purchasing volumes and can drive down prices through bidding. However, customer demands for customized equipment (such as those adapted to specific mine environments) weaken the bargaining power.	4.7
Threat of New Entrants	The explosion-proof certification period lasts up to 18 months, yet tech companies are quickly entering via OEM models (e.g., DJI explosion-proof drones).	3.1
Threat of Substitutes	Due to the particularity and high risk of environments such as coal mines, explosion-proof equipment plays an irreplaceable role in ensuring safety.	2.8
Industry Rivalry Intensity	Price wars, foreign investment and differentiated competition between local and foreign enterprises	4.5

Source: Author (2025)

As can be seen from the table, from the supply chain breakout point of view, the need to establish a domestic substitution alliance, such as cooperation with SMIC to develop mining explosion-proof chip, at the same time, and customer binding, from the sale of equipment to the ‘solution subscription system’, to enhance the conversion cost. In terms of ecological defence, with universities and colleges to build a ‘joint laboratory of intelligent mining’, to build technical barriers to entry.

4.3 SWOT Analysis

4.3.1 Strengths

(1) Customer Loyalty

With strict production quality control and focus on customer experience, S company has cooperated with more than 200 coal mining companies. The repurchase rate of coal mine products in the past 5 years is 21.5% . Since the explosion-proof monitoring and surveillance products in underground coal mines are not consumable, this repurchase rate is considerable.

(2) Product Advantage

At present, S company has more than 32 pieces of conventional explosion-proof products for sale and 5 pieces of patented explosion-proof products. At present, the latest "intelligent remote control system for roadheader" and other products can realize unmanned operation and ensure the safety of workers. After the transformation of the roadheader, on the basis of not changing the original control system, the system achieves independent switching between the four operation modes of the roadheader's local control, wireless control, underground remote control and ground remote control. The new product meets the requirements of intelligent mine and saves the transformation cost.

4.3.2 Weaknesses

(1) Single Marketing Channel

Company S currently adopts a direct sales model supplemented by distributors, which lacks flexibility and scalability in the face of increasingly fragmented market demands. The company’s limited sales team of seven is stretched thin, resulting in sales cost accounting for 27% of total expenses, significantly higher than the industry average. This not only burdens the management team with excessive front-line involvement, but also diverts attention from strategic tasks such as innovation and customer experience improvement. Moreover, in the distribution channel, conflicting interest structures between the company and distributors have led to a declining order conversion rate and deteriorating distributor loyalty.

(2) Weaker Human Resources

In an industry undergoing rapid digital transformation, S Company’s talent structure is outdated. With over 50% of employees aged 50 and above and only 29% holding university degrees, the company faces serious challenges in knowledge renewal, technical adaptation, and digital agility. This undermines its competitiveness in smart mining, AI integration, and customer-centric service offerings. The lack of cross-disciplinary and R&D-oriented professionals also limits the company's ability to respond to the shortening product lifecycle and growing customization needs in the mid-end market.

(3) Slow Digitalization and Weak IT Infrastructure

Compared with top competitors like Huawei or CITIC Heavy Industries, S Company lags significantly in IT systems, data analytics, and automation. The absence of integrated CRM and ERP platforms leads to poor customer insight, inefficient sales tracking, and suboptimal inventory control. Without real-time data capabilities, the company struggles to adapt to shifting demand patterns or implement precision marketing strategies, which are crucial for both customer acquisition and retention.

(4) Limited Brand Influence

Despite being active in the mid-end market, S Company's brand recognition is weak, especially outside its existing eight-province operational radius. This limits its ability to bid for large national projects, especially under ESG and safety-first policies that favor well-known brands.

(4) R&D Output

Its R&D investment ratio (8.2%), though moderate, is far below Huawei's 22.5%, and the intelligent product revenue ratio remains at 34%, indicating room for deeper innovation in smart safety products and software-embedded hardware.

(5) Cash Flow Vulnerability

The industry average accounts receivable turnover of 2.1 times/year and cash conversion cycles of over 200 days leave S Company exposed to serious liquidity risks, especially in the face of Shandong Energy Machinery's emerging leasing + equity sharing business model. Without strong financial reserves or flexible payment strategies, the company may face working capital bottlenecks, hindering future investments in R&D and expansion.

4.3.3 Opportunities

(1) National policy support

Currently, China's national requirements to strengthen mine safety and intelligence, for the coal mine explosion-proof monitoring companies to provide opportunities for development. 30 July 2020, China Coal Industry Association issued the "14th Five-Year Plan" high-quality development of the coal industry guidance ", " the "opinions" pointed out that the coal industry to accelerate the production of intelligent, information-based management to change The number of intelligent production coal mines built more than 1, 000, coal mining mechanisation degree of 90%, digging mechanization degree of 75% or more. These policies on the coal mine explosion-proof electrical communication industry, are good policies.

(2) Wide space for market development

Intelligent transformation of coal mines are required to explosion-proof monitoring system, advanced mines such as Shandong's Tangkou Coal and Shanxi's Xiaoxi Coal, intelligent investment in 2020 amounted to 80 million and 60 million yuan, respectively. Shanxi Huayang New Energy Xinjing Coal Industry is the first 5G full coverage mine, with an investment of 190 million yuan in 2021, while Shendong Coal's Yujialiang Coal Mine is investing 180 million yuan in 2022, which has huge market potential.

4.3.4 Threats

(1) Lack of skilled personnel

High-tech companies compete not only in customer relations, but also in high-tech products. company technical talents are the core of product development. Now, company S has 10 researchers, but compared with its competitors, they have lower education, of which 8 are undergraduates and only 4 postgraduates. The shortage of talents in the field of explosion-proof technology also restricts the progress of S company.

(2) Fierce competition in the industry

The main competitors of S-businesses show strengths in two main areas. Firstly, many rivals have deep corporate backgrounds, such as SOEs or large corporations, which are not only able to produce key equipment such as roadheaders and IMCs, but also occupy pioneering positions in technology and management and have successfully attracted top talent in the industry. Secondly, these competitors are well-funded and are able to fully support their technological innovations and day-to-day operations.

5 - Commercial Development Plan

5.1 Objectives of this plan

The objectives of this commercial development plan for 2025 are:

- Increase sales: Increase sales to RMB 3,844.5 million (5.1 per cent growth rate).
- Increase the number of new customers: Increase the number of new customers by more than 20% per year through multi-channel marketing campaigns.
- Increase customer retention rate: Increase customer retention rate to over 95% by establishing a comprehensive customer relationship management (CRM) system.
- Increase market share: Increase market share by more than 15% in target market areas (e.g. Shanxi, Shaanxi, Inner Mongolia).
- Increase product sales ratio: Ensure that the sales ratio of new products reaches more than 40% and increase market penetration by more than 30%.
- Improve channel coverage: Increase the number of dealers by 20% and increase the sales growth rate in key regions by more than 15%.
- Improve service quality: shorten the after-sales service response time to within 24 hours, increase the customer repurchase rate to over 25%, and achieve a service rating of over 4.5/5.
- Accelerate product innovation: Combine market feedback and technology trends to ensure that new products are ahead of market demand in terms of safety, intelligence and adaptability.

5.2 Commercial Strategy: Marketing, Sales and Business Development

Based on the market segmentation above, Company S will target mid-to-high-end coal mine customers in resource-concentrated regions such as Shanxi, Shaanxi, and Inner Mongolia, where intelligent transformation is advancing rapidly under policy support. The primary target customers include coal mine terminal enterprises, large mining groups, and system integrators involved in smart mining upgrades. In terms of positioning, Company S will differentiate itself as a professional provider of intelligent, safe, and customizable explosion-proof solutions, focusing on "fast response, localized service, and modular innovation" to meet the evolving needs of the mid-market. Through this positioning, the company aims to establish itself as a trusted mid-tier leader bridging the gap between low-end price wars and high-end technological monopolies.

5.2.1 Segmentation, Targeting, and Positioning

Market segmentation of our original products according to region: The distribution of coal resources in China shows the situation of "rich in the north and poor in the south, more in the west and less in the east". Since our original products are basic products such as explosion-proof cameras for underground coal mines, which are applicable to all underground coal mines in China, we can carry out focused marketing activities according to the distribution of coal mines in China. In the case of maintaining the original market holdings, in Heilongjiang, Yunnan and other places to develop local dealers.

New products are market-segmented by region: Since the supply-side reforms in 2016, China's coal output has continuously concentrated in resource-rich areas such as Shanxi, Shaanxi, and Inner Mongolia. As a result, the core position of Shanxi, Shaanxi, and Inner Mongolia in coal production and sales has been continuously strengthened, and the construction of intelligent coal mines will become the focus of development in these regions.

As shown in Table 5.1, company S mainly produces three types of products at present. Class A products are newly launched by company S in the past 20 years and successfully launched into the market at the end of 21st. They are mainly targeted at group company customers or well-performing distributors and belong to the high-end products of company S. Class B products are mainly basic products with relatively low technical threshold of S company, mainly for customers of integrates related to coal mines. Because integrates need to support products in production, they have higher requirements for product quality.

Table 5.1 company Product Market Segmentation Table

Product Classification	Category A	Category B	Category C
Product Type	Complete system products, intelligent transformation products and services	Complementary products for coal mine end products	Accessory products for Class A products
Product Features	Longer development cycles and higher development costs	The product is relatively mature and it is difficult to update the product	Currently no separate purchases, sold only as accessories for Class A products
Client-facing	Coal mine terminal company (concentrated in Shanxi, Shanxi, Sichuan, Gansu)	Coal Mining Product Integrator	Coal Mine Terminal company
Marketing improvement measures	We should increase investment in scientific research, continue to improve product development, and develop more high-quality group users by leading the way.	Do a good job of updating the products in Area B, ensure product quality, and do a good job of customer maintenance.	To do a good job of spare parts inventory maintenance, the customer source of these products in the next one or two years, mainly for the original purchase of the products of the group customers in the A area, in the follow-up marketing process to do a good job of customer maintenance, pay attention to this group of customers the sense of use of the product.

Source: Author (2025)

S is positioned as a professional provider of intelligent solutions for China's coal mines, focusing on the following core directions:

- High-end technology leadership: with Class A intelligent system products as the core, serving group customers in the main coal-producing areas of Jin, Shaanxi and Mongolia, and promoting the intelligent upgrading of coal mines.
- Basic product guarantee: meet integrators' demand for stability and quality through Class B mature ancillary products to consolidate the mid-range market.
- Full chain service: supplemented by C accessories to strengthen customer adhesion and form an integrated business model of ‘core products + supporting services’.
- Regional deep-ploughing strategy: according to the difference of coal resources distribution, lay out the marketing network in the northern and western key regions, and penetrate the emerging markets (e.g. Yunnan, Heilongjiang) through the dealer system.

5.2.2 Customer Retention Strategy

In order to ensure the continuity and stability of customer resources in an intensely competitive market, the Company must establish a sound customer retention mechanism to improve customer satisfaction and repurchase rate and reduce customer turnover.

First, build a perfect customer relationship management system, use CRM system to integrate customer information, realise refined management of customer data, and formulate targeted customer maintenance plan. Carry out regular customer satisfaction surveys, improve products and services in a timely manner according to customer feedback, and achieve a rapid response to customer needs.

Secondly, formulate loyalty incentive plan, for different types of customers, launch membership points, VIP exclusive services, customised offers and other incentives, establish long-term cooperation mechanism, and encourage customers to choose the company's products and services in a long-term and stable manner.

Third, to provide a full range of after-sales service, set up a dedicated after-sales service team to provide timely technical support, product training and regular return visits to ensure that customers use the process of rapid problem solving. Establish product upgrading and maintenance plans to provide customers with continuous value-added services to enhance customer trust and reliance.

Fourth, strengthen customer interaction and communication, regularly organise customer exchanges, technical seminars and online interactive activities, invite key customers to participate in the enterprise development planning and product improvement discussions, to form a good customer interaction ecology, and promote the common growth of customers and enterprises.

Table 5.2 Retention Policy Implementation Plan

Strategic Measures	Key Initiatives	Expected Outcomes	Implementation Period
Customer Relationship Management	Establish and optimize CRM system; conduct regular customer satisfaction surveys	Achieve customer data sharing and improve customer satisfaction	Short-term, Ongoing
Loyalty Incentive Program	Introduce membership points, VIP exclusive services, and tailored discount policies	Increase customer repurchase rate and reduce churn rate	Mid to Long-term
Comprehensive After-sales Service	Establish a dedicated after-sales team; provide technical support, product training, and regular follow-ups	Rapidly respond to customer needs and enhance product usage experience	Short-term, Ongoing
Customer Interaction and Communication	Regularly host customer networking events, technical forums, and online interactions; invite key customers to participate	Deepen customer trust, promote word-of-mouth marketing and long-term cooperation	Mid to Long-term

Source: Author (2025)

5.2.3 Sales strategy

In order to achieve a steady increase in sales revenue and market share, the Company, on the basis of the original market segmentation, also needs to formulate differentiated sales strategies for different product categories and regional markets, and improve sales channels and team management.

With the help of multi-channel sales network construction combining direct sales and distribution mode, give full play to the role of regional agents. While maintaining the advantages of the traditional direct sales model, we focus on expanding the distribution network in strategic regions (e.g. Shanxi, Shaanxi, Inner Mongolia) and resource-intensive areas to enhance regional market coverage. Product differentiation sales strategy According to the product market positioning, the products are divided into three levels: high-end (Class A), mid-range (Class B) and supporting accessories (Class C). For high-end products, we focus on the development of large customers, group customers and key coal mine terminals; for mid-range products, we strengthen the cooperation with coal mine integrators and system integrators; for supporting accessories, we realise bundled sales through the channels of existing large customers. Sales team performance incentives and training to establish a scientific sales performance assessment and incentive mechanism, clear sales targets and incentive standards to stimulate the enthusiasm of the sales team. At the same time, through regular training to enhance the sensitivity of sales staff to product technology, market dynamics and customer demand, to ensure that the sales team can provide professional and efficient solutions. Data-based dynamic sales management uses big data and market research to monitor sales channels and customer feedback in real time and adjust sales strategies in a timely manner. By establishing a sales data analysis platform, it helps management to quickly identify problems and formulate improvement measures, so as to better respond to market changes and competitive challenges.

Table 5.3 Sales strategy and execution plan

Sales Strategy	Target Customer/Region	Key Initiatives	Expected Outcomes	Implementation Period
Multi-channel Sales Network Development	Resource-intensive areas (Shanxi, Shaanxi, Inner Mongolia)	Strengthen coordination between direct sales and distribution channels; expand key regional agency network	Enhance regional market share and increase channel coverage	Short-term, Mid-to-long-term
Differentiated Sales for High, Mid, and Low-end Products	High-end customers (coal mine terminals, large groups), mid-tier customers (integrators), low-end customers (accessories)	Develop specialized sales plans for different product categories; offer customized solutions and bundled sales strategies	Increase sales revenue structure and satisfy multi-level customer needs	Mid-to-long-term
Sales Team Incentives and Training	All sales personnel	Establish clear sales targets, performance evaluation, and reward mechanisms; conduct regular product and market training	Boost sales motivation and increase conversion rates	Short-term, Ongoing
Data-driven Sales Management	All-channel sales and customer base	Build a sales data analysis platform to monitor market feedback and channel performance in real time; adjust sales strategies promptly	Improve decision-making efficiency and enhance market responsiveness	Short-term, Ongoing

Source: Author (2025)

Based on the comprehensive analysis of the company's current internal limitations and external macro-environment, this project puts forward innovative marketing mix improvement suggestions under the framework of the original STP and 4P theories, with a view to forming a breakthrough in promotional strategies and enhancing the competitiveness of the enterprise in the market. First of all, the company should actively build a digital omni-channel marketing platform to break the traditional limitations of point-to-point sales, and make full use of online media, big data analysis and social platforms to achieve precise positioning and interactive communication to target customer groups; this shift from ‘single promotion’ to ‘integrated communication’ mode will help the company to achieve a breakthrough in its promotional strategy and enhance market competitiveness. This shift from ‘single promotion’ to ‘integrated communication’ helps to improve brand awareness and customer loyalty. Secondly, in view of the current problem of insufficiently clear target market segmentation, it is recommended to learn from the customised marketing strategy and design promotional activities specifically for different market segments, such as professional seminars, technical forums, customer experience days, etc., so as to enhance customers' knowledge of the product's technological advantages and safety performance, and to improve the product solutions through interactive exchanges and the formation of a benign feedback mechanism. Again, the company should consider regional differences, according to the policy guidance, market maturity and competitive situation in each region, to develop flexible promotional incentives, such as the implementation of time-limited discounts in key markets, and cross-border promotional activities jointly with the industry's leading enterprises, with the help of policy support and the industry transformation dividend, to enhance the market penetration rate of the product. Finally, emphasise the synergistic effect of promotional activities and brand building, focusing not only on short-term promotional effects, but also through a sustained brand communication strategy, shaping the company's professional image and technological leadership in the context of the intelligent transformation of coal mines. Overall, this series of promotional strategy innovations based on in-depth analysis of the internal and external environment not only fits the current external trend of the industry's intelligent transformation and policy promotion, but also provides solid theoretical support and practical paths for the company to establish unique competitive barriers in the midst of fierce competition.

6 - Marketing-Mix

6.1 Product

6.1.1 Technological improvements and innovations in existing products

Mining basic products have high sales but low prices, which only cover the cost of the company during 2018-2020. in the second half of 2020, the company launched intelligent products of categories 4 and 5, which were available by the end of 2021, resulting in an increase in sales. on 26 July 2021, the National Energy Administration (NEA) issued the "Acceptance Measures for Intelligent Coal Mines", which specifies the construction requirements for 11 systems, of which intelligent comprehensive mining, tunneling and safety monitoring weighted at 44%.S company's products all meet the basic scoring requirements and can be technically improved to gain extra points.

Table 6.1 Direction of Product Renewal in company

Category	Extra point indicator	Products involved	Current status	Product Update Direction
Information infrastructure	F5G and 5G converged networks have been established in the well and downhole to achieve stable transmission of various types of information, and 3-5 points may be added as appropriate.	IV Class IV used equipment retrofit products, Class 5 mining communications signalling equipment	All products currently rely on fibre optic + 4G + wifi5 to transmit data.	Transmission data method update 5G+WIFI6 integrated base station
Tunneling systems	Coal seam roadway excavation to achieve a monthly footage of more than 1500m, digging face personnel less than 7 people, can be increased by 3-5 points as appropriate.	Remote control system for roadheaders	Current corporate products meet basic scoring metrics	Intelligent digging face centralized control system, integrating intelligent digging, intelligent anchor protection and intelligent auxiliary transport. Realize fully unmanned operation of digging face.

Source: Author (2025)

6.1.2 Implementing a product service strategy

Competition in the underground coal mine explosion-proof electrical industry is becoming more intense. In order to enhance the reputation of the company, it is crucial to improve the quality of products and services, and providing complementary services for different products can further enhance the value of the products.

1.Create quality records for sold products. For each product sold, a quality record should be created and regular customer visits should be conducted to quickly address any product issues. The after-sales technical team should share these records with the RandD department in order to determine the direction of product improvement, accelerate product innovation and continually improve service standards.

2.Implement spare parts management strategies. Considering that coal mine explosion-proof products are closely linked to the safe production of coal mines, spare parts not only affect the level of after-sales service, but also provide customers with parts in a timely manner and reduce their potential losses. For this reason, company S should endeavour to support the safe production of coal mines by supplying customers with high-quality and reasonably priced spare parts to ensure the maintenance and expansion of its customer base.

6.1.3 Developing products for other application scenarios

On 17 November 2021, Premier Li Keqiang convened an executive meeting of the State Council to make a decision to promote the green and low-carbon transformation of the coal mining industry, through the establishment of a 200 billion yuan special refinancing for the clean and efficient use of coal. On the basis of the previous financial support measures for carbon emission reduction, the scale of the policy is further expanded. Thus, the intelligent construction of coal washing plant is the key direction of the coal mining industry in the future, S company have not yet entered this field, but considering the national policy and the trend of "carbon neutrality", safe and efficient intelligent control in the intelligent coal washing plant will be the focus of R and D of S company, the specific design direction is shown in Table 6.2

Table 6.2 Scenarios for the use of products in coal washing plant S company

Coal washing plant production operation guarantee system	Intelligent monitoring	Equipment condition monitoring
		Monitoring of equipment parameters
		Equipment status and parameter control
		Monitor page customization
	Smart Video	Intelligent Viewing of Surveillance Video Push
		Personnel electronic perimeter security monitoring and alarm
		Image recognition of scraper pulling slopes and belt anti-tearing
		Very large block image recognition

Source: Author (2025)

6.3 Price

6.3.1 Improvement of the original product pricing mechanism

For the coal mine underground coal mine basic monitoring equipment, electrical equipment, has entered the industry "red sea market" status quo. In order to maintain the original market share, for the original products within the company this red sea market, you can slightly lower the profit target, to maintain the original market share. And more corporate resources transferred to the development of newer coal mine intelligent products, to develop new products and new technologies.

6.3.2 Combination of skimming and penetration pricing for new products

Considering the wide range of applications of the new coal mine underground intelligent system launched by company S, there are a large number of potential customers and a huge market capacity, its products will be priced differently.

Product 1 has national patent-based technology and high RandD costs. In order to recover costs and reduce risks as quickly as possible, it is targeted at large coal mine producers, which have strong purchasing power and are less price sensitive. Therefore, skimming pricing strategy will be implemented for Product 1.

For the new products 2 and 3, due to competition and market maturity, company S will shift from skimming to penetration pricing strategy. This is to maintain its competitiveness in the market and to attract potential customers who are more price sensitive.

Product 6 and Product 7, these are retrofit products for roadheaders and IMMs. Given that the cost of retrofitting is close to the cost of purchasing new equipment, it was decided to adopt a penetration pricing strategy. This strategy aims to reduce product pricing by reducing costs, thereby attracting target customers and increasing market share.

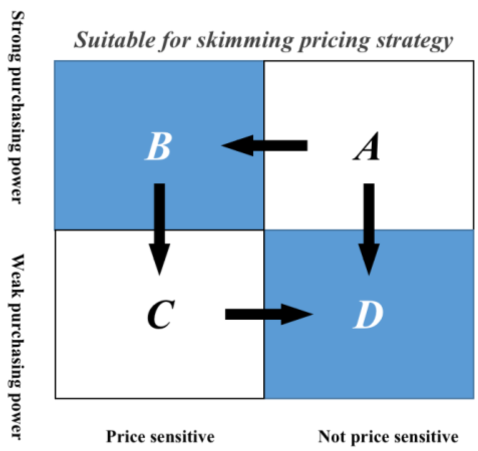

Figure 6.1 Skimming Pricing Method
Source: Author (2025)

6.4 Place

6.4.1 Expanding distributor locations

Through distributors, firms are able to reduce their financial risks.company S's strategy of direct sales as its core business, supplemented by distribution, has yielded good results and profitability for nearly 20 years. During these 20 years, company S's core business has been concentrated in the regions of Henan, Shanxi and Shandong. Among them, Henan has a market share of about 40%, Shandong 25%, and Shanxi only 10% despite its large market. For further development, company S intends to recruit more distributors in the untapped market segments in China. They will refer to existing successful distributors for selection, evaluate the capabilities of potential and existing distributors, and create a distributor evaluation system.

This thesis analyses the data of 17 distributors over a 5 year period and divides distributors with similar characteristics into groups through cluster analysis in spss to study their commonalities and find a direction to develop new distributors for growth.

Table 6.3 company S Distributor Cluster Analysis Feature Items and Scales

Scale content	Score	Descriptions	Scale content	Score	Descriptions
Area scale	1	Neimeng	Cumulative Order Amount	1	Within 10, 000
	2	Hebei		2	10000-500000
	3	Henan		3	60000-100, 000
	4	Shanxi		4	110, 000-150, 000
	5	Shandong		5	Above 160, 000
Average order value	1	Within 10, 000	company size	1	Small and microcompany
	2	10000-50000		2	Group companies
	3	60000-100, 000			
	4	110, 000-150, 000			
	5	Above 160, 000			

Source: Author (2025)

In the scale, the regional scores are based on the number of distributors in each province, with Shandong defined as 5 and Inner Mongolia as 1. The cumulative order value and average order value are also scored in descending order. The data is extracted in Table 6.4 after scoring according to the scales.

Table 6.4 Data Scoring Scale for Distributor Characteristics of company S

Serial number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Area code	5	5	3	2	4	1	5	5	3	4	4	4	4	3	2	4	5	3	4	2	2	3	4	2
Buyback	5	3	3	2	1	1	1	1	1	1	1	1	1	3	2	1	3	1	1	2	2	3	1	2
Company size	1	1	1	1	1	1	1	2	1	2	2	1	1	1	1	1	1	1	2	1	1	1	2	1
Cumulative Order Amount	5	2	2	2	1	5	1	4	1	3	3	2	2	2	2	1	2	1	3	2	2	2	3	2
Single Order	4	1	1	1	1	5	1	4	1	5	5	2	2	1	1	1	1	1	5	1	1	1	5	1
Product Classification	1	2	2	1	1	5	1	4	2	4	4	1	1	2	1	1	2	2	4	1	1	2	4	1

Source: Author (2025)

Cluster analysis was performed using IBM SPSS Statistics 25. there are a total of three types of distributors in company S.

Class A distributors mainly focus on distributing the original basic products of the company, and they have been cooperating with S for a long time, and the cooperation relationship is relatively stable, but most of the distributors are small and micro-company, and the distribution effect is not good.

Distributors in category B are distributors that have been cooperating with company S for a relatively short period of time but have excellent distribution performance, and mainly distribute the latest products of the company, and the company in this category are large in scale.

There is only one distributor in category C, which has been cooperating with company S for a long time and the cooperation relationship is relatively stable. This company is a small and micro company with excellent distribution effect, and its main business is the distribution of peripheral products in the coal mining industry, and it has rich experience in distribution.

From the above results, it can be seen that the focus of company S's distributor development is to find the commonality between Class B and Class C distributors, i.e., to develop distributors who mainly focus on products in the coal mining industry and group-type company distributors.

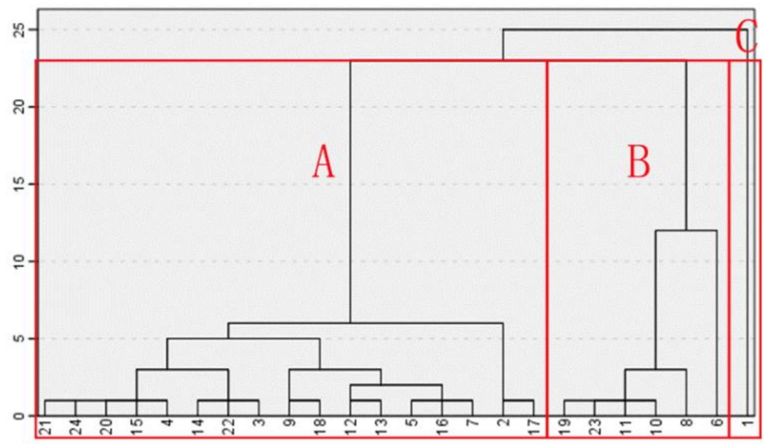

Figure 6.2 Clustering of Distributors in company S

Source: Author (2025)

6.4.2 Regulate distributor management programme

(1) Quarterly Distributor Training Programme company S should establish a set of distributor training programme to manage and motivate the distributors in a timely manner, to help the new distributors to quickly understand the products and performance of company S, and to enable the new distributors to develop rapidly.

(2) Establish a distributor level assessment system and develop complete evaluation criteria.

(3) Implement regional or product divisions for distributors to avoid the undesirable state of internal conflict among distributors. Arrange employees within the marketing team to be responsible for managing the business of approaching distributors in order to better understand the dynamics of different regional markets, and to communicate more with distributors and serve them more while understanding and managing them.

6.5 Promotion

6.5.1 Promotion through value-added services

When the production equipment breaks down, it may lead to high production costs.company S can provide customers with 24/7 online service and promise after-sales service with 24-hour arrival at the site nationwide, which can be used for promotion as the company's speciality service.

company S can also utilize the online smart data cloud service to attract customers. Currently, company S sells products covering both underground and surface system platforms, and can provide customers with a free "cloud platform" service, which allows customers to view underground videos, communication status and digging information with an app or browser.

6.5.2 Promotion through accessory products

At present, company S provides customers with 5 % of spare parts for all its products, and, depending on the nature of the product, the company

The warranty period of the product varies from 18 months to 36 months. Within the scope of controllable cost of spare parts, this thesis has developed a schedule of spare parts promotional programme as shown in Table 6.5.

Table 6.5 Schedule of promotional programs for accessories in company S

Benchmark	Grading criteria	Promotional Programs
Customer unit cost	Less than ¥10, 000	Provision of 3% of spare parts
	¥10, 000-¥50, 000	Basic type accessories under ¥80, such as remote control buttons, etc. are permanently replaced free of charge
	¥50, 000-¥100, 000	Spare parts under ¥350, such as remote control dual-axis grips, etc. are permanently replaced free of charge
	Basic products over ¥100, 000	Spare parts under ¥600, such as switching power supply, etc. free replacement within 3 years
	System products over ¥500, 000	Spare parts under ¥1200, such as control box terminal boards, etc., are replaced free of charge within 3 years.
Frequency of purchases by client companies	1-3 times	Provision of 3% of spare parts
	4-5 times	Provision of 6% of spare parts
	5 or more	Provision of 9% of spare parts
Whether sole supplier	Yes	Spare parts under 300¥, such as switching power supply, are replaced free of charge within 5 years, and the rest of the standard selection of larger discounts.
	No	Reference to remaining standards
Remarks: If there is any overlap in the offer programme, the largest offer will be selected.		

Source: Author (2025)

In terms of customer acquisition targets, we strive to increase the number of new customers by more than 20% per year compared with the previous year through multi-channel marketing (e.g. digital marketing, industry exhibitions, targeted advertising and partnership building). Establish and improve the potential customer information database, segmentation of target customer groups, to provide data support for subsequent precision marketing and follow-up services. For regions with weak existing market coverage, formulate special promotion plans to increase local market share and strive for breakthroughs in strategic regions.

In terms of customer retention targets, introduce or improve the CRM system, establish a perfect customer tracking and return visit mechanism, and achieve continuous improvement in customer satisfaction and loyalty. Formulate standardised and personalised after-sales service processes, conduct regular customer satisfaction surveys, and continuously improve service quality based on feedback; at the same time, through value-added services such as customised solutions, technical support and training, we will increase the repeat purchase rate of our customers to more than 30%. Establish a customer points or membership system, design differentiated incentives to encourage long-term cooperation and word-of-mouth communication, and further reduce customer turnover to less than 5%.

In terms of brand building and market segmentation objectives, the company's brand awareness and reputation in the field of coal mine explosion-proof electric communication will be enhanced through online and offline integrated communication, professional forums, case sharing, etc., to form a unique competitive advantage. According to the characteristics of customers' industry, scale, geography and demand, carry out refined market segmentation and formulate differentiated marketing strategies in order to achieve targeted promotion and efficient allocation of resources.

In terms of product and technology innovation targets, we formulate product renewal and replacement plans in conjunction with market feedback and technology development trends to ensure that new products are ahead of market demand in terms of safety, intelligence and adaptability. We will strengthen information sharing and synergy between technology research and development and market services, and promote the integration of product and service improvement to meet the diversified needs of customers.

7 - Implementation plan

In order to ensure the successful implementation of company S's new marketing programme, this chapter will detail the implementation timeline and potential challenges. Through the programme and the corresponding safeguards in this thesis, the goal is to solve the company's existing marketing problems and complete this study.

7.1 Schedule

S company need to develop a corresponding implementation schedule based on the previous marketing and commercial strategy to clarify the division of labour in each department and to carry out effective marketing strategy activities. According to the improvement marketing strategy above, to improve the quality of the company's marketing staff and the research level of the researchers. Refer to Table 7.1 for the specific schedule.

Table 7.1 Time schedule for the implementation of the marketing strategy improvement programme in company S

Organization of Work	Concrete Content	Department Responsible	Starting Time	End Time
Market Analysis	Determine the direction of product development through professional research organizations, participation in industry activities, and interpretation of policy information.	Technology Development Department, Management Department	2025/1/1	Carry on
Positioning (Marketing)	Maintain customer files and improve customer classification.	Operations Department	2025/2/1	2025/12/30
Product Development	Based on market demand and national requirements, actively develop and promote new products.	Technology Development Department	2025/2/1	Carry on
Pricing Discussion	Involvement of project department, R&D department, and finance department in pricing discussions for new and old products.	Technology Development, Operations, Finance Department	2025/2/1	2026/01/30
Channel Development	Based on the results of distributor clustering analysis, develop new effective distributors.	Operations Department	2025/1/1	2026/04/30
Product Quality Records and Improvement	Create quality records for each sold product, conduct regular customer visits, and quickly address product issues.	After-sales Technical Team,R&D Department	2025/3/1	Carry on

Spare Parts Management Strategy	Provide high-quality and reasonably priced spare parts to ensure customers receive timely support.	Operations Department, Supply Chain Management Department	2025/3/1	Carry on
Intelligent Coal Washing Plant Product Development	Develop a safe and efficient intelligent control system for intelligent coal washing plants, including intelligent monitoring and smart video functions.	Technology Development Department, Operations Department	2025/1/1	2026/06/30
Marketing Staff Training and Improvement	Enhance the professional quality of marketing staff through regular internal training and external learning.	Human Resources Department, Marketing Department	2025/2/1	2026/03/31
Researchers' Research Level Improvement	Strengthen the technical capabilities of researchers by participating in industry seminars and collaborative projects.	Technology Development Department, R&D Department	2025/4/1	Carry on

Source: Author (2025)

7.2 Budget

The following is a detailed plan on the marketing mix of various proposals and their budget allocation, to provide financial security for the smooth implementation of the company's subsequent marketing programme, to ensure that the various strategies to land and play the expected results. The table lists the specific proposals under the four dimensions of products, prices, channels and promotions and their corresponding budget arrangements, the budget value is the estimated amount of input (unit: 10000 yuan), the budget is based on market research, internal resource integration and the expected results of the scientific allocation.

Table 7.2 presents the proposals based on the marketing mix (4P) and their budget plan table

Marketing Mix Proposal	Budget Amount (10K CNY)	Remarks
Product Perspective		
Technical Improvements and Innovations – Enhance existing product performance and safety	300	Upgrade technology and improve the quality of current products
Implementing Product Service Strategy – Perfect the after-sales service system	200	Establish a full-cycle service process to boost customer satisfaction
Developing Products for Other Application Scenarios – Expand product application areas	250	Develop diversified products based on market demand
Pricing Perspective		

Improving the Original Product Pricing Mechanism – Build a scientific pricing model	150	Introduce a dual regulation mechanism based on cost and market factors
Skimming and Penetration Pricing Strategy – For new product market promotion	180	Adopt differentiated pricing to enhance market penetration
Channel Perspective		
Expanding Distributor Coverage Areas – Develop new regional agency networks	100	Increase efforts in regional market promotion
Standardizing Distributor Management System – Strengthen partner incentive mechanisms	80	Establish a comprehensive distributor evaluation and incentive system
Promotion Perspective		
Value-added Service Promotion – Enhance brand image through technical services	120	Strengthen customer loyalty with customized solutions
Accessories Product Promotion – Bundle sales and package discounts	90	Drive additional product sales to increase overall sales
Total Budget	1470	Overall budget for all marketing mix proposals

Source: Author (2025)

The above budget planning is based on the initial input of each marketing proposal, and can be dynamically adjusted according to the market feedback and implementation results, so as to ensure that the company's marketing strategy meets the actual needs and has a high efficiency of capital utilisation.

7.3 Control and Assessment

Table 7.3 Key evaluation indicators and their target values for each proposal of the marketing mix

Marketing Proposal/Objective	Evaluation Metrics	Target Values
Product Perspective		
Technological Improvements and Product Innovation	Product upgrade completion rate, customer satisfaction, complaint rate	Upgrade completion rate ≥ 90%; customer satisfaction ≥ 85%; complaint rate ≤ 2%
Implementation of Product Service Strategy	After-sales response time, customer repurchase rate, service rating	Response time ≤ 24 hours; repurchase rate increased to ≥ 25%; service rating ≥ 4.5/5
Development of Products for Other Application Scenarios	New product sales proportion, market share, RandD input-output ratio	New product sales proportion ≥ 40%; market share increase by 5%; input-output ratio ≥ 1.5
Pricing Perspective		
Improvement of the Original Product Pricing Mechanism	Pricing deviation rate, product profit margin, competitiveness score	Pricing deviation rate ≤ 5%; profit margin increased by 3 percentage points; competitiveness score ≥ 8
Skimming and Penetration Pricing Strategy	New product market penetration rate, customer conversion rate	Market penetration rate increased to ≥ 30%; customer conversion rate increased by 10%
Channel Perspective		
Expansion of Distributor Coverage Areas	Number of distributors, regional sales growth rate	Distributor count increased by 20%; key regional sales growth rate ≥ 15%

Standardization of Distributor Management System	Distributor satisfaction, cooperation stability	Distributor satisfaction ≥ 80%; cooperation stability ≥ 90%
Promotion Perspective		
Value-added Service Promotion	Service satisfaction, customer retention rate, value-added service revenue ratio	Service satisfaction reaches 90%; customer retention rate increased to ≥ 70%; revenue ratio ≥ 20%
Accessory Product Promotion	Additional product sales growth rate, bundle sales ratio	Additional product sales growth rate increased by 15%; bundle sales ratio increased to ≥ 50%

Source: Author (2025)

Through the above evaluation system, the company can collect and analyse various data on a regular basis (e.g. quarterly or half-yearly) to monitor the implementation of the marketing strategy throughout the process. If it is found that a certain index has not reached the expected target, the company should carry out timely analysis of the reasons, combine with internal resources and the market environment, and quickly adjust the programme to ensure the consistency and synergy between the overall marketing plan and the strategic objectives of the company.

7.4 Key points to the implementation success

7.4.1 Institutional safeguards within the company

Improve business processes and ensure long-term stability and continuous improvement by establishing a sound marketing management system to ensure the smooth progression of each project. For S corporations, all contracts, except those with leading companies, should use the S corporation's uniform template and clarify its terms. If the client requests the use of its contract template, the template is first submitted to the company's lawyers for review. Only after the attorney confirms that the transaction risk is acceptable can the product sales contract be submitted to management for approval. Once approved, the sales team can sign the contract. Once the contract is signed, the administration team is responsible for filing and entering it for subsequent financial and audit purposes.

7.4.2 Product research and development technology innovation guarantee

For the company's regular mine explosion-proof products, We ensure ample technical reserves. As China coal mines undergo renovations and development, the company continually updates products to meet the actual needs of coal mines.We enhance the management of our RandD team, specifying roles like market demand, coal mine surveys, product design, and testing. Given the shortage of technology and industry talents and the scarcity of similar new products in the market, we plan to recruit more industry experts and reinforce talent development strategies to support product technology and market expansion.

7.4.3 Strengthening of guarantees for industry penetration activities

Every year there are various sizes and types of exhibitions in the coal sector, such as the China International Coal Mining Technology and Equipment Exhibition and the Taiyuan Coal Industry Technology and Equipment Exhibition. These exhibitions provide a major platform for the global mining community to showcase new products and technologies. As such, companies should be keen to participate in these events, deepen their presence in the industry and work to build their brand image.

8- Conclusion

Conclusions

Based on the classic marketing theories such as PEST, SWOT, STP and 4P, this project systematically analyses the internal and external environment and competitive situation of the company in the field of coal mine explosion-proof electrical communication by combining the internal data of Company S, customer interviews and market realities.

Through the cluster analysis and regional distribution study of S Company's customer data, it is found that the current enterprise mainly relies on the regional sales model, and the target market segmentation is too loose, failing to fully explore the heterogeneity of each market segment in terms of product demand, service experience and added value. Accurate market segmentation and positioning based on customer life cycle not only help enterprises to improve the efficiency of resource allocation, but also provide a direction for subsequent product upgrading and brand building.

The data show that although Company S has certain advantages in technology research and development and patent protection, the speed of product updating and iteration is lagging behind, and the pricing mechanism mainly relies on cost orientation, which makes it difficult to form a differentiated competitive advantage from competitors. Combined with the 4P marketing theory, this study points out that only through the construction of a flexible pricing mechanism centred on customer value and the simultaneous promotion of product innovation can we achieve a breakthrough in an environment of increasingly fierce price competition and increase our market share.

Internal analysis reveals that the current sales model of the company is dominated by direct sales and insufficient distribution network construction, making it difficult to form a multi-level and multi-channel market coverage. As a result, the company should actively explore new marketing channels integrating online and offline, and build an efficient and responsive customer service system by strengthening channel management and service experience improvement, so as to enhance customer stickiness and achieve a long-term win-win situation.

Analysis of the external environment shows that the national policy support for coal mine intelligence and safe production provides a strong impetus for the development of explosion-proof electrical communication products. At the same time, the mature application of digital technologies such as 5G, big data, artificial intelligence and other digital technologies for the transformation and upgrading of enterprises to bring new opportunities. Enterprises can only comply with the double drive of policy and technology to build a new ‘product-service-solution’ ecological chain, in order to solidify their own advantages in the fierce market competition.

Limitations of this study

Although this study has achieved certain results in the theoretical construction and empirical analysis, there are still some shortcomings. Firstly, the text mainly relies on the company's internal sales data in the past five years and some qualitative interviews, which is difficult to comprehensively reflect the dynamic changes of the entire explosion protection electrical communication industry due to the limited number of samples and geographical coverage. In addition, some of the data collection time point is more concentrated, the response to the latest market trends and technological evolution is slightly lagging behind. Although the thesis adopts a variety of classic marketing theories (e.g. STP, 4P, PEST and SWOT), in the process of combining theory and practice, there is insufficient exploration of emerging areas such as dynamic competition models, digital transformation paths and ecosystem building, and it fails to form a multi-level, cross-dimensional and comprehensive analysis framework. With the constant changes in the global economic environment, technological innovation and policy regulation, the static analysis of external factors in this project is difficult to fully capture the dynamic evolution of the future competitive landscape of the industry. It has not yet formed sufficient forward-looking judgement on how enterprises can flexibly adjust their strategies in the midst of uncertainty.

Suggestions for further research

According to data from the National Bureau of Statistics, coal prices have risen shockingly so far, and the prosperity index of the coal industry has been rising steadily. In order to ensure the safe production of coal mine-related industries and improve industrial productivity, coal company have increasing requirements for mechanized, automated and intelligent mining equipment, and the demand for such equipment is increasing. This provides development opportunities and more challenges for upstream explosion-proof equipment and intelligent equipment company in coal mines.

Based on the current marketing environment and business situation of company S, whether the commercial and marketing strategy formulated by the author for company S can make substantial progress and help the company to solve practical problems, the author will continue to track the statistics and formulate the next commercial and marketing strategy adjustment.

In response to the shortcomings of this project, the author will continue to conduct in-depth research and collect information on marketing theories and industry development in order to improve the subsequent strategies. As the coal industry is relatively more affected by the policy, and the update of coal mine related products should be adjusted in real time with the changes of the underground environment of the coal mine, so the company's products and marketing strategy will also adjust the research focus in time, to give the company a more matching marketing strategy, to help the S company to achieve long-term development in the industry.

Bibliographical References

An, Y. Z. (2021). Discussion on industrial marketing mode. *Vocational Education and Social Development*, (73).

Berry, L. L. (1983). Relationship marketing. In L. L. Berry, G. L. Shostack, & G. D. Upah (Eds.), Emerging perspectives on services marketing (pp. 25–28). *American Marketing Association.*

Cai, F., Kong, L. H., and Cheng, Z. H. (2023). Research on the progress, problems and countermeasures of coal mine intelligent construction of large coal enterprises. *China Coal*, (06), 14-18.Doi:http://doi.org/10.19880/j.cnki.ccm.2023.06.003

De Jong, A., De Ruyter, K., Keeling, D. I., Polyakova, A., and Ringberg, T. (2021). Key trends in business-to-business services marketing strategies: Developing a practice-based research agenda. *Industrial Marketing Management*, *93*, 1-9. DOI: 10.1016/j.indmarman.2020.12.004

Guan, L. P., Yusuf, D. H. M., and Ghani, M. R. A. (2020). Factors influencing customer purchase intention towards insurance products. *International Journal of Business and Management*, *4*(5), 70-79. DOI: 10.26666/rmp.ijbm.2020.5.9

He, N., and Y, K. (2020). Research on the intelligence of coal mine safety production management system. *China Mining Industry*, *29*(8), 82-85+116. Doi:http://doi.org/10.12075/j.issn.1004-4051.2020.08.028

Kotler, P. (2005). Marketing management (11th ed.). *Prentice Hall.*

Kotler, P., & Keller, K. L. (2016). Marketing management (15th ed.). *Pearson Education.*

Kowalkowski, C., Windahl, C., Kindström, D., and Gebauer, H. (2015). What service transition? Rethinking established assumptions about manufacturers' service-led growth strategies. *Industrial Marketing Management*, *45*, 59-69. Doi:http://dx.doi.org/10.1016/j.indmarman.2015.02.016

Li, M., Wan, K., and Zheng, S. (2015). Improvement of marketing channels for a manufacturing enterprise. *Enterprise Management,* (1), 64-67. Doi:10.12075/j.issn.1004-4051.2020.08.028.

Li, S. (2016). Enhancing confidence to adapt to the new normal and promote innovative development in the explosion-proof electrical industry. *Electrical Industry,* (8), 38-41.Doi:CNKI:SUN:DQGY.0.2016-08-019

Li, L. Y. (2017). Exploration and analysis of the development trend of China's coal science and technology under the energy revolution and economic new normal. *Coal Engineering*, *49*(03), 143-145+148.

Li, Y., and Gao, L. (2018). Influencing factors model and promotion policy of corporate social responsibility management mode. *Management Review,* 30(09), 186-198. Doi:10.11799/ce201703041. DOI: 10.11799/ce201703041

Li, W. Q. (2017). *Research on new energy development strategy of Hollinhe Coal Group Co Ltd* (Unpublished doctoral dissertation). Shenyang University, Shenyang Doi:CNKI:CDMD:2.1017.025326. DOI: CNKI:CDMD:2.1017.025326

Lin, J. (2019). Analysis of industrial product marketing strategy based on large customer marketing. *Goods and Quality,* (7), 192.

Lin, L., and Wu, G. (2007). Empirical research on the mechanism of service enhancement differentiation in Chinese manufacturing enterprises. *Management World,* (06), 103-113. Doi:http://doi.org/10.19744/j.cnki.11-1235/f.2007.06.012

Liu, B. (2020). Industrial product marketing strategy based on large customer marketing. *Quality and Market,* (22), 96-97.

Lv, M. D. (2022). Current situation and development trend of coal intelligent mining technology. *Inner Mongolia Coal Economy*, (22), 145-147. Doi:http://doi.org/10.13487/j.cnki.imce.023103

Mahamudul, H., and Sheikh, Y. (2019). Marketing of security and surveillance products. *Advances in Management*, *12*. DOI: 10.5281/zenodo.3372916

Meng, J. R. (2020). Analysis of the cognition of marketing and 4P theory. *Marketing Weekly*, (5), 78-79.Doi:1008-4428(2020)33-0078-02. DOI: 10.11799/ce201703041

Ma, X., and Chen, B. (2017). Problems and countermeasures in current industrial product marketing in China. *China Market,* (15), 258-259.

Doi:http://doi.org/10.13939/j.cnki.zgsc.2017.15.258

Mou, Y., and Zhao, J. (2021). Research on pure electric vehicle marketing strategy in the large user market based on 4P theory. *Science and Innovation,* (19), 14-15, 17. Doi:http://doi.org/10.15913/j.cnki.kjycx.2021.19.006

Neacsu, N. A., and Madar, A. (2021). Quality strategies applied on the market of integrated security systems. *Ovidius University Annals, Economic Sciences Series*, *21*(1), 630-636.

Niu, K. H.(2019). Ten Key Issues needing urgent Attention in the 14th Five-Year Plan of China's coal enterprises (Part 1). *China Coal,* volume 45 (8):9-12, 24 Doi:http://doi.org/10.19880/j.cnki.ccm.2019.09.003

Pan, L. X.(2021). Research on Spare Parts Marketing Strategy of H Company. *Shanghai International Studies University.*

Doi:http://doi.org/*10.27316/d.cnki.gswyu.2021.000092*

Peng, X. X. (2020). Research on digital marketing strategy of fast fashion clothing brands based on big data. *Research on Business Economy*, (14), 81-83. Doi:10.3969/j.issn.1002-5863.2020.14.022.

Qu, Y. (2020). Research on the application of 4P and 4C in enterprise marketing. *Modernization of Shopping Malls,* (13), 6-8. Doi:http://doi.org/10.14013/j.cnki.scxdh.2020.13.003

Raghavan, P．（2017）What US shale oil imports mean for India. *Economic and political weekly,* 52(40):15-17.

Ray, S. (2021). Implication of predictive maintenance for industrial marketing: a case study from the air compressor industry. *In Innovations in the Industrial Internet of Things (IIoT) and Smart Factory* (pp. 231-243). IGI Global. DOI: 10.4018/978-1-7998-3375-8.ch016

Wang, G., Yang, Z. L., and Wan, W. (2018). Exploration on the strategy of enhancing the competitiveness of new energy automobile industry. *Times Automobile*, (10), 71-73.

Wang, X. Z. (2020). Review and prospect of 50 years of coal mine safety production in China. *Coal Mine Safety,* 51(10), 1-4.Doi：http://doi.org/10.13347/j.cnki.mkaq.2020.10.001

Wang, Y., and Zhang, H. (2022). Design of the highest surface temperature test system for explosion-proof electrical appliances. *Highlights in Science, Engineering and Technology*, *15*, 331-335.

Yan, S. (2019). Analysis of international marketing of industrial and mining enterprises based on STP strategy--Review of face to face of Chinese Coal Enterprise Management in the new era. *Mining and Metallurgical Engineering*, *39*(5), 145.

Yang, X. W. (2019). The strategy of strengthening enterprise with talents is a necessary way to enhance the core competitiveness of enterprises--Based on the practical experience of Gansu Urban and Rural Development Investment Group Company. *Operation Manager*, (09), 74-75.Doi:CNKI:SUN:YNJR.0.2019-25-033

Yang, Z. X. (2020). Research on relationship marketing strategy of service-oriented transformation of small and medium-sized manufacturing enterprises. *Modern Marketing,* (01), 66-67. Doi：http://doi.org/10.19932/j.cnki.22-1256/f.2020.01.037

Yu, Z. H. (2019). Analysis on customer relationship management in industrial product marketing . *Chinese and Foreign entrepreneurs,* 26.

Zhan, Z. W. (2023). The key technology and development direction of intelligent mining of coal mine working face. *Energy and Energy Conservation,* (01), 82-86. Doi:http://doi.org/10.16643/j.cnki.14-1360/td.2023.01.050

Zhang, M. G., and Li, J. F. (2019). Adaptation to the new normal explosion-proof industry talent knowledge and skill cultivation strategy. *Contemporary Business News (Theory and Innovation)*, *12*.

Zhu, W. Z., Hou, H. F, and Wang, X. H. (2016). Analysis of the situation of explosion-proof electrical product manufacturers based on industrial product production licence. *Standard Science*, (05), 43-47.Doi:10.3969/j.issn.1674-5698.2016.05.008.

Appendices

Appendix 1 : Raw data and scoring sheet for company S customers

1	4	5	2	1	5	5	1
2	3	4	2	1	4	4	2
3	2	5	5	1	3	3	1
4	4	5	5	1	2	2	2
5	5	3	5	2	1	2	4
6	1	4	3	1	5	2	2
7	3	3	5	1	5	2	2
8	4	5	1	1	2	2	1
9	1	5	3	1	2	2	2
10	2	3	1	1	2	2	1
11	2	3	1	1	1	2	1
12	2	4	1	1	4	2	3
13	1	4	1	1	1	2	4
14	4	5	5	1	4	2	1
15	3	2	3	1	4	2	2
16	2	3	5	1	2	1	2
17	3	4	1	1	4	1	2
18	3	4	5	1	5	1	2
19	5	4	1	2	3	1	2
20	2	4	4	1	4	1	2
21	1	1	5	1	2	1	1
22	1	2	4	1	1	1	1
23	3	1	3	1	4	1	1
24	2	4	1	1	4	1	2
25	1	4	1	1	3	1	1
26	3	1	4	1	1	1	2
27	2	3	1	2	1	1	4
28	2	5	4	1	5	1	1
29	3	1	5	1	4	1	2
30	3	5	2	2	3	1	1
31	4	5	1	2	3	1	1
32	4	2	5	1	3	1	1
33	5	5	5	1	2	1	1
34	1	2	5	1	2	1	1
35	4	5	5	1	5	1	2
36	4	3	5	1	4	1	1
37	4	2	5	1	4	1	1
38	4	2	5	1	3	1	1
39	4	4	5	1	3	1	2
40	1	4	4	1	2	1	2
41	2	5	5	2	1	1	4
42	1	4	4	1	1	1	1
43	1	3	1	3	1	1	4
44	1	5	5	1	1	1	4
45	1	4	4	1	1	1	1
46	2	3	5	2	1	1	4
47	1	4	5	2	1	1	4
48	2	2	5	1	4	1	1
49	2	1	4	1	4	1	1
50	2	4	4	1	4	1	2
51	1	1	2	1	2	1	1
52	2	1	4	1	1	1	1
53	4	1	1	2	1	1	4
54	2	4	1	2	1	1	4
55	5	4	2	2	1	1	4
56	4	5	1	1	5	1	1
57	3	1	3	1	4	1	2

58	1	4	1	1	4	1	1
59	5	4	4	1	3	1	1
60	3	4	1	2	2	1	2
61	5	4	1	2	1	1	2
62	2	5	1	1	1	1	1
63	1	4	1	1	1	1	1
64	5	5	5	2	3	1	4
65	1	3	1	1	3	1	1
66	4	2	5	2	3	1	1
67	3	3	5	2	1	1	4
68	3	3	5	2	1	1	4
69	4	4	5	1	3	1	2
70	5	5	5	1	2	1	1
71	1	2	4	1	1	1	1
72	4	2	5	1	3	1	1
73	4	3	5	1	4	1	1
74	4	5	5	1	5	1	2
75	2	3	1	2	1	1	4
76	4	2	5	1	4	1	1
77	1	4	1	1	3	1	1
78	2	5	4	1	5	1	1
79	2	4	1	1	4	1	2
80	3	1	5	1	4	1	2
81	4	2	5	1	3	1	1
82	3	5	2	2	3	1	1
83	2	4	4	1	4	1	2
84	1	2	5	1	2	1	1
85	3	1	4	1	1	1	2
86	3	1	3	1	4	1	1
87	1	1	5	1	2	1	1
88	4	5	1	2	3	1	1

Appendix 2: Internal and external interview for S company

Interviewer information and reasons for interviews

Serial number	Nature of interviews	Interview Topics	Interviewee position	Reason for interview	Time and place
1	Inside (part, section)	Company development status, Company products, price, distribution problems, target market segmentation problems	General manager	The general manager of Company S has seniority in the coal mining industry, is the vice chairman of the China Coal Machinery Industry Association, and understands the development dynamics of the entire coal mining industry.	Location: Staff Office Time: 21 May 2024, 08:30 - 11:30
2	Inside (part, section)	Current sales problems faced by the Company, future sales target market, future product development direction, company distributor management problems	Director of Operations	The minister has been working in S company since the beginning of the company's foundation, and has been promoted from a front-line sales position to the head of the operation department, and is familiar with the current sales situation and market development dynamics of S company.	Location: Staff Office Time: 21 May 2024, 13:00-14:10
3	Inside (part, section)	Maintenance of existing product markets and marketing of new products.	Deputy Director of Operations	The minister is mainly responsible for the maintenance of customer company communication and the development of new customers and new markets.	Location: Staff Office Time: 21 May 2024, 15:00 - 16:00
4	Inside (part, section)	Intro-company financial issues, product pricing issues	Minister of Finance	The Minister has been with S company since the inception of the business and is familiar with the financial of the business and the pricing of its products.	Location: Staff Office Time: 22 May 2024, 09:00 - 10:30
5	Inside (part, section)	The problem of new and old products of the company, the future update direction of the company's products	Head of Research and Development	The minister has worked at S company since the beginning of the company and understands the current status of the company's products and the market's demand for them.	Location: Staff Office Time: 22 May 2024, 13:00 - 14:50
6	Inside (part, section)	Company original product sales problems, new product market development problems	Front-line sales staff	The employee is a 10-year sales veteran at company S. He is mainly responsible for sales operations in East China, North China and Central China.	Location: Staff Office Time: 22 May 2024, 15:00 - 16:30
7	Inside (part, section)	Original product sales issues	Front-line sales staff	The employee is a 10-year sales veteran at S company and is primarily responsible for sales operations in the Northwest, Southwest, and Northeast.	Location: Staff Office Time: 23 May 2024, 15:00 - 16:40
8	Inside (part, section)	Sales of new products to group customers	Front-line sales staff	The employee is a new sales employee though 2020.	Location: Staff Office Time: 24 May 2024, 08:30 - 09:30
9	Externally	Mining monitoring system products in sales and product use	Manager, Procurement Department	Shanghai Q company, which has the highest number of buybacks between 5 January 2017 and 1 November 2021, but purchases a	Location: Shanghai Q company Manager's

				single product	Office Time: 28 May 2024, 09:00 - 10:30
10	Externally	Mining monitoring systems, mining electrical equipment products in sales and product use	Manager, Procurement Department	Hebei L company, the company is an integrator company, mainly purchasing mining monitoring system products supporting and then sold to the coal mine, the longest cooperation time	Mode: On-line telephone Time: 2 June 2024, 08:00 - 10:30
11	Externally	Mining monitoring systems, mining electrical equipment products in sales and product use	Manager, Procurement Department	Shanxi T company, the company belongs to small and micro company, the single order amount in the amount of division in the medium segment, 2019 purchased S company products after the temporary no repurchase orders, in the no repurchase customer company is more typical.	Mode: On-line telephone Time: 5 June 2024, 10:00-10:30 p.m.
12	Externally	Mining monitoring systems, mining electrical equipment products in sales and product use	Manager, Procurement Department	Shandong Z company, the company belongs to the software information technology industry, the main procurement S company explosion-proof optical terminal, the product belongs to the system supporting products, the number of repurchase is not much, and the industry special are representative.	Mode: On-line telephone Time: 8 June 2024, 13:00 - 14:00
13	Externally	Feedback on the use of the old equipment retrofit service	Manager, Procurement Department	Henan L company, the company is the first company to adopt S company's roadheader transformation programme, also belongs to the group company class customers.	Mode: On-line telephone Time: 9 June 2024, 14:00 - 14:30
14	Externally	Feedback on the use of mining communication and signalling equipment products	Manager, Procurement Department	Henan P company, the company belongs to the group company, and is the first company to purchase the intelligent control system of the tunneling machine of S company, and is the company with the largest amount of cooperation in a single transaction.	Mode: On-line telephone Time: 11 June 2024, 14:00 - 15:30
15	Externally	Distribution problems of original distributors	Distributor sales staff	Shandong J company, which is the longest cooperating distributor of S company, mainly focuses on the sales of S company's mining monitoring system and mining electrical equipment products. It is the most representative of the distributors selling the original products.	Mode: On-line telephone Time: 13 June 2024, 09:00 - 09:30
16	Externally	Distribution issues for new distributors	Distributor sales staff	Shanxi X company, which is a distributor of S company Group companies and has the best sales volume and is the most representative among the distributors, mainly sells mining communication and signalling equipments and old equipment transformation services of S company.	Mode: On-line telephone Time: 15 June 2024, 11:00-11:30 p.m.

Internal interview questions for employees of S company

1.By what criteria do you think company S is segmenting the market?

2. Which market segments did company S select as its target market?

3. What are the characteristics of company S's target customers (markets)?

4. What is the market position of company S?

5. Is the market position of company S different from that of its competitors?

6. As a marketer, are you aware of old and new product features and application scenarios? What are the specifics?

7. What are the strengths of company S's new product over its peers? What are the weaknesses? Do you have any suggestions for product or service enhancement? (RandD Manager)

8. What is company S's pricing strategy? What is the main basis for pricing? Is it reasonably priced compared to its peers? What suggestions or ideas do you have about the company's pricing strategy?

9. Are company S's distribution channels well developed? What are the strengths and weaknesses compared to its peers?

10. Does Company S provide relevant training to its distributors, what are the approaches to distributor development, and what are your suggestions for improvement?

11.Does Company S have any promotional methods? What are some ways of brand communication?

External interview questions for company S customers

1.Do you think the products from S company can meet the needs of your company? Do you have any suggestions for the direction of product renewal and development of company S?

2.Do you think there are other, better ways for company S to promote its products in the industry?

3.What do you think of company S's product pricing? Do you think it is reasonable for company S to price its new and old products?

4. Since your company mainly purchases equipment through tenders, do you have any other suggestions for company S's promotional programme?

5. Since your company has purchased on-demand in its past purchasing activities, do you have any suggestions for promotions for S company?

6. As a distributor of company S, do you have any suggestions for company S in the marketing process