

# Central Maintenance Spin-Off Creation towards Digitalization Focused on the Parent Company: A Case Study of Integrated Steel Corporation (ISC) in Indonesia

Dani Akhmad Imaduddin<sup>1\*</sup>; Harimukti Wandebori<sup>2</sup>; Mohammad Hamsal<sup>3</sup>

<sup>1,2</sup>Business Leadership Executive MBA, School of Business and Management, Bandung Institute of Technology  
Jawa Barat, Indonesia 40132

<sup>3</sup>Management Department, BINUS Business School Doctor of Research in Management, Bina Nusantara University  
Jakarta, Indonesia 11480

<sup>1</sup>dani\_imaduddin@sbm-itb.ac.id; <sup>2</sup>harimukti@sbm-itb.ac.id; <sup>3</sup>mhamsal@binus.edu

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**Abstract** - The steel industry plays a crucial role in national development. Major global steel producers such as the United States, Russia, and Japan have seen declines due to the rise of China as a dominant steel producer. Integrated Steel Corporation (ISC) in Indonesia has also faced declining performance, with its market capitalization dropping by 68.9% over the past eight years. The research primarily aimed to analyze customer preferences in the maintenance industry and determine positioning strategies. Additionally, it sought to identify the factors driving the formation of the Strategic Maintenance Services (SMS) spin-off from ISC and propose strategies for SMS to achieve a competitive advantage. Data were collected qualitatively through interviews and Focus Group Discussions (FGDs) with customers to understand their perspectives, SMS management to grasp core business competencies and strategy, and ISC management to understand the parenting strategy. The results show several internal dynamics within ISC drove the formation of the SMS spin-off: 1) the transformation of the parent company; 2) short circuit incident at the main ISC factory; and 3) the cost burden of maintenance support. External factors indicate rapid industrial growth and the company's strengthening as a group after experiencing losses for almost a decade. The proposed strategy for SMS involves leveraging ISC's subsidiaries and joint venture companies for

centralized service maintenance. SMS aims to offer customized one-stop maintenance solutions with high quality at competitive prices by enabling Digital Maintenance Information (DMI). The target markets include large industries in steel manufacturing, petrochemicals, flour mills, cement, and logistics.

**Keywords:** Strategic Maintenance Services (SMS), digitalization, Integrated Steel Corporation (ISC)

## I. INTRODUCTION

According to Espinoza-Parada et al. (2020), the steel industry plays a crucial role in national development, even in Indonesia, which is not the largest producer globally. Based on Indonesian Iron & Steel Industry Association (IISIA, 2023), the steel industry is referred to as 'the mother of all industries' because steel is a fundamental material and supports almost all industries. Steel serves as a core component for a wide range of products, including infrastructure, automotive, and shipbuilding (Ministry of Economy, Trade and Industry, 2021). De Carvalho et al. (2023) reported in the Organization for Economic Cooperation and Development (OECD) Q4 2023 report that global steel demand remained high, driven by ongoing industrial and urban development. This demand is largely met by China, which has emerged as the largest player in the steel industry, with its

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\*Corresponding Author

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production capacity and market influence continuing to grow (Sun et al., 2020). In contrast, countries such as the United States, Russia, and Japan, once leaders in steel production, have experienced declines since the beginning of the 21<sup>st</sup> century. This shift indicates that China's dominance in the steel market significantly impacts other countries, especially those not dominant in the steel market. The decline in the steel industry is attributed not only to trade but also to technological advancements.

The steel industry is highly energy-intensive (Gajdzik & Sroka, 2021). Many steel producers are shifting from Electric Arc Furnace (EAF) to Blast Furnace technology, which involves prohibitively expensive investments and requires substantial capital. The research focuses on the Integrated Steel Corporation (company code: ISC) in Indonesia. From personal interviews, the company's annual report shows that it has experienced declining performance since 2012. At that time, ISC invested in a Blast Furnace Complex to enhance its production capabilities and fill technology gaps, but the project ultimately failed to operate successfully. Consequently, ISC's market capitalization dropped by 68.9% over the last eight years, from 18,930 billion Rupiah to 5,881 billion Rupiah. The declining performance is also reflected in the market share, which has decreased since 2010, leading to the discontinuation of one of its products, wire rods, due to high competition from domestic and international markets.

Considering macroeconomic dynamics, Indonesia introduced anti-dumping regulations in 2019 to protect the domestic steel industry and maintain competitiveness (Menteri Keuangan Republik Indonesia, 2019). In the same year, the parent company of ISC (company code: ISC) reported organizational and business restructuring, including downsizing due to its heritage as a labor-intensive steel company lagging behind Japan and Korea. During its four-year

transformation from 2019 to 2023, ISC reduced its workforce by 35%, from 3,479 employees to 2,254 employees, and over the last ten years, the workforce had been reduced by 70% from 7,490 employees. This streamlining was achieved through various efforts, such as early retirement programs and abandoning high operational cost factories.

The transformation agenda included a factory efficiency program, but it was not fully successful. Of the seven factories owned, five were declared non-operational, leaving only two main factories, Hot Rolled Coil and Cold Rolled Coil. These dynamics and decision-making improved the company's annual report, showing an increase in performance that could be sustained. Unfortunately, during this transformation, a short circuit occurred at ISC's main factory, causing a fire incident that impacted ISC's operational and financial condition, necessitating revitalization and reactivation efforts. In such conditions, supporting facilities become a financial burden. In the same year, their central maintenance facilities became Strategic Maintenance Services (company code: SMS) within one of the subsidiaries operating in the maintenance services sector.

Organizational change is related to strategy, culture, employee attitudes, organizational structure, technology, communication leadership, and employee development, all of which influence employee performance (Lailla & Mardi, 2022). SMS must be prepared to become a maintenance service business targeting external markets. If this organizational change is not properly managed by the management of ISC and SMS, it can lead to a decline in the quality of employee service delivery to customers (Archibong & Ibrahim, 2021). Apart from profitability and organizational considerations, internal ISC users must ensure that SMS can provide the same quality of service if their factory resumes operations, ensuring smooth maintenance activities to support production.

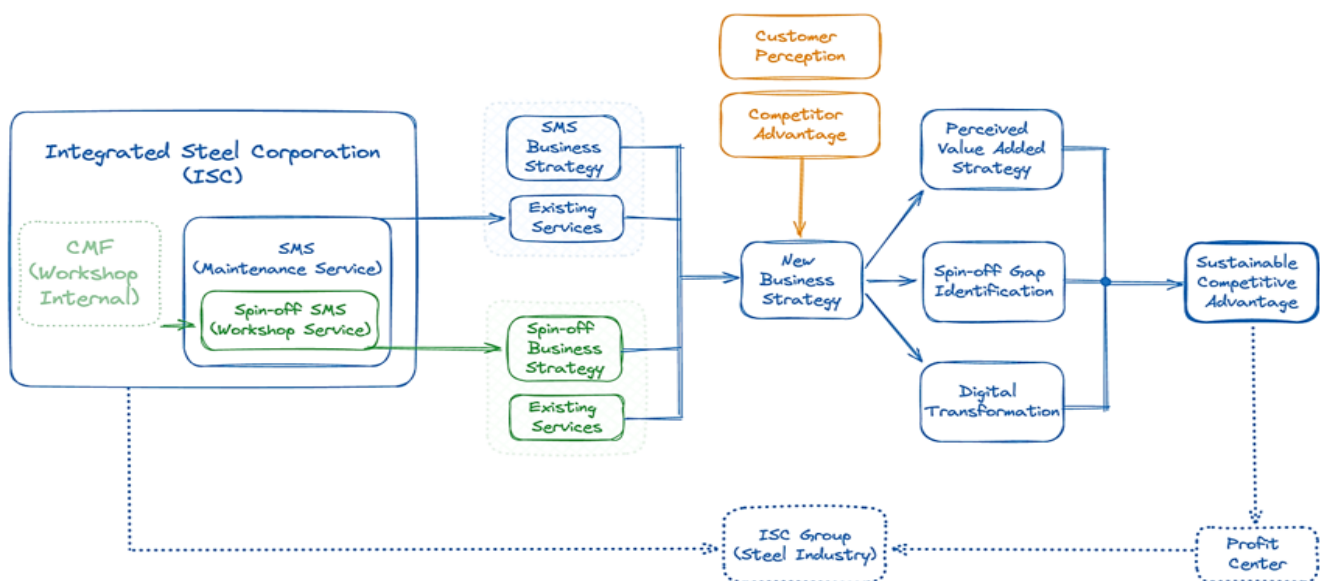


Figure 1 Strategic Maintenance Services (SMS) Spin-Off Strategy  
Source: Writers' Analysis Inspired by Rothaermel (2012)

This spin-off strategy is inspired by Rothaermel's theory on how competitive advantage can be achieved by analyzing industry and firm effects, which are interdependent, as depicted by a two-pointed arrow connecting them in Figure 1 (Rothaermel, 2012). In formulating a business strategy, it is necessary first to analyze the external environment and internal organizational factors. This approach acknowledges that the success or failure of a business is influenced by factors outside the company's control, and understanding these factors can reveal potential opportunities and threats that may impact organizational performance. Subsequently, it is essential to analyze the organization's internal factors, which include its strengths, weaknesses, resources, capabilities, and core competencies. Digital transformation in the maintenance business flow can further enhance the added value and sustainable business model offered to customers (Gregori & Holzmann, 2020). These internal elements shape an organization's ability to respond effectively to external and market opportunities and threats. According to Foster and Grannell (2022), strategy involves knowing where the business is going (vision) and choosing the path (strategic choices) to get there. Without strategic goals or ambitions for the organization, every possible choice and decision is valid, but progress will be difficult, if not impossible.

Porter's Five Forces model can enable firm leaders to understand the industry environment and shape firm strategy (Porter, 2008). According to the model, the stronger the five forces are, the lower the industry's profit potential is, making it less attractive to competitors. Conversely, weaker forces increase the industry's profit potential, making it more attractive. Industry effects result from the underlying economic structure of the industry and its impact on firm performance. Firm effects directly attribute firm performance to the actions of strategic leaders. In the case of SMS entering the maintenance industry,

Porter's Five Forces analysis helps to identify the strength of competitive forces in the sector, such as the bargaining power of suppliers concerning the number of suppliers, material availability, and competition within the supplier industry itself. It also analyzes buyers' bargaining power concerning their service preferences, switching costs, and purchasing power. Competitor analysis is another essential component, identifying potential new entrants by examining the barriers to entry, possible substitutes for the services offered at lower prices or better quality, and ongoing competition within the industry.

Several classifications of competitors have been found to simplify identification, such as groups of companies that are not currently in the industry but can overcome entry barriers at low costs, companies with synergies in this industry, companies extending their strategies into this industry, and customers or suppliers who may integrate backward or forwards (Porter, 2008). Porter's Four Corners analysis involves two dimensions: predicting what drives competitors and identifying their capabilities. Through these dimensions, companies can analyze competitors' strategies concerning their positioning, future strategies, values, and triggers for retaliation. The first step in a competitor analysis is identifying competitors' goals and assessing their achievement. SMS can then predict whether each competitor is satisfied with its current position, which helps to determine the likelihood of changes in their approaches and tactics in response to external events. The second step is to understand the assumptions competitors make about the growth of the consulting services industry and the company itself. SMS can predict competitors' actions and responses to developments by reviewing these assumptions. Establishing each competitor's current strategy is the third step in the analysis process, conceptualizing competitor strategy as the primary basis of operations in each business function and their integration efforts.

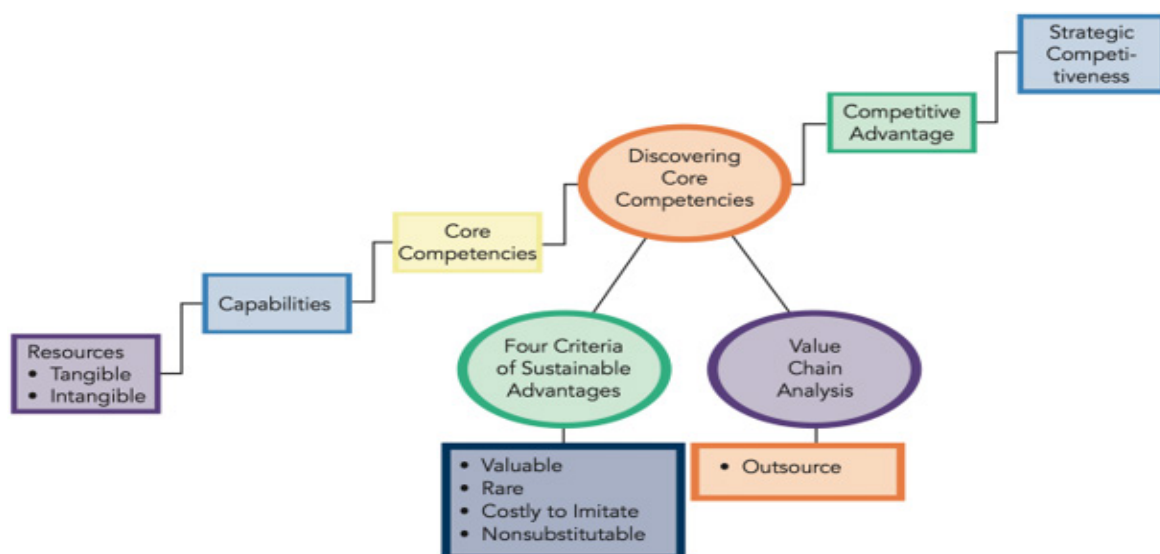


Figure 2 Internal Analysis to Lead Strategic Competitiveness  
Source: Hitt et al. (2016)

Resources are categorized into tangible and intangible (Hitt et al., 2016). Tangible resources include a company's borrowing capacity and the status of its visible physical facilities. Examples of tangible resources for SMS are buildings, machinery, equipment, inventory, and land. Tangible resources are easier to measure and value due to their clear physical existence. They contribute directly to production processes or operations and can be bought, sold, or used as collateral for financing. Despite the tangible nature of production assets, many processes are required to use intangible resources. Intangible resources provide superior capabilities and core competencies despite lacking physical existence. They are crucial to a company's success, influencing competitive advantage, market position, and long-term sustainability.

In analyzing the internal organization of a company, it is crucial to thoroughly examine its entire portfolio of resources and capabilities. This analytical perspective reveals that each company possesses unique resources and capabilities that are not found in others. Some core competencies can provide the company with a competitive advantage. Understanding how to leverage a company's unique resources and capabilities is a key outcome sought by decision-makers when analyzing an organization's internals. Figure 2, popularized by Hitt et al. (2016), illustrates the relationship between resources, capabilities, core competencies, and competitive advantage, demonstrating how these elements can produce strategic competitiveness and create value for customers. The analysis of core competencies can be assisted by the Value, Rare, Costly to Imitate, Organizational (VRIO) framework.

The VRIO framework posits that a resource must be valuable, rare, and costly to imitate, and the firm must be organized to capture the value of the resource. This framework positively impacts a firm's competitive advantage. Specifically, a valuable resource enables a firm to increase its economic value creation. A resource is rare if only one or a few firms possess it. If the resource is common, it results in perfect competition, preventing any firm from maintaining a competitive advantage. To capture value, the firm must have an effective organizational structure and coordinating systems to achieve sustainable competitive advantage (Rothaermel, 2012). After identifying the various resources, capabilities, or competencies of SMS, the

research employs an analysis method based on Table 1 to assess whether these resources, capabilities, or competencies result in a competitive disadvantage, parity, temporary advantage, unused advantage, or sustained competitive advantage.

The VRIO framework analysis provides insights into which competency gaps at SMS can be developed to achieve a competitive advantage. Researchers choose the VRIO framework analysis as a strategic tool to assess and enhance competitive advantage because it enables businesses to systematically evaluate their internal resources and capabilities, maximizing their potential to create value, identifying rare resources in the market by understanding how to prevent imitation by competitors and assessing the effectiveness of the organization in leveraging these resources. The VRIO framework emphasizes analyzing, processing, and executing work in industrial maintenance because each piece of equipment will always be different.

A "spin-off" is the process by which a company separates one or more parts of its business into a separate, independent entity. According to Maldaner and Fiorin (2018), the spin-off creation process framework shows that spin-off creation is an alternative for exploring stagnant resources in the parent company to obtain market opportunities. Separating and integrating spin-offs into the innovation environment is a strategy to reduce market barriers. Although factors such as public policy have limited influence on decision-making, they influence the spin-off formation process.

Table 2 explains that the spin-off process involves careful planning, execution, and post-spin-off management. The spin-off framework in Figure 3, popularized by Maldaner and Fiorin (2018), helps to investigate the driving factors behind ISC's decision to initiate a corporate spin-off. Through a rigorous analytical framework, the research explores three important dimensions. First, it requires a comprehensive analysis of the parent company's structure and the specific segments allocated to the spin-off. Second, the relevant factors influencing the separation decision include a wide range of considerations. Third, the spin-off process involves navigating the internal and external environment. Internally, it includes restructuring organizational hierarchies, reallocating resources, and managing human resource transitions. Externally, legal and regulatory compliance, communication with stakeholders, and market positioning are paramount.

Table 1 Value, Rare, Costly to Imitate, Organizational (VRIO) Table Analysis

Resources are ...				Impact
Valuable?	Rare?	Difficult to Imitate?	Organization?	Competitive Implication
No	-	-	-	Competitive Disadvantage
Yes	No	-	-	Competitive Parity
Yes	Yes	No	-	Temporary Competitive Advantage
Yes	Yes	Yes	No	Unused Competitive Advantage
Yes	Yes	Yes	Yes	Sustained Competitive Advantage

Table 2 Categories, Analysis Factors, and Related Case for Spin-Off Creation Framework

Categories		Analysis Factors	Related Objective
Characterization	Parent Company	Business aspects: business sector, core business, and portfolio. Entrepreneurship and innovation: R&D process, external actors, conducive culture to the creation and sharing of ideas, resource sharing policy, and spin-off policy in the parent company.	To characterize the organizational context of the parent company and spin-off.
	Spin-off	Business aspects: business sector, core business, and portfolio. Type of spin-off: motivation and support from parent company	
Influential Factors	Internal Environment	Relationship and support: relationship network (ability to establish alliances), HR and infrastructure, financial support or access to credit and investments, and operational freedom. Resource transfer: technology, intellectual, and human capital.	<ul style="list-style-type: none"> <li>- To identify the motivation, guiding the investment decision on a corporate spin-off,</li> <li>- To identify the resources involved, shared, and transferred from the parent company in the spin-off creation process.</li> </ul>
	External Environment	Public policy, market dynamics, and industry maturity.	

Source: Maldaner and Fiorin (2018)

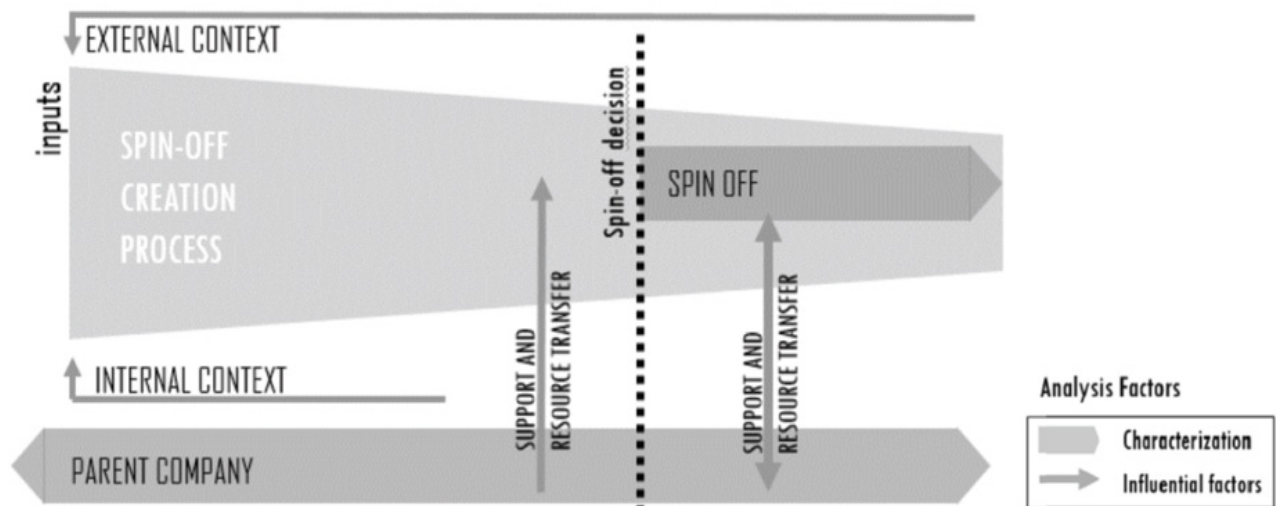


Figure 3 Spin-Off Creation Framework  
Source: Maldaner and Fiorin (2018)

Each step requires careful attention to detail, collaboration between departments, and alignment with overarching strategic goals. Additionally, the success of the SMS spin-off depends on effective communication and transparency with stakeholders, ensuring buy-in and support throughout the transition process. The SMS spin-off process represents a strategic maneuver undertaken by ISC as the parent company to unlock value, increase focus, and

capitalize on emerging opportunities. As emerging economies continue to expand, the strategic need for spin-offs is poised to play a critical role in shaping the future trajectory of traditional industries, driving innovation, and fostering sustainable growth.

Five business-level strategies have been identified in the Generic Strategy model, depicted in Figure 4. The firms must choose from to establish and maintain their desired strategic position relative to

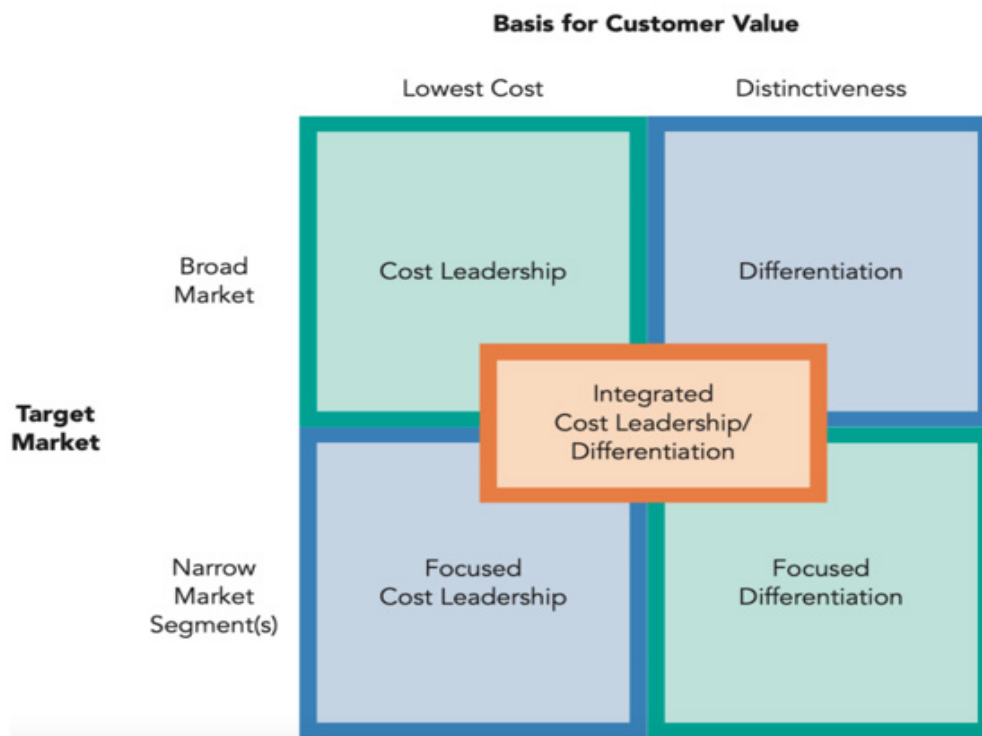


Figure 4 Porter's Generic Strategy  
Source: Porter (1980)

competitors: cost leadership, differentiation, focused cost leadership, focused differentiation, and integrated cost leadership/integrated differentiation (Porter, 2008). When selecting a business-level strategy, firms evaluate two types of customer value: lower cost than rivals or the ability to differentiate and command a premium price that exceeds the extra cost. They also consider two types of target markets: broad market and narrow market segment. While no single strategy is superior to the others, firms often find themselves “caught in the middle” if they fail to differentiate or provide the lowest-cost goods effectively, particularly when pursuing integrated cost leadership/integrated differentiation.

The primary objective of the research is to analyze customer preferences in the maintenance industry and determine appropriate service positioning strategies and target customer criteria. The secondary objective is to identify and analyze the factors and dynamics driving the formation of the SMS spin-off from ISC. Additionally, the research aims to propose actionable steps for SMS to develop and implement effective business strategies that align with market opportunities to achieve a competitive advantage. To achieve these goals, the researchers have meticulously collected qualitative data, including interviews, group discussions, and company reports, to understand the dynamics of the steel industry in Indonesia that compels ISC to diversify its business through spin-offs. The research also provides strategy recommendations for the success of SMS.

## II. METHODS

Research data are collected through qualitative methods using interviews and Forum Group Discussion (FGD) with various respondents. The methods include customers to understand their perspectives, SMS management to understand core business competencies, the overall maintenance industry, and current business strategy, and ISC management to understand the parenting strategy of the spin-off. The interview and FGD approach, as detailed in Table 3, employ standardized questions based on each objective, with semi-structured and open-ended questions. According to Creswell and Creswell (2018), in case studies involving real business units, phenomenology typically involves 3 to 10 samples per objective, with each objective represented by two samples to ensure consistency and credible results.

Data from interviews and FGDs are coded to extract the main ideas from each respondent. These primary data are supplemented with secondary data from books, journals, and articles. Table 4 outlines the data analysis methods. External factors are analyzed using Porter's Five Forces (Porter, 2008). Meanwhile, competitor analysis is conducted using Porter's Four Corners analysis (Porter, 1980). Then, internal analysis involves identifying tangible and intangible resources (Hitt et al., 2016) up to the VRIO framework (Rothaermel, 2012). Business strategy formulation begins with identifying the spin-off creation process (Maldaner & Fiorin, 2018) and concludes with strategy positioning recommendations based on Porter's Generic Strategy (Porter, 1980).

Table 3 List of Interview and Forum Group Discussion (FGD) in the Research

Position	Objectives
President Director of Strategic Maintenance Service (SMS)	- Maintenance Service Industry - Business Strategy
Head of Strategic Maintenance Service (SMS) Spin-Off	- Business Strategy - Marketing Strategy
Head of Commercial Strategic Maintenance Service (SMS) Spin-Off	- Marketing Strategy - Market Analysis
Engineering Maintenance Planning Steel Accommodation Logistics (SAL) (Integrated Steel Corporation (ISC) Joint Venture)	- Customer Perception - Competitor Analysis
Engineering Maintenance Planning HRC (Holding Integrated Steel Corporation (ISC))	
Senior Specialist Subsidiary & Affiliates Business Management Integrated Steel Corporation (ISC)	- Integrated Steel Corporation (ISC) Business Strategy for Strategic Maintenance Service (SMS)
Senior Engineering Mechanical Engineering Strategic Maintenance Service (SMS) Spin-off	- Internal Capabilities - Value Chain Analysis
Head of Workshop Strategic Maintenance Service (SMS) Spin-Off	

Table 4 Data Analysis Method Used in the Research

External and Competitor Analysis	Internal Core Competencies	Business Strategy
How to retrieve data		
Interview with customers, head of commercial, and sources from articles, journals, and other literature	Interview and Focus Group Discussion (FGD) with management and operational team of Strategic Maintenance Service (SMS)	Interview with management of Strategic Maintenance Service (SMS) and analysis results of external and internal findings. Additional sources from articles, journals, and other literature
How the data are analyzed		
Porter's Five Forces & Porter's Four Corner Analysis	Valuable, Rarity, Imitability, Organized (VRIO) Framework & Value Chain Analysis	Spin-off Creation Process & Porter's Generic Strategy

It is crucial to verify the clarity and relevance of questions, consistency of responses, and stability of interview instruments to ensure the validity, reliability, and generalizability of the data. Clear coding and interpretation criteria enhance reliability. Combining interview results with current literature can validate the findings and ensure they make significant contributions to the field. Retesting, triangulation with surveys or observations, and using software for data coding and theme identification provide additional evidence to support the findings.

### III. RESULTS AND DISCUSSIONS

Figure 5 illustrates the results of external analysis using Porter's Five Forces model, which helps SMS to understand the industrial environment and develop a company strategy. This strategic insight is crucial for identifying and capitalizing on existing competitive conditions. The first factor is the supplier's bargaining power, where the supplier's products and/or services are limited (high). According to Khurshid

et al. (2023), the ongoing Russian-Ukrainian war since 2022 has impacted the availability and prices of several critical raw materials. The second factor is the differentiation of the supplier's services, with no suitable substitutes available (high). Suppliers of materials and labor in the industry have distinct specifications and specialized skills. The third factor pertains to the costs incurred by industry members when changing suppliers. According to Nguyen et al. (2020), switching suppliers increases the overhead costs of services offered to end users, making it expensive for industry members to transition to other suppliers (high). The fourth factor is the concentration of the supplier industry, which is dominated by a few large companies (medium). According to SMS management, the number of suppliers in the industrial maintenance sector is limited, particularly those providing special materials and skilled labor. Finally, industry members face high barriers to backward integration and self-production (high). Entering the raw materials market requires substantial investment (Shulepov et al., 2021), and entering the labor supply market involves significant salary overhead costs.

For the buyer's bargaining power, the service or industrial product is neither standardized nor differentiated (low). In the maintenance services industry, it is rare to find identical work due to varying damage and maintenance needs, which affects the cost of each problem-solving solution (Meissner et al., 2021). The cost for buyers to switch to a competitor's service is relatively high (medium). Although buyers can change maintenance services by opening tenders, the high level of differentiation in the maintenance industry makes contracting challenging. Next, the number of buyers is larger than the number of industry sellers (low). There are many industries, and the scale of companies is significantly larger compared to the maintenance industry. Buyers pose a significant threat of backward integration into the seller's business (high). Buyers often have small workshops and may require additional factors such as delivery time, after-sales service, and accessibility. Additionally, buyers have limited information about the seller's quality, price, and costs (low). Predicting a seller's quality, price, and costs is difficult, requiring quotations and analysis to address issues. Finally, buyers do not have the ability to postpone purchases and rarely delay maintenance requests due to the need for reliable equipment to keep operations running smoothly (low).

Regarding the threat of new entrants, a significant cost advantage or experience-based learning curve exists (low). The maintenance service industry benefits from experience-based advantages that strengthen the dominance of established players. Customers in the service industry exhibit strong brand preference and/or loyalty to the seller, with relative network effects (low) (Dam & Dam, 2021). The presence of numerous workshops further clarifies the competitive landscape of the maintenance services industry. Established players have strong client relationships, brand recognition, and economies of scale, giving them a competitive edge over new entrants. There are no specific capital requirements, government policies, trade policies, or strong intellectual property protections, although large companies with comprehensive health and safety requirements may require certification (medium).

For replacement products, good substitutes are readily available and attractively priced (high). Chinese manufacturers offer cost-effective alternative equipment that may appeal to end users seeking to reduce maintenance costs. These replacements can range from engines and components to entire systems. Replacement products often feature comparable or better performance (medium). The availability of these products from China may decrease demand

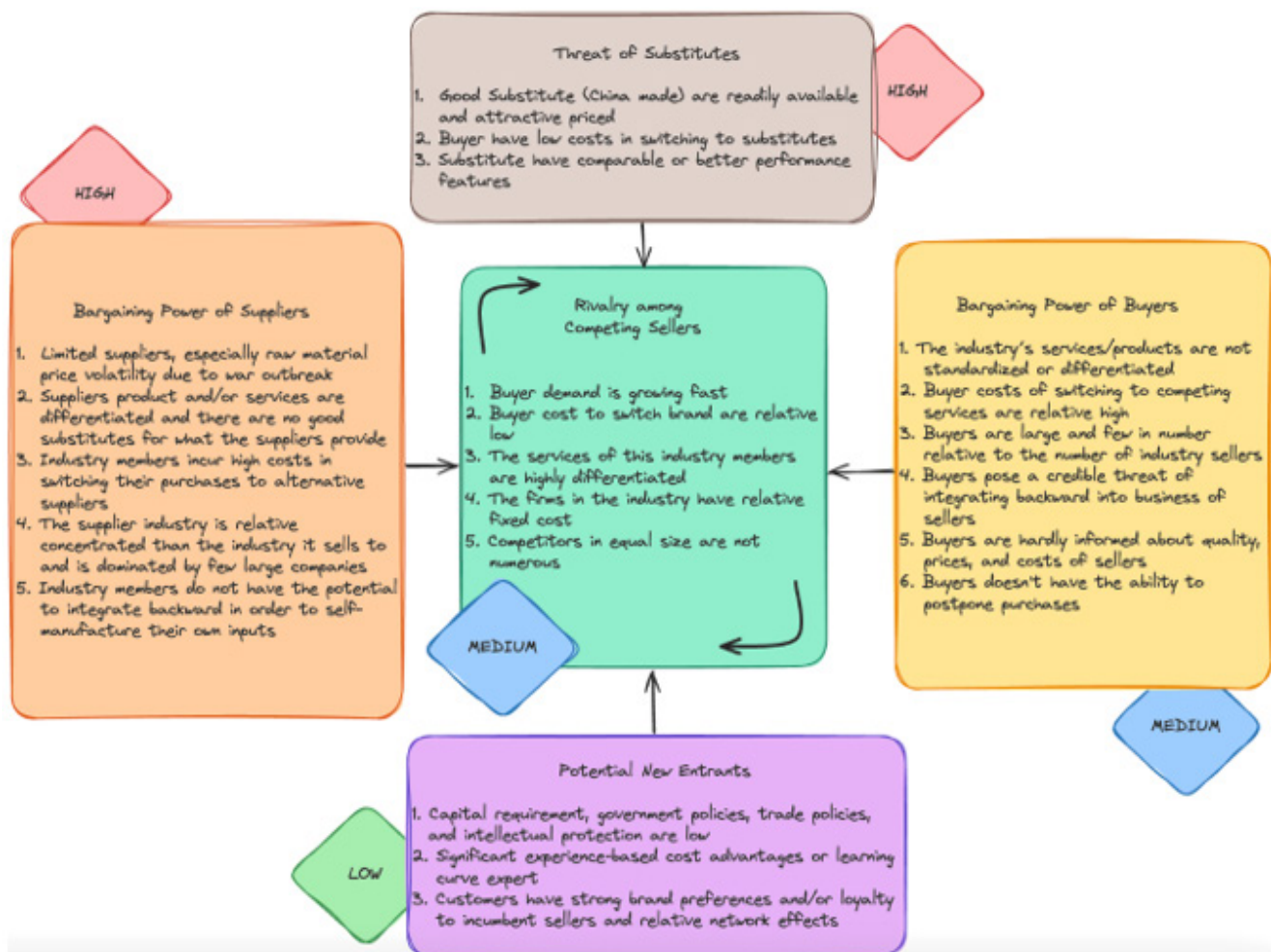


Figure 5 Porter's Five Forces of Maintenance Industry



for maintenance services, particularly for obsolete equipment. Industrial clients may prefer more cost-effective alternatives over-investing in expensive maintenance and repairs. Additionally, buyers incur low costs when switching to substitute products (high), as those on a budget may be drawn to the lower initial costs of new equipment compared to maintaining existing machines.

Regarding the strength of rivalry, buyers' demand has grown rapidly, as reported by Badan Pusat Statistik Kota Cilegon (2023), indicating a proliferation of industries over the past decade (low). The costs for buyers to switch brands are relatively low, resulting in minimal customer switching costs. Consequently, SMS may need to operate on narrower margins initially to remain competitive and achieve market penetration (high). Furthermore, the services offered within this industry are highly differentiated (low). Emphasis should be placed on value differentiation beyond mere pricing, including factors such as specialized expertise, reliability, customer service, and innovative solutions. SMS can continue to attract customers who value quality and reliability over low-cost alternatives by providing value beyond price. Additionally, companies in this sector face relatively high fixed costs (medium). Investment in advanced technologies, implementation of efficient processes, expansion of service portfolios, and enhancement of customer experience are crucial for attracting and retaining customers, reinforcing their competitive position in the market. SMS can leverage its extensive experience, as not all competitors possess similar expertise. Finally, the number of competitors of comparable size is limited. Given the abundance of choices available to customers, it is essential to build and maintain customer loyalty to ensure the sustainability of the maintenance services industry and enhance customer profitability (Almohaimmed, 2019). Providing personalized service, proactive maintenance solutions, and responsive support can aid service providers in retaining customers (medium).

An internal analysis of SMS reveals several inherited resources provided by ISC. Based on interviews with management and operational teams, these resources can be categorized as shown in Table 5. These resources are divided into tangible resources, which are physical assets that can be observed and quantified, and intangible resources, which are deeply embedded within the firm.

When combined, this analysis of tangible and intangible resources contributes to the capabilities that SMS leverages as a competitive advantage in the maintenance service industry. According to Ferreira et al. (2020), capabilities are a key indicator of whether resources provide a competitive advantage. Therefore, based on interview data and competitor analysis, the researchers have identified critical capabilities that a maintenance service company must possess and conducted a gap analysis of current industry conditions. Capabilities are often developed in specific functional areas (e.g., manufacturing, research and

development, marketing) or within parts of these areas (e.g., advertising).

Essential capability areas include marketing abilities to attract customers through promotions and brand recognition, integrated and accessible maintenance information, employee skills aligned with high experience-based costs, motivating and empowering organizational structures, and effective logistics (Hitt et al., 2016). Additionally, analysis of tangible and intangible resources in SMS and competitor insights reveals five essential elements for the maintenance service industry: diverse suppliers with the ability to secure the best prices, a wide range of manufacturing machines, extensive field service assurance skills/plant support, certified employee skills meeting job standards, and a one-stop, integrated maintenance service that provides convenience to customers. According to Frei (2008) in the Harvard Business Review, four critical approaches for developing a profitable service business are offering design, funding mechanisms, employee management, and customer management. These insights can help identify competency gaps and develop strategies to achieve a competitive advantage.

The subsequent identification of resources, capabilities, and core competencies is explored through the VRIO framework analysis of SMS, as detailed in Table 6. This analysis reveals two capabilities that offer a sustainable competitive advantage. First, it is marketing's ability to penetrate customers due to the benefits of being a subsidiary of ISC Group and access to ISC Group directors for effective promotion. Second, there is the high experience-based cost of SMS employees, who possess knowledge, skills, and innovative capacity derived from their experience with ISC factory maintenance, which is challenging for competitors to replicate.

Two factors can provide SMS with a competitive advantage: the development of Digital Maintenance Information (DMI), which is not yet complete, and the inherent rarity and difficulty of imitation of these characteristics in the maintenance industry. Digital monitoring systems offer two primary benefits: significantly enhancing operational efficiency and reducing costs. This digital system can streamline maintenance workflows by integrating various activities, from problem identification to logistics and field service assurances. It should be a primary focus for the SMS spin-off, leveraging change management momentum. Digital systems can also improve documentation and compliance, ensuring that maintenance activities adhere to regulatory standards and best practices, thereby enhancing the company's credibility with customers. Although the DMI infrastructure is already available, collaborating with startups to accelerate digital transformation can further innovate these processes and bolster SMS's competitive edge in the maintenance industry. Additionally, as highlighted by Feng (2021), integrated one-stop maintenance services align with the concept that one-stop services can enhance

service quality. In the maintenance industry, SMS can improve collaboration, starting from on-site problem identification through daily workforce maintenance to integrating maintenance logistics and operations, whether on-site or in the workshop, thereby leveraging

SMS's expertise in field service assurance to increase customer satisfaction with equipment repairs.

However, the three capability factors that SMS possesses—a variety of manufacturing services, plant support, and certified employees—are less likely

Table 5 Tangible and Intangible Resources of Strategic Maintenance Services (SMS)

<b>Tangible Resources</b>	
Organizational Resources	• Partnership with subsidiary SMS instead of establishing a new company
Physical Resources	• 1000 m2 assembling location • 6 workshops located in the center of an industrial estate
Technological Resources	• Computer Numerical Control (CNC) machine • Variety of conventional lathes, milling machines, boring tools, and others. • Gear-making tools • Variety of welding tools • Motor rewinding and ovens
<b>Intangible Resources</b>	
Human Resources	• Strategic Maintenance Services (SMS) possessing expertise in projects and providing additional value through its spin-off, which specializes in workshop operations, calibration, inspection, and troubleshooting. • Level 2 automation skills and calibration capable of providing Komite Akreditasi Nasional (KAN) certification
Innovation Resources	• Strong troubleshooting experience with engineering software • Initial stages of Digital Maintenance Information (DMI) to enhance workflow, streamline operations, and provide customers with access to maintenance status information
Reputational Resources	• Experience with equipment brands from various regions, including the USA, Germany, France, other European countries, and Asia

Table 6 Value, Rare, Costly to Imitate, Organizational (VRIO) Framework Analysis of Strategic Maintenance Services (SMS)

<b>Capabilities</b>	<b>Valuable</b>	<b>Rare</b>	<b>Costly to Imitate</b>	<b>Organized to Capture Value</b>	<b>Impact</b>
Marketing ability to penetrate customer	YES	YES	YES	YES	Sustainable Competitive Advantage
Integrated maintenance information	YES	YES	YES	NO	Unused Competitive Advantage
Strong financial and funding mechanism	NO				Competitive Disadvantage
Diverse suppliers and the ability to get the best prices	NO				Competitive Disadvantage
Wide range of manufacturing machines	YES	YES	NO		Temporary Competitive Advantage
Wide range of field service assurance skills/plant support	YES	YES	NO		Temporary Competitive Advantage
Certified employee skills to meet job standards	YES	NO			Competitive Parity
Employee skills that match the high experience-based cost	YES	YES	YES	YES	Sustainable Competitive Advantage
Organizations that mutually motivate, empower, and retain	NO				Competitive Disadvantage
High accessibility and effective logistics	NO				Competitive Disadvantage
Customer relationship management	NO				Competitive Disadvantage
As a one-stop maintenance service that is integrated	YES	YES	YES	NO	Unused Competitive Advantage

to offer a sustainable competitive advantage. These factors are essential and often mandatory in the maintenance services industry. To maintain its position, SMS needs to periodically upgrade machinery and enhance employee technical skills, as well as pursue specialized certifications. This approach will help SMS to achieve competitive parity and provide a temporary competitive advantage, distinguishing it from competitors.

Additionally, strong financial and funding mechanisms, diverse suppliers with the ability to secure the best prices, and organizations that effectively motivate, empower, and retain employees are crucial intangible resources that SMS needs to develop to enhance its competitive advantage relative to its competitors. These intangible resources require regular improvement to become embedded in unique organizational routines, helping firms to maintain

their competitive edge. Because intangible resources are less visible and more difficult for competitors to comprehend, acquire, imitate, or substitute, firms prefer to rely on them rather than on tangible ones as the foundation for their capabilities (Hitt et al., 2016).

Following the analysis of internal factors, Table 7 presents a competitor analysis. This analysis focuses on competitors within a strategic segment group using Porter's Four-Corner analysis method, which examines the assumptions, goals, strategies, and capabilities of each competitor to gain a comprehensive understanding of industry structure and competitor positioning. This framework helps to identify competitors' strengths and weaknesses, their strategies, and the implications for business and competitive strategies. Such insights can inform better strategic planning, uncover new opportunities, anticipate market changes, and enhance SMS's competitive positioning.

Table 7 Maintenance Industry Competitor Analysis in Cilegon

No	Company	Analysis Results
1	Company Code: SII	<p><b>Assumptions:</b> Aiming to be the best partner for customers</p> <p><b>Goals:</b> Providing high-quality services and solutions to customers</p> <p><b>Strategy:</b> Unique integration of services, including plant construction, logistics, heavy equipment, and servicing operations</p> <p><b>Capabilities:</b> Design and planning, construction work, plant support, logistics, and maintenance</p> <p><b>Weakness:</b> Relatively high prices and reliance on third-party workshops</p>
2	Company Code: TJG	<p><b>Assumptions:</b> Wide-range producer of parts for automotive, agriculture, and heavy equipment (one-stop manufacturing area)</p> <p><b>Goals:</b> Integrated one-stop manufacturing spare parts provider</p> <p><b>Strategy:</b> Custom spare parts provider for various industries</p> <p><b>Capabilities:</b> Fabrication, gear manufacturing, and spare part production with over fifty branches across Indonesia</p> <p><b>Weakness:</b> Limited machinery at each workshop</p>
3	Company Code: MBS	<p><b>Assumptions:</b> Cost leadership manufacturer</p> <p><b>Goals:</b> Providing high-quality spare parts at reasonable prices</p> <p><b>Strategy:</b> Custom spare parts provider for various industries</p> <p><b>Capabilities:</b> Engine maintenance, welding, metal spray, pump, and machining parts (primarily serving shipping companies)</p> <p><b>Weakness:</b> Inconsistent work quality</p>
4	Company Code: BCS	<p><b>Assumptions:</b> Precision spare parts provider</p> <p><b>Goals:</b> Supporting services for energy providers and related businesses</p> <p><b>Strategy:</b> Focus on machining and fabrication</p> <p><b>Capabilities:</b> Machining, shearing, bending, Computer Numerical Control (CNC), and fabrication</p> <p><b>Weakness:</b> Lack of field troubleshooting experience and field service assurance</p>
5	Company Code: KCE	<p><b>Assumptions:</b> Advantages of being a parent company</p> <p><b>Goals:</b> Supporting services for energy providers and related businesses</p> <p><b>Strategy:</b> Expanding electrical service products in Operation &amp; Maintenance (O&amp;M), Engineering &amp; Construction (E&amp;C), and workshops for power plants in Indonesia</p> <p><b>Capabilities:</b> Installation, repair, on-site electrical supervision, reconditioning, and rewinding of electric equipment</p> <p><b>Weakness:</b> Limited machinery in workshops</p>

After identifying several competitors of SMS that target similar market segments, Table 8 analyzes two main operational factors: competitors focus on providing a wide range of services to become a one-stop service solution or on their specialization. Additionally, competitors may emphasize the quality or cost of their services or products. Based on the results of Porter's Four Corners analysis, further examination using Porter's Generic Strategy can determine the most suitable quadrant for SMS in relation to its competitors within the same market segment. This analysis involves mapping positioning based on a target market that offers a variety of services as a one-stop solution or focuses on specialization. Furthermore, the basis for customer value is analyzed with a focus on the quality or cost of the service or product. According to Ghiasi et al. (2022), firms that are not fully committed to cost leadership, differentiation, or a hybrid strategy, and instead utilize no clear strategy, are considered "stuck-in-the-middle." Firms that pursue cost leadership, differentiation, or a hybrid strategy are expected to perform better than those that are stuck-in-the-middle.

Figure 6 illustrates that the proposed positioning strategy for SMS is differentiation. This recommendation is based on SMS's legacy after departing from ISC, which has expertise in various fields such as Computer Numerical Control (CNC) machining, mechanical maintenance, Hydraulic, Pneumatic, & Lubricating (HLP), rotating equipment, welding fabrication, electric motors, automation, and other elements. This broad expertise will be

underutilized if SMS focuses solely on a narrow market, thus supporting its entry into a broader market. Additionally, according to the head of SMS, there are no alternative options for the 116 employees, who are mandated to maximize their skills despite having engineering backgrounds. The basic wage rate for these employees is already high compared to industry standards for steel.

Table 8 Competitor Positioning in Maintenance Industry

Company	Factor	Preferences
Company Code: SII	Target Market	Broad Market
	Basis for Customer Value	Distinctiveness
Company Code: TJG	Target Market	Narrow Market
	Basis for Customer Value	Distinctiveness
Company Code: MBS	Target Market	Broad Market
	Basis for Customer Value	Lowest Cost
Company Code: BDS	Target Market	Narrow Market
	Basis for Customer Value	Lowest Cost
Company Code: KCE	Target Market	Narrow Market
	Basis for Customer Value	Distinctiveness

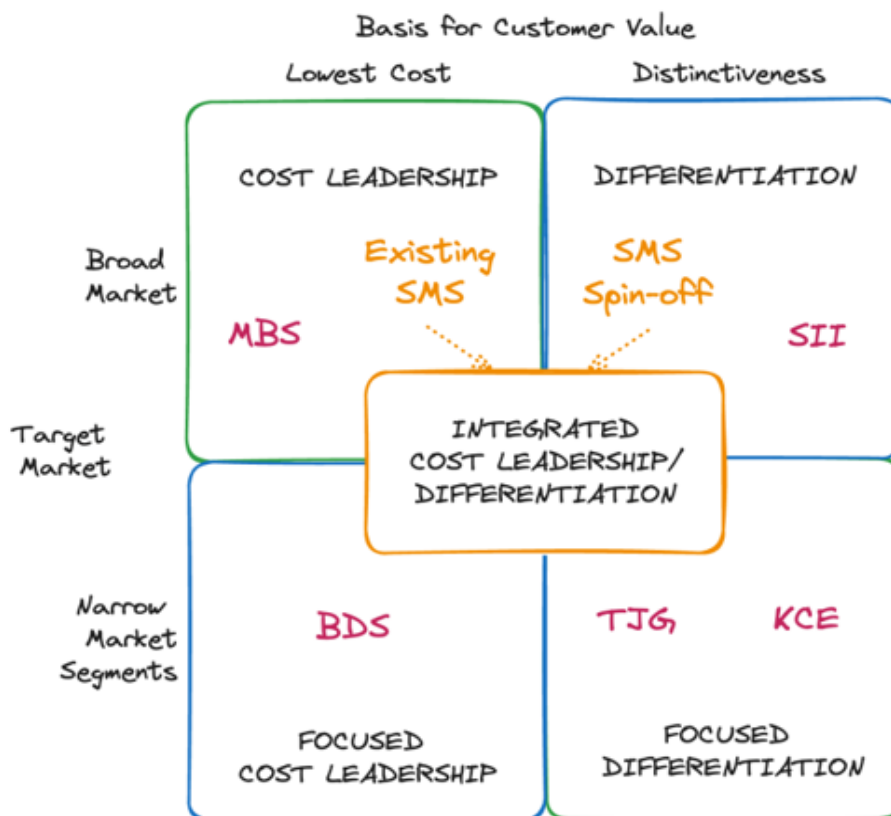


Figure 6 Porter's Generic Strategy of Strategic Maintenance Services (SMS)

The strategy proposed for SMS’s spin-off involves leveraging customer value and a broad target market with high experience-based cost capabilities. SMS’s core capabilities as a provider of daily labor or plant maintenance place it in the cost leadership quadrant. Successful internal collaboration can enable SMS to transition to the “Integrated Cost Leadership/Differentiation” quadrant, potentially gaining a sustainable competitive advantage. Cost leadership and service differentiation positively impact company performance in highly competitive markets (Putra et al., 2021).

A sustainable competitive advantage cannot be achieved solely through Porter’s Generic Strategy (Bhat et al., 2024). Methods are proposed to enhance the likelihood of maintaining strategic advantages for specific firms. Researchers have focused on the

challenges faced by ISC in recent years, including intense competition from imported steel, particularly from China. This competition leads to a decline in market share, prolonged losses, and instances of corruption. In response, the company embarked on a comprehensive business transformation in 2019, marking a significant turning point in its journey. Despite facing significant obstacles, these efforts led to achieving profitability in 2020—a remarkable turnaround after nearly a decade of struggle. The transformation has encompassed not only operational restructuring but also fundamental changes in organizational practices. A spin-off will be executed for one of ISC’s work units. Table 9 discusses the factors that are strong enough to justify the spin-off of SMS and includes an analysis of the new strategic business unit’s performance after six months of operation.

Table 9 Spin-off Creation Process Framework Analysis in Strategic Maintenance Services (SMS)

Categories		Analysis Factors	Case Objective
<b>Characterization</b>	Parent company	Business Aspect	<ul style="list-style-type: none"> <li>Engaged in steel manufacturing since 1970, experienced a decline in market share due to competition with imported steel from China</li> <li>Undertook business transformation in 2019 after a decade of losses and corruption cases, achieving profitability in 2020.</li> </ul>
		Spin-off Policy in the Parent Organization	Policy aimed at enhancing organizational efficiency through a spin-off.
		Core Business	Hot rolled coil, steel plate, checkered plate.
	Spin-off	Business Aspect	Supporting department for the main factory providing maintenance services.
		Core Business	Workshop mechanic, workshop electric, calibration certification, automation services, and engineering and project.
		Spin-off Type	<ul style="list-style-type: none"> <li>Entrepreneurial driven,</li> <li>Human resources management.</li> </ul>
<b>Influential Factors</b>	Internal Environment	Relationship and Support	Social networking and ability to create alliances with all Integrated Steel Corporation (ISC) group subsidiaries and joint ventures.
		Relationship Network (Ability to Establish Alliances)	<ul style="list-style-type: none"> <li>Potential to be the sole provider of maintenance and workshop services for Integrated Steel Corporation (ISC)-affiliated factories,</li> <li>Potential joint operations with Konsolidasi Chemical Energy (KCE) to optimize workshop electrical services and capture opportunities from other parent corporations.</li> </ul>
		HR and Infrastructure	Prevention of cost burdens to the parent company due to short circuits and fires from the main Integrated Steel Corporation (ISC) factory.
		Resource Transfer	<ul style="list-style-type: none"> <li>Assets,</li> <li>Capital intellectual.</li> </ul>
	External Environment	Market Opportunity	<ul style="list-style-type: none"> <li>Increasing market opportunities with a 72% rise in Gross Domestic Product (GDP) per capita over the last decade,</li> <li>Large and potential market for Integrated Steel Corporation (ISC) group and joint venture maintenance services.</li> </ul>

Table 9 Spin-off Creation Process Framework Analysis in Strategic Maintenance Services (SMS) (Continued)

Categories	Analysis Factors	Case Objective
	Market Dynamics	<ul style="list-style-type: none"> <li>• Increase in raw materials for the steel industry due to geopolitical conflicts,</li> <li>• Competitive market due to steel import dumping from China.</li> </ul>
	Industry Maturity	Parent company's maturity—highly dependent on technological advancements to reduce production costs.

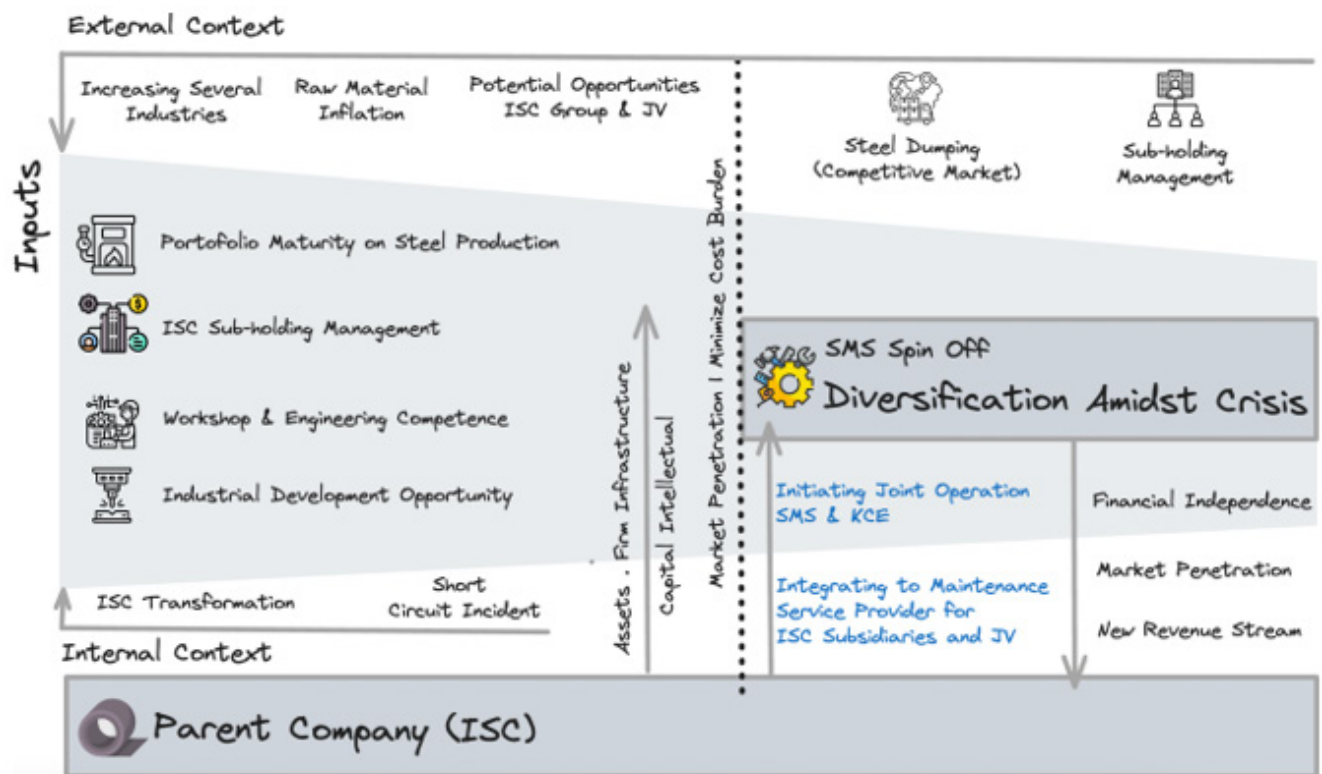


Figure 7 Spin-off Creation Process Framework (Based on Table 9) in Strategic Maintenance Services (SMS)

In this transformative journey, the SMS spin-off represents a crucial supporting department for ISC's main factories by providing essential maintenance services. As the backbone of operational continuity, SMS plays a significant role in optimizing factory performance and ensuring smooth production processes. During the restructuring phase, the company has implemented strategic changes in response to the ISC main factory's short circuit tragedy. If SMS continues its daily operations unchanged during this crisis, it will impose additional cost burdens due to production disruptions. Figure 7 illustrates the spin-off creation process as a reflection of ISC's efforts to demonstrate the company's resilience and adaptability, positioning itself as a stronger competitor in the steel manufacturing sector amidst a crisis.

The decision to separate the SMS spin-off from its parent company, ISC, is influenced by various factors, including market dynamics and strategic interests. This spin-off reflects an entrepreneurial drive with a focus on human resource management. It aims to alleviate the cost burden during the revitalization process, enabling

the new entity to achieve financial independence and generate new revenue streams for the ISC group. The spin-off journey encounters several challenges, such as securing adequate funding, establishing a strong market presence, and overcoming regulatory hurdles. Firms often face difficulties balancing innovation and commercial viability, ensuring that new ideas translate into profitable products. Building a competent team to drive the company forward is also crucial. Additionally, maintaining steady growth and adapting to market changes requires careful planning and execution. According to Pérez-Hernández et al. (2021), the spin-off process identifies four major challenges: regulation, insufficient hiring of specialists, inherent complexities, and lack of decision-makers.

It is argued that a pivot or spin-off realigns a firm's strategic direction by reallocating or restructuring its activities, resources, and focus through a series of decisions to address early-stage problems and opportunities (Kirtley & O'Mahony, 2023). The market potential for SMS is promising, given the significant increase in GDP per capita

over the past decade, which indicates favorable conditions for expansion due to the emergence of new industries. Furthermore, the large and potential market within the ISC Group and its joint ventures presents profitable opportunities for growth and revenue generation. Additionally, ISC's maturity and reliance on technological advancements—requiring substantial capital to reduce production costs—are key considerations for the SMS spin-off strategy. Thus, the spin-off process also involves resource transfer, including assets, capital, and intellectual resources from the parent company to SMS, laying the foundation for the new entity's growth and operational progress.

The SMS spin-off must continue to be supported by ISC, leveraging SMS's social network to establish alliances with ISC group subsidiaries and joint ventures. It provides strategic advantages, facilitating collaboration and synergy among various business units, from the main factory to other subsidiaries. Expanding market reach to other ISC subsidiaries and auxiliary businesses will be critical. Once internal capabilities are sufficiently developed and competitive, collaboration with joint venture companies should commence. This exclusive arrangement will offer a competitive advantage, reinforcing SMS's position as a key maintenance service provider within the group.

#### IV. CONCLUSIONS

The SMS strategy for determining service positioning and customer targeting is grounded in market analysis and Porter's Generic Strategy. The proposed SMS positioning strategy offers comprehensive and customized one-stop maintenance service solutions for industries with quality at reasonable and competitive prices by targeting large industries in steel manufacturing, petrochemicals, flour mills, cement, ports, and logistics. An essential aspect to emphasize is the provision of DMI, which is infrequently offered by competitors in this industry. This feature, during the change management process associated with the spin-off agenda, is intended to enhance workflow, simplify operational activities, and provide access to maintenance status information, thereby increasing competitive advantage and customer satisfaction in equipment repair.

There are two preferences regarding the differentiation of equipment maintenance: critical equipment and general equipment. The research recommends that SMS focuses on critical equipment, which exhibits specific market characteristics, a wide range of equipment differentiation, and high experience-based costs, which is consistent with the maintenance services industry. It is necessary to develop skills and implement standards to support this strategy, including training to enhance employees' skills related to the latest equipment and technology and providing certification to meet job requirements. Additionally, developing value supply chain activities

aimed at providing one-stop integrated services and implementing stringent quality control monitoring to address non-conformities is crucial.

The formation of the SMS spin-off was driven by several internal dynamics within the company, supported by external factors. Internally, the transformation of the parent company aims to increase profit centers across all business units. During this transformation, an incident involving a short circuit in the main ISC factory accelerates the SMS spin-off from the central maintenance department, as factory maintenance support is needed to reduce costs due to ISC's production issues. Externally, rapid industrial growth over the past decade supports this business dynamic. The company's recovery from nearly a decade of losses, culminating in its first profit in 2020, also signals a strengthening market for industry maintenance.

The ISC group's portfolio diversification in the maintenance sector can be optimized with strategic support from the parent company, which collaborates with Konsolidasi Chemical Energy (KCE), a specialist in electric motor workshops. KCE is 30% owned by ISC and 70% owned by another parent conglomerate, providing a market penetration entry point for SMS. The parent company's strategy for centralized service maintenance can be applied to ISC subsidiaries with manufacturing plants and auxiliaries and extend to joint venture companies with potential markets. Additionally, SMS can benefit significantly from being the sole provider of maintenance and workshop services for factories under ISC and joint venture oversight.

Due to restrictions and confidentiality, the research does not address the company's financial aspects or the results of implementing the proposed strategy. It focuses solely on analysis and providing recommendations for the business strategy. The interpretation of the research findings has some limitations. Firstly, there may be biases in understanding based on the researchers' interpretation of interview results and FGD, which can be mitigated by incorporating more objective input from all customer segments. Secondly, the strategy proposed is specific to the maintenance service industry within steel manufacturing.

Future research should benchmark against other industries to gain a broader understanding of spin-off creation from the parent company. Research implications for replicating the proposed spin-off framework in other industries involve considering three aspects. It consists of the parent company's need for business diversification to enhance company benefits, adapting to the unique challenges and needs of various industrial sectors, and fostering a collaborative environment to manage spin-offs effectively and implement appropriate change management.

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data or analysis tools, D. A. I., and H. W.; Performed the analysis, D. A. I., and M. H.

**Data Availability Statement:** Data are available from the corresponding author, D. A. I., upon reasonable request.

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