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The impact of informational capital on marketing performance: A study of Chinese enterprises and the moderating role of industry type

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ABSTRACT

This study investigates the impact of informational capital on the marketing performance of Chinese small and medium-sized enterprises (SMEs), with industry type as a moderating factor. Drawing on the Resource-Based View, it examines how informational capital contributes to marketing effectiveness in emerging economies. Data from 293 SMEs across diverse sectors were analyzed using partial least squares structural equation modeling and multi-group analysis to test the proposed hypotheses. The results indicate that informational capital significantly enhances marketing performance, with stronger effects observed in service industries compared to manufacturing. By considering industry characteristics and organizational conditions, SME marketing managers can optimize their informational strategies to achieve sustainable competitiveness in fragmented and dynamic economic contexts.

Contribution/ Originality: The originality of this study lies in identifying industry type as a boundary condition in the relationship between informational capital and marketing performance, thereby extending the Resource-Based View to SMEs in China. It advances understanding of how informational capital functions under different sectoral conditions, enriches theoretical perspectives on intangible resources, and offers practical guidance for managers to optimize informational strategies for sustainable competitiveness in dynamic and fragmented economic contexts.

1. INTRODUCTION

In the contemporary business environment, the strategic importance of intangible assets has garnered significant scholarly and managerial attention. The Resource-Based View (RBV) theory posits that a firm's competitive advantage and marketing performance are contingent upon its unique and valuable resources, particularly intellectual capital [1]. As a rapidly evolving economy, China presents a critical context for examining how firms manage and leverage intellectual resources amid intensifying global competition, technological disruption, and shifting consumer preferences.

Informational capital refers to an organization's strategic resources obtained from data, information systems, and knowledge management capabilities. It includes qualitative and quantitative data, consumer insights, market trends, and the technology tools used to gather, process, and analyze this data. Informational capital helps businesses to make more informed decisions, improve operational efficiency, and stimulate innovation, making it an important asset for gaining a competitive edge in dynamic and data-driven marketplaces.

The rising prominence of informational capital as a determinant of competitive differentiation has redefined strategic priorities, particularly for small and medium-sized enterprises (SMEs) in China's intellectually driven

economy. Although the RBV theory emphasizes the importance of intangible assets in business performance, the body of research on the subject is still fragmented and offers little empirical insight into how informational capital, a crucial but little-studied aspect of intellectual capital, affects marketing results in China's regionally diverse economy [2]. Previous research has overemphasized financial and innovation while neglecting the moderating role of industry type in the relationship between informational capital and marketing performance [3].

This disparity limits SMEs' capacity to use informational capital for marketing success by providing them with insufficient guidance on resource allocation and cross-regional strategy optimization [4]. Research suggests that firms utilizing informational capital effectively can enhance marketing performance through capability development and systematic knowledge management [5]. The RBV theory is used in this study to investigate the relationship between informational capital and marketing performance. It holds that informational capital is the primary market driver in marketing competition.

Drawing on the RBV theory, it explores how informational capital, a form of intangible asset rooted in organizational knowledge and data utilization, affects marketing performance. Informational capital plays a central role in capability development and structured knowledge management, which are instrumental in enhancing a firm's market competitiveness. By fostering innovation, improving decision-making, and enabling customer responsiveness, informational capital contributes directly to the execution of effective marketing strategies and sustained performance gains [6].

The construct of informational capital is operationalized through key financial (e.g., sales growth, profitability) and non-financial indicators (e.g., brand equity, market expansion), in line with prior empirical research Tsou et al. [7]. The way that businesses convert strategic resources into performance outcomes is greatly influenced by industry heterogeneity. The effectiveness of informational capital and innovation investments is highly influenced by sectoral features, such as those that differentiate manufacturing from services, according to recent studies. Specifically, compared to industries like chemicals and textiles, green innovation has been demonstrated to increase green total factor productivity, particularly in sectors like energy and electronics. These variations imply that marketing and sustainability performance are improved by strategically allocating resources to particular industry environments. Businesses in a variety of industrial settings may encounter different effects from digital transformation and innovation initiatives, according to a macro-level perspective. This emphasizes the significance of sector-specific strategies in attaining sustainable success [8].

This study aims to address two key research questions to advance the existing literature: (1) What is the nature of the relationship between informational capital and marketing performance? (2) To what extent does industry type moderate this relationship? By combining rigorous theoretical analysis with practical frameworks, the research provides empirically grounded strategies for corporate executives and policymakers. The findings offer actionable insights for enhancing the competitive position of small and medium-sized enterprises in China's heterogeneous market environment.

This study makes three key contributions:

(1) it elucidates the value transformation mechanism of informational capital;

(2) it reveals the contingent effects of specific industries (service vs. manufacturing);

(3) it develops practical implementation pathways for resource-constrained enterprises.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Informational Capital

The concept of "informational capital" was proposed in 1962 and gradually developed. In 1962, American economist [9] pointed out that information is an asset cost, which is generated on the basis of search costs [10]. In 1977, American information economist Mac Uri Porat believed that informational capital refers to the investment in all kinds of information equipment related to information services. Information products and services can all be used

as part of social information activities or be included in information investment as information consumables [11]. In the realm of informational capital, its utilization extends beyond organizations to individuals. For instance, an individual leveraging informational capital can analyze their expenditures on a specific product category, comparing it to other products or the spending patterns of others, thereby influencing future purchasing decisions. In the information era, the effective utilization of informational capital is contingent upon the readiness of information technology, as informational capital is derived from the preparedness of information systems [12]. Consequently, companies investing more in information technology systems may gain a competitive advantage over their counterparts [13]. Sahin and Robinson [14] provide an extensive review of the myriad benefits of informational capital. Disparities in information composition between public and private information impact the cost of capital, with investors demanding a higher return for stocks with greater private information. This higher return is attributed to informed investors' ability to adjust their portfolios based on new information, disadvantaging uninformed investors [15]. The quantity and quality of information also influence asset prices, establishing a link between asset pricing, financials, and the information structure of firm securities [16].

This implies that a firm's cost of capital is influenced by information, creating a connection between asset pricing, firm financials, and the information structure of firm securities. Firms can impact their cost of capital by influencing the accuracy and quantity of information available to investors [17]. In perfect competition settings, where there is no separate systematic risk factor due to private information or information asymmetry, less informed investors opt to hold fewer shares in firms with greater uncertainty, rather than where information asymmetry is more pronounced [18].

2.2. Marketing Performance

The dependent variable in this study is measured marketing performance. One of the anchors of firm performance is marketing performance, which means that good marketing performance will also create good firm performance [19]. The existing scholarly literature highlights the diverse aspects of marketing performance, including firm performance, profitability, stock returns, and the role of marketing within the organizational structure. Marketing performance is a concept used to assess the effectiveness of corporate strategy, as it reflects the firm's success in achieving goals related to marketed products. Different methodologies have been utilized to evaluate marketing performance. According to Narver and Slater [20], marketing performance can be evaluated through indicators such as the success of new products, sales growth, and annual profits or net income. Clark [21] traces the evolution of marketing performance measurement from traditional financial metrics such as profit, sales, and cash flow to a broader array of nonfinancial indicators, including market share, quality, customer satisfaction, loyalty, and brand equity [22]. Various factors, such as the marketing mix and market orientation, affect marketing performance. Additionally, it is closely linked to a company's competitive advantage in marketing [23]. Beyond financial metrics, non-financial performance, which reflects internal efficiency, innovation, and customer satisfaction, provides strategic insights. This study, which used data from 306 Vietnamese businesses, demonstrates that the quality of the accounting information system and non-financial information has a major impact on firm performance. Moreover, superior data and systems improve non-financial outcomes by facilitating better decision-making [24].

The assessment of marketing performance exerts a pronounced influence on firm performance metrics, encompassing profitability, stock returns, and the overarching positioning of marketing within the organizational hierarchy [25]. Quantitative data provides a foundation for objective assessments, while perceptual inquiries offer a means to subjectively gauge performance in relation to competition or aligned with business expectations [26]. Quantitative data serves as a valuable tool for evaluating marketing performance targets, encompassing key financial indicators such as business growth. Metrics including sales, profitability, investment, realized sales, and equity play a pivotal role in assessing the performance of targeted financial indicators. In addition to objective financial measures, subjective performance indicators, such as market share, the introduction of new products, market launches, product

quality, as well as activities related to marketing and technology, are integral components of performance measurement for non-financial firms [27]. The comprehensive evaluation of business performance involves the judicious incorporation of both objective financial and subjective non-financial metrics.

2.3. The Impact of Informational Capital on Marketing Performance

Many observers have noted the importance of sharing information to entrepreneurship and economic growth [28]. Although open access to information, especially more recently via the Internet, offers a variety of opportunities for communication with consumers, information is critical to the efficient functioning of capital markets and is a potentially important means by which management communicates company performance and governance to outside investors [29]. Informational capital is often affected by cyber-attacks, marketing competition and social media [30]. Information spreads like a virus, and businesses benefit from it during the spreading phase. Firms must provide responsive services as digitalization rapidly develops [31]. Networks provide information and knowledge for organizations. Informational capital consists of two parts: technology infrastructure and applications, only in the strategic context of value [32].

The intrinsic value of informational capital is not in easing communications and information but rather in enabling growth and development [33]. Numerous studies have demonstrated the impact of informational capital on firm performance. Research on informational capital delves into two key aspects: the influence of information resources on the performance of supply chain partners and the impact of information disclosure on stock market performance [34].

Prior studies recognize the pivotal role of informational capital in value creation and highlight its ability to mitigate the bullwhip effect, reduce costs, and enhance supply chain performance [35]. Building upon these studies, this research explores the impact of both content and quantity aspects of informational capital on two major firm marketing performance measures: efficiency and responsiveness. Marketing performance is linked to cost reduction and profit improvement, while responsiveness pertains to the ability to purposefully and timely respond to customer demands or market changes, maintaining a competitive advantage [36].

Information uncertainty arises when knowledge is incomplete, prompting individuals to seek additional data to reduce ambiguity. This reflects the search cost perspective, where more information is generally considered beneficial. However, information can also have drawbacks: overload (excessive data leading to cognitive strain) and ambiguity (conflicting information hindering decision-making) [37]. Research shows that humans can effectively process ~7 bits of information [38], but excessive choices (e.g., ≥10 options) induce decision fatigue, eroding consumer confidence and impairing judgment [39]. Ultimately, information overload negatively impacts marketing performance by reducing decision-making efficiency.

2.4. The Moderating Effect of Industry Type

Prior research emphasizes that the effectiveness of informational capital in driving firm performance varies significantly across industries. For instance, Sin et al. [40] demonstrated that industry type moderates the impact of marketing and relationship marketing orientations on business outcomes, with service-oriented firms showing different patterns compared to manufacturing firms [40].

Similarly, Hu et al. [41] found that in the international trade industry, informational capital enhances firm performance primarily through its influence on business process efficiency, underscoring that specific industry processes shape the role of information resources [41].

Numerous empirical research demonstrates how industry type affects informational capital and marketing performance. For instance, in agriculture, digital tools like precision farming and supply-chain data platforms significantly boost market orientation and sales growth [42] while in manufacturing, Industry 4.0 technologies (e.g., IoT, lean production systems) amplify productivity and profitability when aligned with RBV principles [43].

However, the efficacy of informational capital is contingent on industry type. The service sector, characterized by high customer interaction, demonstrates stronger performance gains from informational capital due to its reliance on dynamic capabilities (e.g., real-time data utilization) and network effects. In contrast, capital-intensive industries like manufacturing face short-term performance dips during IT adoption but achieve long-term gains through process innovation [44].

Cross-sector analyses further reveal that industry dynamism (e.g., technological volatility) and competitive intensity moderate the informational capital and marketing performance link, with high-tech sectors benefiting more than traditional industries [45]. Furthermore, industry competition magnifies the return on informational inputs by positively moderating the link between advertising investment, an information-driven asset, and firm performance. Additionally, high-performance work practices, which frequently rely on information coordination, differ depending on the industry; labor-intensive sectors benefited more than capital-intensive ones. Liu et al. [46] found that capital-intensive Chinese manufacturing SMEs leveraged informational capital more effectively than labor- or technology-intensive firms, primarily through optimized resource allocation [46]. Similarly, Pucci et al. [47] demonstrated the context-dependent value of informational capital in niche sectors (e.g., Italian children's clothing), where data-driven marketing enhanced performance [47]. These studies underscore how industry dynamics (e.g., capital intensity, market specificity) mediate the informational capital and marketing performance relationship.

3. RESEARCH HYPOTHESES AND MODEL OF STUDY

3.1. Relationship Between Informational Capital and Marketing Performance

Empirical studies consistently demonstrate the significant impact of informational capital on marketing performance through multiple mechanisms. Hakimi [48] provides direct evidence of the positive impact of informational capital on marketing capabilities among small and medium-sized enterprises (SMEs) in Iran's food industry.

The study highlights that informational, structural, and relational capital collectively influence marketing effectiveness, with informational capital playing a key role in enabling firms to better understand customer needs and market dynamics [48]. Similarly, marketing assets like advertising, brand power, and shop presence contribute to intellectual capital, which in turn drives business success, as shown by Pucci et al. [47]. This indirect approach highlights how informational marketing initiatives improve quantifiable economic outcomes as well as intangible value.

Although data generation alone might not improve performance, Clark et al. [49] contend that managerial satisfaction and decision-making outcomes are significantly impacted by the efficient interpretation and distribution of marketing performance data, fundamental components of informational capital [49]. A longitudinal study of Russian firms demonstrated that relationship marketing practices, underpinned by data-driven customer profiling, significantly improved market performance over a 13-year period by enabling personalized engagement and dynamic pricing strategies. The study also found that competitor orientation mediated the link between product development and marketing performance, emphasizing the role of competitive intelligence. Therefore, the hypothesis is as follows:

H_1: Informational capital has a significant positive effect on marketing performance.

3.2. The Moderation Effect of Industry Type in the Relationship Between Informational Capital and Marketing Performance

According to the Resource-Based View (RBV), industry type, which is defined by competitive dynamics, technological intensity, and knowledge intensity, influences how businesses exploit informational capital for competitive advantage. Empirical research demonstrates that industry type moderates the informational capital-marketing performance link, with higher effects in service sectors ($\beta = 0.47$, based on CRM data) than in manufacturing ($\beta = 0.29$) [50].

This is consistent with evidence from agricultural contexts, where improved informational capacities (e.g., mobile/radio-based market data) increased smallholder pricing power (50% satisfaction variance explained), but infrastructure gaps hampered adoption [51, 52]. Collectively, these data demonstrate that sector-specific characteristics and accessibility have a significant impact on the performance of informational capital.

The influence of specific industry factors is also evident in manufacturing. In Indonesian firms, structural capital, including knowledge systems and infrastructure, was closely linked to innovation performance [53]. While direct marketing metrics were less emphasized, broader trends indicate that advanced information systems, such as big data analytics, boost marketing responsiveness and product quality, as seen in metal machining and industrial IoT adoption cases.

The intangibility and intrinsic customer centricity of the service industry greatly increase the contribution of informational capital to marketing performance. Tools like CRM systems and AI chatbots are essential for maintaining market responsiveness in high-contact industries like healthcare and finance because of the dependence on individualized interactions and real-time responses.

Financial organizations that used AI-driven pricing models, for instance, showed better marketing results in unstable settings where instantaneous information agility is essential. Furthermore, because of their network-driven structures, which naturally increase the value of informational assets, platform-based services exhibit the largest moderating effects.

This view is confirmed by Deloitte's 2025 service sector outlook, which demonstrates that organizations with integrated data ecosystems that connect operational, transactional, and behavioral data outperformed competitors in terms of customer engagement and retention. Therefore, the hypothesis is as follows:

H_2: Industry type moderates the relationship between informational capital and marketing performance.

H_3: The moderating effect of informational capital on marketing performance is stronger in the service industry compared to the manufacturing industry.

3.3. The Model of Study

Figure 1 illustrates the model of this study. It shows how informational capital enhances marketing performance, with industry type (manufacturing vs. services) acting as a moderating factor, based on the Resource-Based View (RBV) theory. While prior research links intellectual capital to performance, the specific role of informational capital across industries remains underexplored. The model proposes that informational capital directly improves marketing effectiveness, with a stronger effect in service sectors due to their higher information intensity, greater client interaction, and need for personalization.

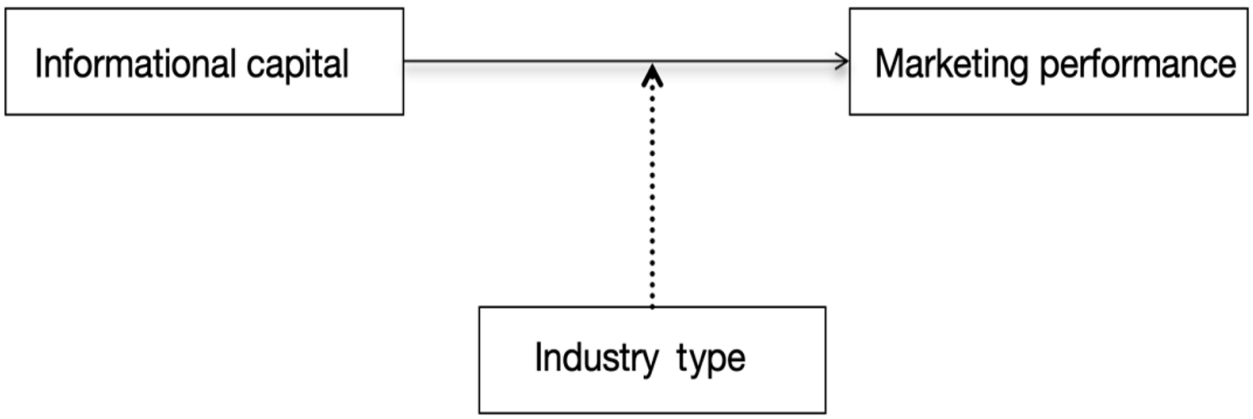

Figure 1. Research model of informational capital and SME marketing performance

4. METHODOLOGY

4.1. Research Design

Based on RBV theory, this study conducts a cross-sectional survey of 293 Chinese SMEs to examine the relationship between informational capital and marketing performance, using industry type (manufacturing = 0, service = 1) as a moderator. The study gathers responses from marketing managers and directors using a purposive sampling technique, ensuring that all participating companies meet China's SME criteria. Industry classification follows established taxonomies, and informational capital is measured using validated five-point Likert scales, which are pretested for clarity and validity by five experts.

4.2. Measurement Instruments

4.2.1. Data Collection

This study gathers primary data through an online survey of 293 marketing and sales professionals from various industries. To capture strategic perceptions and experiences, the questionnaire includes both Likert scale and multiple-choice questions. To ensure validity, the survey is pretested by industry professionals for clarity. Participants are recruited through professional networks and guaranteed anonymity, as well as access to summary results. The four-month data collection period provides broad geographical coverage while minimizing response bias.

4.3. Data Anylsis

The primary analytical approach utilizes partial least squares (PLS) modeling with SmartPLS 4 [54] as the statistical tool to examine the measurement and structural models, as it does not require the normality assumption and survey data are typically not normally distributed [55]. The measurement instrument incorporates five-point Likert scales to capture respondent perceptions, and the collected data are subsequently processed and analyzed through the PLS-SEM analytical framework.

This methodological approach facilitates a rigorous evaluation of both the measurement and structural models, thereby ensuring a comprehensive assessment of the proposed theoretical relationships. The selection of PLS-SEM is particularly appropriate given its demonstrated effectiveness in handling complex predictive modeling scenarios and its robustness with smaller sample sizes [56].

5. RESULTS AND FINDINGS

Table 1 illustrates the demographic profile of the respondents. A total of 300 questionnaires were distributed, and 293 were returned, yielding a 97% response rate. All 293 responses were fully usable for analysis. The sample was divided into two main industry groups: manufacturing (N = 96) and services (N = 197). Multi-group analysis (MGA) was conducted using SmartPLS 4 to examine the moderating effect of industry type on the relationship between informational capital and marketing performance. Structural paths and measurement model differences between groups were analyzed using 5,000 bootstrap resamples to test for statistically significant differences.

Table 1. Demographic characteristics of Chinese SMEs by industry type

Profile of respondents (SMEs)			
	Manufacturing	96	33%
	Service sector	197	67%

5.1. Descriptive Statistics

Descriptive statistics are calculated for each observed indicator related to marketing performance and informational capital. The analysis includes 293 valid responses. Table 2 summarizes the mean, standard deviation, skewness, kurtosis, and results of the Cramér-von Mises normality test.

The variable IT (industry type, coded 0 = manufacturing, 1 = services) has a mean of 0.672, indicating that approximately 67% of the enterprises in the sample operate in the service sector. Both informational capital (INC) and marketing performance (MP) have relatively high mean values (M = 3.74 and M = 3.777, respectively), reflecting generally positive attitudes across enterprises. INC (-0.649) and MP (-0.479) show mild left skewness, while their excess kurtosis values (1.223 and 0.478) indicate moderate peakedness. The Cramér-von Mises p-values for INC and MP (both ≤ 0.027) suggest deviations from normality, supporting the use of non-parametric or PLS-SEM methods in subsequent analyses.

Table 2. Descriptive statistics and normality tests.

Variable	N	Mean	Min.	Max.	Std. Dev.	Skewness	Kurtosis	Cramér–von Mises p-value
IT	293	0.672	0	1	0.469	-0.738	-1.465	0
INC	293	3.74	1	5	0.774	-0.649	1.223	0
MP	293	3.777	1	5	0.731	-0.479	0.478	0.027

Note: IT =Industry type, MP = Marketing performance, INC = Informational capital Std. Dev. = Standard Deviation. N = Sample Size.

5.2. Reliability and Convergent Validity

Both explanatory power and discriminant validity are analyzed to assess the measurement and structural model's quality. The endogenous construct, marketing performance, is first evaluated for its coefficient of determination. According to Table 3, the exogenous constructs account for approximately 43.9% of the variance in marketing performance, with an R^2 value of 0.439. The model appears stable and not overfitted, as indicated by the modified R^2 value (0.433), which is close to the original R^2.

Table 3. Coefficient of determination (R^2) for endogenous construct.

Construct	R^2	Adjusted R^2
Marketing performance (MP)	0.439	0.433

Table 4. *Effect size (f^2) for structural model paths.*

Construct	f^2
Industry type -> Marketing performance	0.03
Industry type x Informational capital -> Marketing performance	0.03
Informational capital -> Marketing performance	0.442

Table 4 shows the effect sizes (f^2) of the model's structural paths, illustrating the degree of influence each predictor variable has on the dependent variable, marketing performance (MP). Cohen [57] guidelines recommend f^2 values of 0.02, 0.15, and 0.35 for small, medium, and high effect sizes, respectively. The path from informational capital (INC) to marketing performance has a large effect size (f^2 = 0.442), indicating that INC is a good predictor of MP in the model.

The paths from industry type (f^2 = 0.03) and the interaction term (industry type × informational capital) (f^2 = 0.03) have small effect sizes, indicating that these predictors explain a limited but significant amount of variance in marketing performance. These findings show that informational capital dominates in influencing marketing performance, while industry type and its moderating influence provide additional, albeit lesser, explanatory power to the model.

Table 5. Construct reliability and convergent validity.

Constructs	Items	Outer loadings	AVE	Composite reliability	Cronbach alpha
Informational capital (INC)	INC1	0.865	0.740	0.885	0.883
	INC2	0.87			
	INC3	0.853			
	INC4	0.852			
Marketing performance (MP)	MP1	0.801	0.644	0.864	0.862
	MP2	0.826			
	MP3	0.778			
	MP4	0.807			
	MP5	0.799			

To ensure the robustness of the reflective measurement model, the constructs were assessed for internal consistency reliability and convergent validity using Cronbach's Alpha, composite reliability, and average variance extracted (AVE). The results are summarized in Table 5. Cronbach's Alpha values for informational capital (INC = 0.883) and marketing performance (MP = 0.862) are significantly higher than the required level of 0.7, indicating excellent internal consistency.

The composite reliability (CR) ratings for INC (0.885) and MP (0.864) provide additional evidence of the constructs' reliability. The average variance extracted (AVE) for INC and MP is 0.740 and 0.644, respectively, which are above the minimal acceptable threshold of 0.50, demonstrating that the constructs capture a significant percentage of the variance rather than measurement error. These findings demonstrate that both constructs have good reliability and convergent validity.

All reliability measures (Cronbach's Alpha and CR) are above the 0.7 threshold, while AVE values indicate the presence of convergent validity [58]. As a result, the measurement model is reliable and suited for further structural model analysis and hypothesis testing.

Table 6. Fornell-Larcker discriminant validity.

Construct	Informational capital	Marketing performance
Informational capital	0.860	——
Marketing performance	0.649	0.802

The discriminant validity of the constructs is determined using the Fornell-Larcker criterion. Table 6 shows that the square root of the AVE for each construct (informational capital = 0.860; marketing performance = 0.802) is greater than its correlation with other constructs (e.g., 0.649). This indicates that each construct has greater variance with its own indicators than with other constructs, demonstrating appropriate discriminant validity.

5.3. Hypothesis Testing

The findings for hypothesis testing are shown in Table 7. The structural model is assessed using bootstrapping with 5,000 resamples. With industry type (manufacturing vs. service) acting as a moderator, the study focuses on both the direct and moderating effects of informational capital on marketing performance. The results are summarized in Table 7.

Table 7. Summary of hypothesis testing results.

Hypothesis	Relationship	Path coefficient (β)	T-Statistic	P-Value	Decision
H1	INC -> MP	0.817	15.429	0	Supported
H2	IT× INC->MP	-0.267	2.466	0.014	Supported

As hypothesized in H1, informational capital demonstrates a substantial and statistically significant positive influence on marketing performance ($\beta = 0.817$, $t = 15.429$, $p < 0.001$), with the remarkably high path coefficient suggesting that nearly 81.7% of the variance in marketing performance is explained by firms' brand-related customer knowledge as operationalized through the dimensions of informational capital. This finding aligns with the resource-based view's emphasis on knowledge assets as critical drivers of competitive advantage. The interaction term (IT × INC) has a negative path coefficient of -0.267, with a T-statistic of 2.466 and a p-value of 0.014. This indicates that industry type significantly moderates the relationship between informational capital and marketing performance. Therefore, H2 is supported. The negative coefficient indicates that the strength of this positive relationship varies according to industry type.

To investigate the moderating effect of industry type on the relationship between informational capital (INC) and marketing performance (MP), a multi-group analysis (PLS-MGA) compares this path across the service and manufacturing sectors.

The findings show that the impact of informational capital on marketing performance is greater in the service industry than in the manufacturing sector (difference = 0.179, p = 0.043, two-tailed). This supports a significant group difference.

Table 8. Multi-group analysis (Industry type as moderator).

Hypothesis	Group comparison	Path difference	1-tailed p-value	2-tailed p-value	Decision
H3	Manufacturing vs. service	0.179	0.022	0.043	Supported

Table 9. Sector-Specific path coefficients with confidence intervals.

Path	Group	Coefficient	95% CI lower	95% CI upper
INC -> MP	Manufacturing	0.608	0.395	0.703
	Service	0.809	0.634	0.846

Table 8 shows that informational capital (INC) has a greater impact on marketing performance (MP) in the service sector ($\beta = 0.809$, 95% CI = [0.634, 0.846]) than in the manufacturing sector ($\beta = 0.608$, 95% CI = [0.395, 0.703]). The non-overlapping confidence intervals indicate a significant difference across sectors. These findings provide further evidence for the moderating influence of industry type, which supports Hypothesis 3.

6. DISCUSSION AND CONCLUSION

This study offers important theoretical insights into how industry variables modify the relationship between informational capital and marketing performance. According to empirical research, there is a noticeably greater positive correlation between informational capital and marketing performance in service industries than in manufacturing sectors. This finding is consistent with the Resource-Based View's central thesis, which holds that businesses use a variety of resources to gain a competitive edge. Intangible assets, such as knowledge-based resources and customer relationship capital, are increasingly important in creating value in service environments.

Informational capital is operationalized through four primary dimensions: (1) customer perception of brand value (INC1), (2) brand image recognition (INC2), (3) brand positioning understanding (INC3), and (4) target audience identification (INC4). Because service offerings are intangible and experiential, these dimensions have more explanatory power in service sectors. Service-oriented businesses benefit more from strategic investments in customer relationship management systems, data analytics platforms, and intellectual capital mechanisms because value is frequently co-created through interactive processes and because brand signals are a major determinant of quality in service consumption. Compared to manufacturing contexts, these tools directly improve consumer experience and build brand equity.

On the other hand, manufacturing companies prioritize supply chain optimization and operational efficiency as part of their value generation strategy. Although they also make use of informational capital, cost-control measures and enhancements to the production process frequently operate as mediating factors between informational capital and marketing performance. According to this study, to improve direct marketing results such as customer conversion and retention rates, service-oriented businesses should prioritize investments in focused informational capital, such as brand asset management systems and customer intelligence platforms. Conversely, operational synergy mechanisms like supply chain data integration and dual-drive techniques that align information systems with industrial processes are the primary ways manufacturing enterprises derive value from informational capital.

From a theoretical perspective, the study extends the Resource-Based View's boundary conditions by confirming the crucial moderating function of industry type in the informational capital and marketing performance relationship. This result emphasizes how sectoral features and other contextual factors affect how well intangible resources are deployed. Businesses are recommended to construct informational capital portfolios that are in line with industry-specific value creation logics, such as scale efficiency in manufacturing sectors and relational intensity in service sectors, rather than relying solely on generic resource allocation models.

Haiyue Cheng designed the research and wrote the paper. Dr. Siti Haslina Md Harizan refined the empirical analysis and conducted validation and interpretation of the results. The author(s) used OpenAI's ChatGPT to edit and refine the wording of the Introduction. All outputs were reviewed and verified by the authors.

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Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
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Appendix A. Measurement instruments.

Marketing Performance	***5***	**Source**	**Dimension / Indicator type**
Financial indicators of marketing performance	3	Abrokwah-Larbi [59]	1. My firm's market share is high compared to competitors. 2. The financial performance of my firm is supported by a sustainable approach. 3. My firm plans the sales revenue growth of all products/services.
Nonfinancial indicators of marketing performance	2	Eneizan [60]	4. Compared with other dealerships, our reputation among customers is very high. 5. Compared with other dealerships, our customer satisfaction is very high.
Informational capital	4	Cui et al. [61]	1. Knowledge of the brand's value among the customers is 2. Knowledge of the brand's image among the customers is 3. Knowledge of the brand's positioning is 4. Knowledge of the brand's customers is