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Social Capital as A Facilitator of Operational Performance Information Sharing and Optimization of Buyer-Supplier Performance Management

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Abstract

This study investigates the role of social capital as a key facilitator in optimizing buyer-supplier performance management within the automotive industry. Social capital, encompassing cognitive, relational, and structural dimensions, is evaluated for its impact on operational performance information sharing, supplier performance measurement, and priority customer status. Data were collected through a survey of 482 employees in supplier companies and analyzed using Structural Equation Modeling (SEM-PLS). Results indicate that cognitive and structural social capital significantly influence operational performance information sharing, while relational social capital enhances trust and collaboration. The study also highlights the moderating effect of ISO standard implementation on the relationship between operational performance information sharing and supplier performance measurement. These findings underscore the necessity of fostering social capital to achieve sustainable buyer-supplier relationships and improve operational efficiency.

Keywords: social capital, performance management, priority customer

1. Introduction

In recent years, companies have faced various operational disruptions, including unreliable resource availability, with 80% of respondents reporting significant supply chain disruptions in the past 12 to 18 months (Deloitte, 2022). The ongoing conflict between Russia and Ukraine has exacerbated these supply chain issues, affecting multiple industries and economies globally. In the automotive sector, this conflict has led to a substantial reduction in global production, with major manufacturers like Honda, Toyota, and Ford experiencing a loss of approximately 400,000 vehicles (KPMG LLP, 2022). The war has also driven up prices for essential raw materials such as aluminum and nickel, highlighting the need for proactive supply chain management that emphasizes supplier perspectives and stakeholder transparency (McKinsey, 2022).

The success of supplier performance management is increasingly linked to social capital, which refers to the social relationships that yield various benefits, including skills and resources (Luzzini et al. in Li et al., 2014). Social capital encompasses structural, relational, and cognitive dimensions, facilitating effective buyer-supplier performance management (Tukamuhabwa et al., 2023). However, a lack of interaction can hinder collaboration and communication, suggesting that shared business goals and trust are crucial for sustainable

performance management (Muniady et al., 2015). Research indicates that industries like technology and finance exhibit broader social capital, fostering collaboration and innovation compared to traditional sectors like manufacturing (Lauricella et al., 2022).

Focusing on the automotive industry, long-term relationships between buyers and suppliers, particularly Original Equipment Manufacturers (OEMs), are essential for performance management. The automotive sector is projected to grow, with passenger car sales expected to rise by 3% in 2024 (York et al., 2023). However, challenges remain, such as the gap between supply and demand for critical components, necessitating investments in infrastructure and supply chain resilience (McKinsey, 2022). Effective collaboration between buyers and suppliers can enhance supply chain resilience, leading to improved operational performance and reduced costs (Gutierrez et al., 2020).

Despite the importance of social capital in the automotive industry, research on this topic remains limited. Previous studies have primarily focused on social capital's role in knowledge sharing and supplier performance, leaving a gap in understanding its impact on achieving priority customer status (Jääskeläinen et al., 2022). Arista Group, a key player in Indonesia's automotive sector, exemplifies the need for



effective supplier relationships to ensure operational efficiency and meet customer demands. Challenges such as unmet spare parts needs and delivery errors highlight the necessity for improved social relationships between Arista Group and its suppliers.

This study aims to address the research gap by examining the role of social capital in optimizing buyer-supplier performance management, particularly in relation to priority customer status. The research will investigate the relationships between cognitive, relational, and structural capital, operational performance information sharing, and the mature use of supplier performance measurement. Additionally, it will explore how ISO standards may moderate these relationships, contributing to a deeper understanding of the dynamics within buyer-supplier interactions.

2. Literature Review

2.1 Social Capital in Automotive Supply Chain

Social capital, comprising structural, relational, and cognitive dimensions, is a vital resource for creating value within a company's network of relationships (Lyu & Ji, 2020). Nahapiet and Ghoshal (in Jääskeläinen et al., 2022) define social capital as the actual and potential resources embedded in, available through, and derived from social networks. In high-tech industries, social capital significantly enhances a company's adaptability in uncertain environments, enabling it to detect relevant information and respond to environmental changes (Lyu & Ji, 2020). Analyzing relational competencies requires focusing on elements of social capital, such as information sharing, mutual trust, and shared goals among collaborating parties.

Girdwachai et al. (2019) emphasize that a lack of resource commitment from buyer companies can lead to vulnerable supplier relationships, while demonstrating commitment fosters long-term partnerships that enhance supplier performance. In the automotive industry, key competitive priorities include delivery time, flexibility, reliability, quality, and cost, necessitating social capital as a long-term asset for future benefits (Adler & Kwon, 2002). The direct benefits of social capital include improved access to information, which enhances the quality, relevance, and timeliness of data, ultimately leading to better skills and knowledge acquisition (Adler & Kwon, 2002). Jääskeläinen et al. (2022) found that social capital contributes to performance benefits related to cost, delivery, and quality, facilitating the creation of intellectual capital and competitive advantage.

Social capital can be categorized into three dimensions: structural, relational, and cognitive (Wang et al., 2021). Structural capital refers to the connections and network characteristics among members, determining the resources consumed. Relational capital reflects the quality of relationships, emphasizing trust, sincerity, and standardization. Cognitive capital encompasses shared perceptions, language, goals, and vision among network members. Companies with strong cognitive capital share similar perceptions and understandings, enhancing quality, flexibility, and service delivery (Girdwachai et al., 2019).

However, conflicts may arise from incongruent values, leading to dissatisfaction due to limited information sharing.

Relational social capital focuses on personal relationship characteristics, such as trust, obligation, and respect (Claridge, 2018). Trust is a key aspect, as repeated transactions build confidence, allowing for open communication and transparency (Villena et al., 2011). As trust develops, decision-makers are more willing to engage in risky interactions, fostering a reciprocal trust environment. Buyer companies can leverage relational approaches to enhance supplier satisfaction, with supplier development activities aimed at improving performance and capabilities (Jääskeläinen et al., 2022). The strength of relational ties and knowledge transfer between buyers and suppliers is crucial for successful supplier development.

Structural social capital refers to the size and nature of social networks and engagement patterns (Gilbert, 2001). It encompasses the density, connectivity, and hierarchy of relationships within specific contexts, such as groups or organizations (Claridge, 2018). The structural dimension focuses on the number and strength of relationships, while the relational dimension addresses the quality of those relationships. Villena et al. (2011) suggest that partner companies should create dense structures with numerous connections to facilitate reliable and diverse information exchange, as accessible information can lead to timely decision-making.

2.2 Performance Management dalam Automotive Supply Chain

Enhancing supply chain performance is crucial for the automotive industry, particularly in meeting customer priorities (Krishnan & Chinna, 2024). Key strategies include implementing conservation measures and adopting a triple bottom line approach that balances economic, environmental, and social objectives in decision-making. Effective performance management addresses various supply chain challenges, such as transparency, risk assessment, and rising demand, which are essential for the adaptability and resilience of the automotive sector (Emrouznejad et al., 2023). Supplier performance measurement is a critical aspect of effective supply chain management, often utilizing models that evaluate key performance indicators (KPIs) like responsiveness, quality, and communication to maintain strong long-term relationships with suppliers (Ahistasari et al., 2023).

Operational performance information sharing involves all parties exchanging information to facilitate each other's activities, including supplier evaluations and direct engagement in supplier development (Girdwachai et al., 2019). This sharing encompasses customer needs, production data, supplier cost information, and production schedules, leading to reliable deliveries and timely product launches through improved coordination (Ahmed, 2022). By fostering better communication channels, information sharing enhances understanding of end-user needs and aligns the efforts of supply chain members, ultimately reducing costs and increasing efficiency (Ding et al. in Ahmed, 2022). It also

allows companies to respond promptly to consumer demands, optimizing inventory management and minimizing forecasting errors (Sezen in Ahmed, 2022).

In the dynamic context of supply chains, continuous performance improvement has become a critical issue for suppliers, manufacturers, and retailers striving to maintain competitiveness (J. Cai et al., 2009). Monitoring and enhancing supply chain performance involves complex management processes, including identifying metrics, setting targets, planning, communication, monitoring, reporting, and feedback. Effective performance improvement stems from promoting cooperative behaviors that enhance efficiency and creativity (Villena et al., 2011). Recent studies suggest that buyers are not only pursuing traditional operational improvements but also strategic benefits such as product innovation and collaboration within buyer-supplier relationships (Villena et al., 2011).

However, challenges in performance management persist, particularly regarding the complexity of supply chains, which can lead to increased inventory and delivery delays (Rossetti et al., 2023). The complexity arises from various factors, including customer order volumes and specific product requirements, making it difficult to obtain actionable information and reducing the predictive validity of management systems. Additionally, the evaluation of supply chain performance often involves multiple metrics categorized into quality, time, cost, and flexibility (J. Cai et al., 2009). The complexity of managing numerous entities, such as suppliers and customers, necessitates further research to understand performance measurement in the context of supply chain management effectively.

2.3 Priority Customer Status

Tchokogué and Merminod (2021) assert that organizations can utilize reverse marketing to showcase their strengths and capabilities to key existing and potential suppliers, highlighting the challenge of becoming an attractive priority customer for suppliers. Achieving priority customer status is a significant challenge in performance pursuit (Williamson in Tchokogué & Merminod, 2021), emphasizing the critical role of the purchasing department in this process. Supplier management activities include identifying the right strategic partners, encouraging them to invest in long-term, mutually beneficial relationships, and developing and integrating suppliers to enhance priority customer relationship performance.

Priority customer status is defined as a special strategy by suppliers that allocates rare privileges to buyers (Jääskeläinen et al., 2022), granting favored customers prioritized resource allocation compared to standard customers (Hüttinger et al. in Jääskeläinen et al., 2022). This status allows buyer companies to gain prioritized resources from suppliers who also serve competitors, leading to competitive advantages in the market (Pulles et al. in Jääskeläinen et al., 2022). The literature identifies numerous benefits of priority customer status, such as increased availability of scarce materials. Tchokogué and Merminod (2021) indicate that priority customer relationships

enable both customers and suppliers to develop sustainable competitive advantages through inter-organizational learning.

By developing and implementing supply strategies, the purchasing department influences relational fit with suppliers, facilitating collaboration, especially in priority customer relationships (Hüttinger et al. in Tchokogué & Merminod, 2021). According to supplier management theory (Jiwa Husada Tarigan et al., 2020a), success in supplier relationships relies on a series of specific key supplier activities and practices, which should also apply to priority customer relationships. Therefore, buyer companies must adopt a proactive strategic approach to actively enhance priority customer relationship performance over time, positioning themselves as key players in maintaining priority customer status with suppliers (Jiwa Husada Tarigan et al., 2020). The performance of priority customer relationships partly depends on how adeptly a buyer company develops excellent working relationships with suppliers. Supply management practices are categorized into supplier-oriented practices (e.g., relational capital) and internal purchasing and supply management practices (e.g., structural capital), enabling buyer companies to leverage these strategic supply practices for the long-term success of priority customer relationships, effectively managing suppliers as assets (Reuter et al. in Jiwa Husada Tarigan et al., 2020).

2.4 Implementation of ISO Standards

The implementation of ISO (International Organization for Standardization) standards plays a vital role in improving product and service quality, operational efficiency, and competitive advantage (Nurcahyo et al., 2021). These standards are designed to streamline operations, enhance quality control, and promote process consistency, which collectively improve supplier performance (Singh, 2013). Specifically, ISO/TS16949, developed for the automotive industry, provides a comprehensive framework for quality management, addressing aspects such as planning, process control, monitoring, and continuous improvement (Zakuan et al., 2012). This standard enhances product quality and reliability within the automotive supply chain, making it a cornerstone of effective quality management systems.

The successful implementation of ISO/TS16949 requires a thorough analysis of existing processes to identify areas for improvement, such as examining key processes, documenting procedures, and ensuring compliance with standard requirements (SRI Quality System Registrar, 2008). Effective information sharing with stakeholders is crucial to strengthening relationships, enhancing trust, and meeting their needs and expectations (Mousapour, 2014). In the context of ISO/TS16949, aligning processes and procedures across the supply chain fosters teamwork, innovation, and knowledge sharing, which ultimately boosts project performance and success (Abbasnejad et al., 2021).

ISO/TS16949 certification is often a prerequisite set by OEMs (Original Equipment Manufacturers) and Tier 1 automotive component companies for their suppliers, especially for critical components (Laskurain et al., 2018). This certification

simplifies processes, reduces redundancy, and enhances overall supply chain efficiency while fostering a culture of information sharing and mutual benefits (Ostadi et al., 2010). By establishing a common framework for quality management practices, it ensures alignment among all parties involved, from OEMs to Tier 1, Tier 2, and Tier 3 suppliers (Gruszka & Misztal, 2017). Consequently, ISO/TS16949 implementation reflects a commitment to quality, fostering trust and credibility among supply chain partners by aligning quality objectives and facilitating communication across the network (Vanichchinchai, 2019).

3. Hypotheses formulation

Numerous studies have examined the variable of cognitive capital and its significant impact on operational performance information sharing (Jääskeläinen et al., 2023; Ho et al., 2018; Graça & Barry, 2019), with empirical evidence indicating that cognitive capital (Ghasemi et al., 2022; Cai et al., 2011; Gelderman et al., 2016) can significantly affect this sharing. Cognitive capital is often studied as a key indicator in the work of Li et al. (2014) regarding operational performance information sharing. It has been found to positively influence information sharing behavior, suggesting that factors such as values, ethics, and attitudes affect individuals' willingness to share information (Gunanto Marsasi et al., 2024). Additionally, analyzing cognitive capital can help identify communication patterns and information sharing styles among individuals or groups (Wobbrock et al., 2010), enhancing our effectiveness as communicators and improving interactions in information sharing (Li et al., 2014). Based on previous theories and empirical findings, the first hypothesis is formulated:

H1a: cognitive capital positively influences operational performance information sharing.

Research by Jääskeläinen et al. (2023) indicates that the mature use of supplier performance measurement is influenced by cognitive capital. Cognitive capital affects how managers interpret and utilize performance measurement data, leading to more informed decision-making and strategic actions related to suppliers (Ghasemi et al., 2022). Taj Khan et al. (2023) also found that leveraging cognitive capital within organizations significantly impacts supplier performance measurement by promoting effective communication, knowledge sharing, and collaboration, ultimately enhancing supply chain performance. Furthermore, the influence of cognitive capital on the mature use of supplier performance measurement can drive continuous improvement, enhance competitiveness, and strengthen an organization's market position. By prioritizing the development of cognitive capital and effective supplier performance measurement strategies, organizations can achieve sustainable success and differentiation in their industries (Taj Khan et al., 2023). Therefore, the second hypothesis is formulated:

H1b: cognitive capital positively influences the mature use of supplier performance measurement.

Research by Ghasemi et al. (2022) found that relational capital significantly influences operational performance information sharing. Patrucco et al. (2024) link strong relational capital to fostering trust, cooperation, and mutual understanding between buyers and suppliers, creating a conducive environment for sensitive information sharing, such as operational performance data. This finding is supported by Pillemer and Rothbard (2018), which states that organizations with strong relationships built on trust and mutual understanding are more likely to engage in sensitive data exchanges due to their confidence in the reliability and integrity of their partners. Therefore, based on previous empirical findings, the third hypothesis is formulated:

H2a: relational capital positively influences operational performance information sharing.

Relational capital, encompassing trust, respect, friendship, and reciprocity in relationships between companies and their suppliers, has been shown to significantly influence supplier performance measurement and optimization (Yu & Huo, 2019). Research indicates that relational capital can enhance supplier performance by facilitating better information exchange, increasing readiness for integration, and reducing opportunistic behavior among channel members (Ahmad et al., 2021). This highlights the importance of building strong relationships and trust within the supply chain to improve overall performance and collaboration (Harmawan Saputra & Adiati Pratomo, 2023). Therefore, based on theory and empirical findings, the fourth hypothesis is formulated:

H2b: relational capital positively influences the mature use of supplier performance measurement.

Understanding how an organization's structural capital affects operational performance information sharing is crucial for making informed decisions (Latif, 2013). Research by Latif (2013) concludes that there is a complex dynamic between structural capital and operational performance information sharing. An organization's success fundamentally depends on its personnel's ability to share information smoothly and participate in collaborative efforts, as this symbiotic dynamic fosters a cohesive and productive work environment that ultimately enhances overall organizational performance (Assbeihat, 2016). Kamarulzaman (2018) identifies structural capital as a key component of intellectual capital, encompassing organizational systems, processes, and structures that facilitate knowledge dissemination and exchange, enabling employees to effectively leverage their expertise and contribute to operational success. Additionally, Gogan et al. (2015) emphasize the importance of structural capital in fostering a culture of knowledge sharing within organizations. Based on previous empirical findings, the fifth hypothesis is formulated:

H3a: structural capital positively influences operational performance information sharing.

Optimizing supplier performance measurement is essential for organizations to streamline their supply chain operations,

reduce risks, and achieve sustainable competitive advantage in the market (Gogan et al., 2015). One factor influencing this is structural capital, which includes the organizational structure, processes, and systems within a company (Pratini & Setiawan, 2022). An effective organizational structure can support smooth activities and enhance employee performance, positively impacting supplier performance measurement (Veronika Sri Endang Siagian & Sriulina Sihombing, 2022). Pratini and Setiawan (2022) found that, in addition to organizational structure, effective business strategies, including marketing processes, can enhance a company's competitiveness and influence supplier performance measurement. Research by Marjanis et al. (2021) indicates that organizational structural capital, which includes internal frameworks, operational systems, and procedural guidelines, is a crucial element in improving supplier performance evaluation effectiveness. This finding is supported by Jääskeläinen et al. (2023a) and Arif Umaindra et al. (2018), who also found a positive influence of structural capital on the mature use of supplier performance measurement. Jiwa Husada Tarigan et al. (2020) emphasize the importance of building strong structural capital within organizations to facilitate effective collaboration and performance evaluation with suppliers. Therefore, the sixth hypothesis is formulated:

H3b: structural capital positively influences the mature use of supplier performance measurement.

Ahmed (2022) indicates that operational performance information sharing with suppliers is a strategic practice that can positively impact supplier relationships and drive performance improvements across the supply chain. Operational performance information sharing has been shown to significantly influence the mature use of supplier performance measurement (Huo et al., 2021). Empirical evidence also suggests that fostering a culture of information sharing and trust within the supply chain is crucial for achieving optimal performance and efficiency (Panahifar et al., 2018; Syah et al., 2022). Specifically, research by Dharmayanti et al. (2023) demonstrates that providing real-time data on operational metrics to suppliers enables more informed decision-making and encourages continuous improvement in supplier performance. Therefore, the seventh hypothesis is formulated:

H4: operational performance information sharing positively influences the mature use of supplier performance measurement.

Previous empirical findings have shown that the mature use of supplier performance measurement has a positive relationship with priority customer status (Jääskeläinen et al., 2023; Hüttinger et al., 2014; Pulles et al., 2016). Stefanovic (2014) concludes that optimizing supplier performance through effective measurement and management can enhance a company's competitiveness, reduce risks, and position it as a priority customer in the eyes of its suppliers. Research by Karreman (2022) finds that optimized supplier performance plays a crucial role in influencing priority customer status by

enhancing satisfaction, trust, and collaboration between buyers and suppliers. However, studies examining the relationship between the mature use of supplier performance measurement and priority customer status remain limited, leading to the formulation of the eighth hypothesis:

H5: the mature use of supplier performance measurement positively influences priority customer status.

According to the literature, Singh (2013) states that the implementation of ISO standards, such as ISO/TS-16949, can positively impact supplier performance by enhancing quality management practices, improving processes, and fostering a culture of continuous improvement. ISO/TS-16949 also helps reduce risks, improve operational efficiency, and strengthen relationships with suppliers, making it key to ensuring safety, reliability, and customer satisfaction in the automotive industry (Zakuan et al., 2012). While many studies have been conducted on the impact of ISO standards implementation on the mature use of supplier performance measurement, more detailed research on the effects of ISO standards implementation on the relationship between operational performance information sharing and mature use of supplier performance measurement is still limited. Therefore, the ninth hypothesis is formulated:

H6: the implementation of ISO standards moderates the relationship between operational performance information sharing and the mature use of supplier performance measurement.

4. Methodology

4.1 Empirical Data

This study employs a quantitative approach, which involves the collection and analysis of numerical data to measure variables and produce statistical results. Quantitative research often utilizes surveys or questionnaires to gather data from individuals or populations, allowing researchers to measure frequencies, percentages, and other statistical indicators to draw conclusions (Apuke, 2017). According to Creswell (2018), researchers using a quantitative approach test theories by detailing specific hypotheses and then collecting data to support or refute those hypotheses. This research adopts a quantitative analysis approach based on statistical information, enabling accurate measurement of data, identification of patterns, relationships, and trends among variables, and informed predictions based on statistical analysis (Nasir & Sukmawati, 2023). The study employs causal analysis methodology, focusing on determining whether changes in independent variables cause changes in dependent variables, allowing researchers to draw conclusions about the causal impact of independent variables on dependent variables (Nasir & Sukmawati, 2023).

In this research, there are three independent variables: operational performance information sharing, mature use of supplier performance measurement, and priority customer status. The dependent variables include cognitive capital, relational capital, structural capital, operational performance

information sharing, and mature use of supplier performance measurement. Additionally, there is one variable acting as a moderating variable between operational performance information sharing and mature use of supplier performance measurement, which is the implementation of ISO standards. Based on the background and problem formulation, this study uses a quantitative approach and causal analysis to discuss social capital as a facilitator of operational performance information sharing and optimization of buyer-supplier performance management at Arista Group.

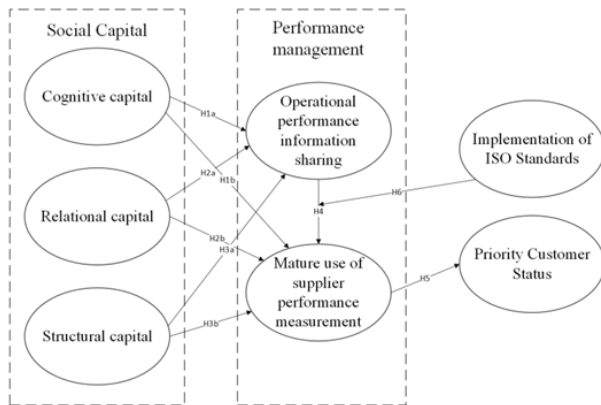


Figure 1 Research Framework

The research is conducted at Arista Group, a multibrand automotive dealership. The study takes place from November to December 2024. To collect the necessary data, the researcher distributes questionnaires to the population of suppliers actively collaborating with Arista Group. The population of this study consists of suppliers actively working with Arista Group, totaling 102 suppliers. The sampling method used is the census method, which is chosen because the number of suppliers is only 102, allowing the entire population to be used as the sample. According to Arikunto (2002), if the research subject/population is less than 100 individuals, it is advisable to take the entire population as the sample. The research was conducted by distributing 204 questionnaires to directors or owners of companies and managers of suppliers actively collaborating with Arista Group. According to Table below, the number of respondents from the director category was 64, and from the manager category, there were 140 respondents.

Table 1 Respondent Position Characteristics

| | Frequency | Percentage |
|-----------------------|-----------|------------|
| Director/Owner | 64 | 31,4% |
| Manager/Division Head | 140 | 68,6% |
| Total | 204 | 100% |

This quantitative research utilizes primary data collected through a standardized questionnaire filled out directly by the Directors/Managers of suppliers actively collaborating with Arista Group. The study follows a deductive approach, starting with theories or hypotheses and then gathering data to test the proposed relationships (Creswell, 2018). The independent variables include cognitive capital, relational

capital, structural capital, operational performance information sharing, and mature use of supplier performance measurement, while the dependent variables are operational performance information sharing, mature use of supplier performance measurement, and priority customer status, with the moderating variable being the implementation of ISO standards. Data collection is conducted through a survey using a structured instrument that provides a series of written statements or questions to respondents regarding their responses to the studied variables, ensuring consistency and facilitating analysis (Muhammad & Kabir, 2016). The survey is administered online via Google Forms, allowing respondents to complete it anytime and anywhere, thus saving time and costs associated with manual distribution. The measurement scale used is the Likert scale, which assesses attitudes, opinions, and perceptions of individuals or groups regarding social events or phenomena (Joshi et al., 2015). Respondents indicate their level of agreement or disagreement on a scale ranging from "strongly agree" to "strongly disagree," with values from one to five, as detailed in the following table.

4.2 Analysis methods

To examine the causal relationships between social capital factors and operational performance information sharing, as well as the mature use of supplier performance measurement and priority customer status, this study employs the Partial Least Squares (PLS) approach. PLS is a variant-based Structural Equation Modeling (SEM) method that focuses on estimating model parameters using proxies created from observed variables (Henseler et al., 2016). This alternative approach shifts from covariance-based SEM to variance-based SEM, offering flexibility and robustness, as it does not require strict assumptions about data distribution, making it effective for research with small sample sizes (Kwong & Wong, 2013). In variable construction, two techniques are recognized: first-order and second-order methods. The first-order method analyzes the relationships between observed variables and their underlying latent factors, while the second-order method examines the relationships between the latent factors themselves. This study utilizes a first-order model since it does not involve indicators with multiple dimensions, helping to identify the underlying structure of the variables and their interrelations (Goundar, 2019). The first step in evaluating SEM-PLS results involves analyzing the measurement model. If the measurement model meets all necessary criteria and fits the data well, the analysis proceeds to the structural model to further explore the relationships between latent variables (Ihsan Khairi & Susanti, 2021).

The SEM-PLS analysis is conducted in three stages: measurement model analysis, structural model analysis, and hypothesis testing, as outlined by Sholihin & Ratmono (2021). The measurement model evaluation includes assessing internal consistency reliability using Cronbach’s alpha and composite reliability. Cronbach’s alpha estimates the intercorrelation among indicators of latent variables, while composite reliability accounts for different loadings of each indicator, with acceptable values ranging from 0.60 to 0.90

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(Hair et al. in Sholihin & Ratmono, 2021). Convergent validity is assessed through outer loading and average variance extracted (AVE), ensuring that indicators correlate positively with alternative indicators for the same construct, while discriminant validity measures how distinct a variable is from others in the model.

In the structural model analysis, initial evaluations focus on detecting potential multicollinearity issues among variables using tolerance and variance inflation factor (VIF). The significance and relevance of relationships among variables

are assessed using bootstrapping to generate empirical t and p values for path coefficients. The coefficient of determination (R^2) is evaluated to measure the model's predictive power regarding endogenous latent variables, with values closer to 1 indicating a strong explanatory capacity. Effect size is also assessed to measure the substantive impact of removing specific exogenous constructs from the model, while predictive relevance (Q^2) is evaluated to ensure the model's ability to generalize findings to different situations or populations.

Table 2 Discriminant Validity (HTMT)

| | Mature Use of Supplier Performance Measurement | Cognitive Capital | Relational Capital | Structural Capital | Operational Performance Information Sharing | Implementation of ISO Standards | Priority Customer Status | Implementation of ISO Standards x Operational Performance Information Sharing |
|---|--|-------------------|--------------------|--------------------|---|---------------------------------|--------------------------|---|
| Mature Use of Supplier Performance Measurement | | | | | | | | |
| Cognitive Capital | 0.539 | | | | | | | |
| Relational Capital | 0.563 | 0.431 | | | | | | |
| Structural Capital | 0.559 | 0.651 | 0.457 | | | | | |
| Operational Performance Information Sharing | 0.816 | 0.529 | 0.600 | 0.605 | | | | |
| Implementation of ISO Standards | 0.025 | 0.056 | 0.071 | 0.092 | 0.030 | | | |
| Priority Customer Status | 0.178 | 0.413 | 0.152 | 0.328 | 0.212 | 0.020 | | |
| Implementation of ISO Standards x Operational Performance Information Sharing | 0.385 | 0.201 | 0.368 | 0.183 | 0.544 | 0.012 | 0.131 | |

Discriminant validity refers to the extent to which a construct is truly different from other constructs. Discriminant validity is assessed based on the heterotrait-monotrait ratio (HTMT) criteria (Henseler et al., 2015). An HTMT value greater than 0.9 indicates a lack of discriminant validity. Based on the results of the PLS algorithm calculations in Table 4.11, all HTMT values are below the threshold of 0.9. Therefore, it can

be concluded that all constructs meet the criteria for discriminant validity.

5. Results

A high loading factor on a construct indicates that the related indicators share a significant amount of similarity captured by the construct. The magnitude of this loading factor is also



commonly referred to as the reliability index. Based on the results of the PLS algorithm testing, the loading factor values of all indicators are presented in the following table.

Table 3 Convergent Validity (Loading Factor)

| | MK | MR | MS | MUSPM | OPIS | PSI | SPP | PSI x OPIS |
|--------|-------|-------|-------|-------|-------|-------|-------|------------|
| MK1 | 0.709 | | | | | | | |
| MK2 | 0.759 | | | | | | | |
| MK3 | 0.803 | | | | | | | |
| MK4 | 0.804 | | | | | | | |
| MK5 | 0.783 | | | | | | | |
| MK6 | 0.754 | | | | | | | |
| MR1 | | 0.725 | | | | | | |
| MR2 | | 0.413 | | | | | | |
| MR3 | | 0.769 | | | | | | |
| MR4 | | 0.776 | | | | | | |
| MR5 | | 0.781 | | | | | | |
| MR6 | | 0.626 | | | | | | |
| MS1 | | | 0.625 | | | | | |
| MS2 | | | 0.502 | | | | | |
| MS3 | | | 0.411 | | | | | |
| MS4 | | | 0.545 | | | | | |
| MS5 | | | 0.652 | | | | | |
| MS6 | | | 0.741 | | | | | |
| MS7 | | | 0.758 | | | | | |
| MUSPM1 | | | | 0.693 | | | | |
| MUSPM2 | | | | 0.817 | | | | |
| MUSPM3 | | | | 0.885 | | | | |
| MUSPM4 | | | | 0.829 | | | | |
| MUSPM5 | | | | 0.748 | | | | |
| OPIS1 | | | | | 0.800 | | | |
| OPIS2 | | | | | 0.747 | | | |
| OPIS3 | | | | | 0.795 | | | |
| OPIS4 | | | | | 0.773 | | | |
| OPIS5 | | | | | 0.792 | | | |
| OPIS6 | | | | | 0.632 | | | |
| OPIS7 | | | | | 0.695 | | | |
| PSI | | | | | | 1.000 | | |
| SPP1 | | | | | | | 0.849 | |

| | | | | | | | | |
|------------|--|--|--|--|--|--|-------|-------|
| SPP2 | | | | | | | 0.891 | |
| SPP3 | | | | | | | 0.922 | |
| SPP4 | | | | | | | 0.856 | |
| SPP5 | | | | | | | 0.894 | |
| PSI x OPIS | | | | | | | | 1.000 |

According to the table above, the research findings indicate that the variables of cognitive capital, priority customer status, and ISO standard implementation are valid because their loading factor values are > 0.70. Conversely, for the variables of relational capital, structural capital, and operational performance information sharing, there are indicators that are invalid because their loading factor values are < 0.70. This indicates that some of these indicators cannot be used as measurement tools. Subsequently, these invalid indicators are removed to proceed to the next stage.

In addition, the average AVE (Average Variance Extracted) is a common measure used to determine convergent validity at the construct level. The recommended AVE value is > 0.50. An AVE value higher than 0.50 indicates that the construct explains, on average, at least half of the variance in its indicators. Based on the AVE test results in Table 4.10, the AVE values for all constructs or variables are greater than or equal to 0.5. Therefore, all variables meet the criteria for convergent validity.

Table 4 Convergent Validity (Average Variance Extracted)

| Variabel | Average Variance Extracted (AVE) |
|--|----------------------------------|
| Cognitive Capital | 0.592 |
| Relational Capital | 0.610 |
| Structural Capital | 0.802 |
| Mature Use of Supplier Performance Measurement | 0.708 |
| Operational Performance Information Sharing | 0.656 |
| Priority Customer Status | 0.778 |

Composite Reliability (CR) is an alternative to Cronbach's Alpha in PLS-SEM, although both can be used. Composite Reliability measures the reliability of a construct by considering the weight of each element assigned to an indicator of the measured construct. By using Composite Reliability, researchers can estimate the reliability of a construct more accurately (Henseler et al., 2015). The criteria for determining the score or value of Composite Reliability are the same as Cronbach's Alpha, which is > 0.7. If the result is below 0.7, the model used is not accepted and cannot be utilized.

Table 5 Composite Reliability

| Variabel | Composite Reliability |
|----------|-----------------------|
| | |

| | |
|--|-------|
| Cognitive Capital | 0.872 |
| Relational Capital | 0.800 |
| Structural Capital | 0.753 |
| Mature Use of Supplier Performance Measurement | 0.865 |
| Operational Performance Information Sharing | 0.870 |
| Priority Customer Status | 0.952 |

Based on Table 4.13 above, the Composite Reliability scores for all variable items are greater than 0.7. This indicates that the construct reliability in the model can be accepted because it meets the minimum threshold score, which is greater than 0.7.

The coefficient of determination, or R-Square, is a measure of a model's predictive strength and is calculated as the squared correlation between the actual values and predicted values of a specific endogenous construct. This coefficient represents the combined influence of independent variables on the dependent variable. An R-Square value of 0.75 is considered substantial, 0.50 is moderate, and 0.25 is weak (Hair et al., 2021). The results of the R-Square calculation are shown in Table 4.14.

Table 6 R-Square Calculation Results

| | R-square | R-square adjusted |
|--|----------|-------------------|
| Mature Use of Supplier Performance Measurement | 0.543 | 0.529 |
| Operational Performance Information Sharing | 0.394 | 0.385 |
| Priority Customer Status | 0.028 | 0.023 |

The calculations in Table 4.14 indicate that the R-Square value for mature use of supplier performance measurement is 0.543. This means that the factors of social capital and operational performance information sharing have a moderate ability to explain the structure of mature use of supplier performance measurement. Social capital and operational performance information sharing explain 54.3% of the variance in mature use of supplier performance measurement, while the remaining 45.7% is explained by other variables not examined in this study. Additionally, the R-Square value for operational performance information sharing is 0.394, indicating that social capital explains 39.4% of operational

performance information sharing, which falls into the weak category. Meanwhile, the R-Square value for the priority customer status variable is 0.028, meaning that the mature use of supplier performance measurement only explains 2.8% of priority customer status, which is classified as very weak.

Analyzing the inner model testing was conducted using PLS-SEM. The primary goal of inner model testing analysis is to assess the internal model's fit, construct validity, and the significance of relationships between constructs within the model. In data analysis, bootstrap testing is a statistical technique used to measure the statistical uncertainty of model estimates such as path coefficients, R-Square, and t-statistic values (Garson, 2016).

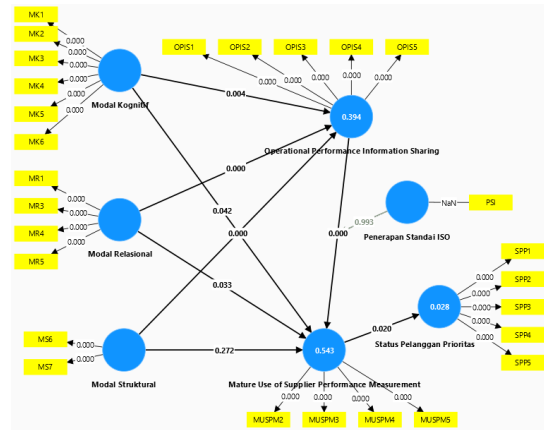


Figure 2 Bootstrapping Analysis Test

Table 7 Direct Effect Test Results

| | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (O/STDEV) | P values |
|---|---------------------|-----------------|----------------------------|--------------------------|----------|
| Mature Use of Supplier Performance Measurement -> Priority Customer Status | 0.168 | 0.178 | 0.072 | 2.330 | 0.020 |
| Modal Kognitif -> Mature Use of Supplier Performance Measurement | 0.131 | 0.131 | 0.065 | 2.031 | 0.042 |
| Modal Kognitif -> Operational Performance Information Sharing | 0.210 | 0.213 | 0.073 | 2.870 | 0.004 |
| Modal Relasional -> Mature Use of Supplier Performance Measurement | 0.128 | 0.128 | 0.060 | 2.133 | 0.033 |
| Modal Relasional -> Operational Performance Information Sharing | 0.331 | 0.334 | 0.059 | 5.637 | 0.000 |
| Modal Struktural -> Mature Use of Supplier Performance Measurement | 0.071 | 0.071 | 0.064 | 1.100 | 0.272 |
| Modal Struktural -> Operational Performance Information Sharing | 0.264 | 0.262 | 0.072 | 3.669 | 0.000 |
| Operational Performance Information Sharing -> Mature Use of Supplier Performance Measurement | 0.548 | 0.549 | 0.062 | 8.908 | 0.000 |
| Penerapan Standar ISO x Operational Performance Information Sharing -> Mature Use of Supplier Performance Measurement | -0.001 | 0.004 | 0.112 | 0.008 | 0.993 |

From Table 4.17, it can be seen that there are significant and non-significant relationships between the P-values of the seven variables mentioned above. The P-values for the relationship between cognitive capital and operational performance information sharing and the mature use of supplier performance measurement are 0.004 and 0.042, respectively. This means there is a significant and positive relationship with original sample values of 0.210 and 0.128. The relational capital variable with operational performance information sharing and the mature use of supplier performance measurement has P-values of 0.000 and 0.033,

and original sample values of 0.331 and 0.128, indicating a significant and positive influence. Furthermore, the relationship between structural capital and operational performance information sharing has a P-value of 0.000 and an original sample value of 0.264, meaning there is a significant and positive influence. However, the result is different for the relationship between structural capital and the mature use of supplier performance measurement, where the P-value exceeds 0.05, indicating no significant influence, with an original sample value of 0.071.

Lastly, the relationship between operational performance information sharing and the mature use of supplier performance measurement has a P-value of 0.000, indicating a significant and positive influence, with original sample values of 0.548 and 0.128. Based on the moderating effect test results, it can be observed that the P-value is above 0.05, specifically 0.993. This shows that the variable "Implementation of ISO Standards" cannot moderate the influence of Operational Performance Information Sharing (OPIS) and the Mature Use of Supplier Performance Measurement (MUSPM).

6. Discussion

The influence of cognitive capital factors on operational performance information sharing is positive and significant, as indicated by an original sample of 0.210, a t-statistic of 2.870 (>1.65), and a P-value of 0.004 (<0.05), supporting the first hypothesis (H1a). This finding aligns with prior studies (Jääskeläinen et al., 2023; Graça & Barry, 2019) that show cognitive capital significantly enhances information exchange between companies. Research highlights that shared goals, such as product quality, operational efficiency, and sustainability, strengthen information flow (Amira S, 2024; Rane et al., 2023). Organizational culture also plays a vital role; positive cultures foster trust and collaboration, facilitating open communication (Kang et al., 2015; Radu, 2023). Companies with similar business philosophies are more likely to share operational performance information, as seen in studies by Zhang et al. (2023) and Osei et al. (2023). For example, Arista Group's suppliers, sharing goals and philosophies, demonstrate a stronger tendency toward information sharing, which enhances mutual trust and collaboration (Mikalef et al., 2020).

The cognitive capital factor significantly influences the mature use of supplier performance measurement, as indicated by an original sample value of 0.131, a t-statistic of 2.031 (>1.65), and a P-value of 0.042 (<0.05). This supports the hypothesis (H1b) that cognitive capital positively impacts supplier performance measurement. Studies by Jääskeläinen et al. (2023) and Aguilera et al. (2024) attribute this influence to shared norms, values, and aligned organizational goals between companies, which enhance performance optimization. Additionally, similar organizational cultures between companies and suppliers, as noted by Agboola et al. (2013), facilitate collaborative strategies based on supplier performance evaluation. Sohns et al. (2023) further highlight that shared business philosophies promote sustainable development through optimized performance measurement. Descriptive analysis reveals high mean values for shared goals (4.123), similar organizational cultures (4.098), and aligned business philosophies, emphasizing cognitive capital's significant role in enhancing supplier performance evaluation and fostering mutual development.

The relational capital factor has a significant positive influence on operational performance information sharing, with a path coefficient of 0.331, a t-statistic of 5.637 (>1.65), and a P-value of 0.000. These results confirm the third

hypothesis (H2a), which states that relational capital positively affects operational performance information sharing. This finding aligns with previous studies by Ghasemi et al. (2022), who identified long-term relationships, collaboration, and trust as significant contributors, and Thi Mai Anh et al. (2019), who found similar results in manufacturing and technology sectors. Additionally, Ahmad et al. (2021) demonstrated the impact of relational capital on information sharing in procurement and supply management. For Arista Group suppliers, relational factors such as long-term relationships, mutual respect, honesty, fairness, and trust significantly enhance willingness to share operational performance information.

The relational capital significantly influences the mature use of supplier performance measurement, with an original sample of 0.128, a t-statistic of 2.133, and a P-value of 0.033, indicating a positive and significant relationship. This supports the hypothesis (H2b) that stronger relational capital fosters improved supplier performance measurement. Analysis highlights that suppliers collaborating with Arista Group view the relationships as enabling sustainable strategies, with high mean scores for trust, respect, honesty, and partnership. These factors reinforce long-term collaboration and strategic development, aligning with prior studies that confirm a positive link between relational capital and supplier performance measurement. Strong relational ties encourage suppliers to enhance performance, ensuring mutual benefits and optimal evaluations.

Structural capital positively and significantly influences operational performance information sharing, with an original sample value of 0.264, a t-statistic of 3.669, and a P-value of 0.000. These results support the hypothesis (H3a) that structural capital enhances operational performance information sharing. The findings indicate that effective utilization of structural capital strengthens collaboration and encourages suppliers to share operational performance information, such as product/service details and production capacity, with the Arista Group. This aligns with previous studies (e.g., Tukamuhabwa et al., 2023; Cai et al., 2011; Panahifar et al., 2018) showing a significant impact of structural capital on information sharing. Suppliers reported that frequent communication and established systems facilitate operational performance information sharing, reinforcing the role of structural capital in promoting seamless information exchange.

The structural capital factor has a positive but insignificant influence on the mature use of supplier performance measurement, with an original sample value of 0.071, t-statistic of 1.100, and a p-value of 0.272. The results do not support the hypothesis (H3b) that structural capital positively affects the mature use of supplier performance measurement, as the significance levels fall below the threshold (t-statistic <1.65 and p-value >0.05). This finding contrasts with Jääskeläinen et al. (2023), who found a significant positive impact, but aligns with Lee (2015), who concluded that factors like communication frequency, meetings, and collaboration did not affect the mature use of supplier

performance measurement. Similarly, Setyawan et al. (2022) found no significant impact of structural capital on firms' development of joint and sustainable strategies with partners. In this study, the evaluation of supplier performance at Arista, which facilitates the development of responsive and sustainable strategies, is more influenced by cognitive and relational social capital factors, which proved to have a significant impact.

The influence of operational performance information sharing on the mature use of supplier performance measurement shows a positive relationship, with an original sample value of 0.548, a t-statistic of 8.908, and a P-value of 0.000, indicating a significant effect. This supports hypothesis H4, which posits that operational performance information sharing positively impacts the mature use of supplier performance measurement. The study reveals that sharing operational performance information between Arista Group and its suppliers has a significant influence on supplier performance measurement. This finding aligns with previous research (Huo et al., 2021), which found that higher frequencies of information sharing lead to better performance measurement optimization. Accurate and frequent information sharing allows suppliers to adjust products or services to meet customer needs, contributing to more effective and collaborative performance strategies. However, despite its positive impact, there are areas where Arista's suppliers feel a lack of systematic information sharing, leading to insufficient recognition of their performance achievements, as indicated by lower mean values in certain survey statements. This suggests the need for improvements in the systematic approach to information sharing and performance measurement (Ghavifekr & Pillai, 2016; Jääskeläinen et al., 2023).

The impact of the mature use of supplier performance measurement on the priority customer status has an original sample of 0.168, a t-statistic of 2.330, and a p-value of 0.020, indicating a positive and significant relationship. This supports hypothesis H5, which states that the mature use of supplier performance measurement positively influences priority customer status. The results show that Arista Group's supplier performance evaluation impacts its status as a priority customer for suppliers. The more optimal the supplier evaluation, the greater the likelihood that the supplier will prioritize the customer. This finding aligns with previous studies, such as Jääskeläinen et al. (2023), which also found a significant positive impact. Arista's suppliers view performance evaluations as motivation to prioritize the company over others. Additionally, optimal evaluations provide suppliers with a reason to focus more on Arista compared to other clients, consistent with Garcia-Buendia et al. (2023). The mature use of performance measurement enhances supplier strategies, fostering closer collaboration with priority customers (Osei et al., 2023). Therefore, Arista suppliers prioritize customers when performance evaluations enable the development of sustainable joint strategies.

Based on the results of hypothesis test H6 in Table 4.18, the implementation of ISO standards does not moderate the relationship between operational performance information

sharing and the mature use of supplier performance measurement. This is due to the negative original sample value (-0.001), a p-value of 0.993 (> 0.000), and a t-statistic value of 0.008 (< 1.65). Therefore, it can be concluded that ISO standards do not moderate the relationship between operational performance information sharing and the mature use of supplier performance measurement (H6 is rejected). This may occur because the mature use of supplier performance measurement between Arista and its suppliers requires a more strategic approach that involves a deep understanding of long-term relationships, beyond the guidelines set by ISO. Additionally, ISO standards may not sufficiently focus on flexible and dynamic operational performance information sharing, which is not easily captured by the rigid, less adaptable ISO standards.

7. Conclusions

The findings of the study emphasize the significant role of cognitive and relational social capital in enhancing operational performance information sharing and supplier performance measurement within the automotive industry. Cognitive capital positively influences the sharing of operational performance information, fostering trust and collaboration among companies with aligned goals and cultures. This shared understanding not only facilitates better communication but also enhances the effectiveness of supplier performance evaluations. The research indicates that organizations with similar philosophies are more likely to engage in effective information sharing, which in turn strengthens their collaborative efforts. Additionally, while cognitive capital significantly impacts the mature use of supplier performance measurement, the study reveals that the implementation of ISO standards does not moderate the relationship between operational performance information sharing and supplier performance measurement. This suggests that a more strategic approach, beyond ISO guidelines, is necessary for optimizing these relationships. Overall, the study underscores the importance of developing social capital to achieve sustainable buyer-supplier relationships and improve operational efficiency, emphasizing that effective information sharing and performance measurement are crucial for fostering closer collaboration and prioritizing customer status.

8. References

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