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Influence Of Information Technology, Information Sharing, And Trust On Supply Chain Performance, Mediated By Integration In Batam City's Retail Sector

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ABSTRACT

The purpose of this study is to analyze the impact of information technology, information sharing, and trust on supply chain performance, with supply chain integration as a mediating variable. The research method used is a quantitative approach, with questionnaires distributed to 236 individuals in the retail supply chain in Batam. Data were analyzed using the PLS method with SmartPLS 3.0. The results show that information technology and trust have a significant positive relationship with supply chain performance. Additionally, supply chain integration strengthens the relationships between information technology, information sharing, trust, and supply chain performance. However, it was found that information sharing does not have a significant relationship with supply chain performance. The implications of this study highlight the importance of effective use of information technology to enhance supply chain integration, which in turn strengthens information sharing and trust among partners, thereby improving retail performance in Batam City.

INTRODUCTION

Batam City is a major industrial and trade center in Indonesia. In recent years, Batam has grown into a leading tourist destination due to its strategic location near Singapore and Malaysia, as well as significant infrastructure improvements (Kemenparekraf, 2023). The increase in tourist visits to Batam has led to a surge in demand for retail products, including both daily necessities and luxury goods. According to Mostaghel et al. (2022), the retail business is a sector that has adopted digitalization-based business model innovations to enhance operational efficiency and customer experience. Sundari et al. (2021) define retail business as an activity involving the direct trade of goods and services to end consumers for personal or household use. Tourists require goods and services such as food, clothing, and souvenirs, which drives the growth of the retail business. Batam's rapid economic growth saw an annual average increase of

6.84% from 2021 to 2022 (Batam City Statistics Agency, 2023). Data from the Batam City Statistics Agency (2023) indicates an annual growth rate in the retail sector of around 5-7% in recent years, driven by increased investment and infrastructure improvements. Data from the Batam City Statistics Agency (2024) shows that the industrial and trade sectors in Batam contribute approximately 30% and 25% of the total regional GDP, making this sector an appealing subject for research.

Previous research have revealed that information technology and information sharing improve efficiency by reducing redundancy and speeding up processes (Hendayani & Febrianta, 2020). They also enhance communication and collaboration within the supply chain, boosting competitiveness (Nguyen & Hoang, 2022) and operational efficiency (Safitri & Huda, 2022). Good supply chain performance provides a competitive advantage for retail companies, enabling them to more effectively meet customer needs (Sutanto & Japutra, 2021). Previous research by Gawankar et al. (2020) found that investment in big data technology has been transformative for retail businesses in India, enabling them to optimize their supply chains and respond swiftly to market changes. Nurjanah et al. (2023) also stated in their research that high levels of trust among partners strengthen cooperative relationships and facilitate more effective collaboration. Which leads to improved communication, reduced conflict, and increased information sharing, thereby enhancing overall supply chain efficiency and performance.

This study is important because few studies have combined these three factors—information technology, information sharing, and trust—simultaneously (Mellani et al., 2019; Mora-Monge et al., 2019; Nguyen & Hoang, 2022; Owot et al., 2023; Parast, 2020). Examining the interactions between these influencing variables and their impact on supply chain performance can provide new insights, fill gaps in the existing literature, and offer practical solutions to enhance supply chain efficiency across various industries. Therefore, the authors chose to investigate this topic with a focus on the retail sector in Batam City.

LITERATURE REVIEW

Resource-Based View (RBV) Theory

In managerial and strategic research, RBV theory serves as an essential framework for exploring how companies can gain and maintain a competitive edge by effectively managing their internal resources and capabilities (Wernerfelt, 1984). RBV posits that competitive advantage is achieved when a firm holds resources that are valuable, rare, inimitable, and non-substitutable (Barney, 1991). Thus, RBV provides a strong theoretical basis for understanding how strategic resources—like information technology, information sharing, and trust—can enhance supply chain performance when supported by supply chain integration. The practical implication of this model is that companies should focus on developing and managing these resources to build efficient supply chains and secure long-term competitive advantage.

Impact Of Information Technology On Supply Chain Integration

Information technology plays a crucial role in enhancing supply chain integration by accelerating information flow, improving partner coordination, and enhancing transparency (Wamba et al., 2020). Recent studies show that fast and accurate information technology reduces delays, increases responsiveness to market changes (Alghofeli, 2023), and improves overall organizational performance (Nguyen & Hoang, 2022; Yuliana et al., 2022). Information technology also facilitates better communication and coordination between companies and partners, helping to address challenges and barriers within the supply chain (Sallwa, 2023). Research by Setyawan Firmansyah & Siagian (2022) and Yuliana et al. (2022) indicates that implementing information technology has a direct and significantly positive effect on supply chain integration through improved information sharing and collaboration. Similar findings have

been reported by Piprani et al. (2020), Safitri & Huda (2022), Sundram et al. (2020), and Yu et al. (2021), showing that information technology positively influences supply chain integration.

- H1 : Information technology affects supply chain integration

Impact Of Information Sharing On Supply Chain Integration

Information sharing is the ability of an organization to effectively exchange information with other parties involved in a business relationship (Mukhsin & Suryanto, 2023). Nasir & Supriatna (2022) state that information sharing encompasses several parameters, including timeliness, accuracy, and sufficiency. Sutanto & Japutra (2021) describe information sharing as a continuous exchange of information between partners, both structured and unstructured, with consistent openness. Research by Birhanu et al. (2022) indicates that when information is shared effectively throughout the supply chain, integration among elements increases, which not only strengthens supply chain integration but also significantly contributes to improved operational efficiency and effectiveness in the pharmaceutical industry. Positive findings are also reported by studies conducted by Birhanu et al. (2022), Phan et al. (2022), and Thahir et al. (2022), showing that information sharing positively influences supply chain integration.

- H2 : Information sharing affects supply chain integration

Impact Of Trust On Supply Chain Integration

Trust is defined as a company's expectation that its partners will act in the company's interest, even if the behavior cannot be directly monitored (Ramirez et al., 2021), encompassing virtues, integrity, and competence (Franklin & Marshall, 2019). According to Kunci et al. (2019), trust is the retailer's belief that suppliers act in good faith without harming either party. Mellani et al. (2019) add that trust has four key indicators: information provision, compensation, security guarantees, and confidentiality guarantees. While the benefits and risks are still debated in the literature, there is clear evidence that successful supply chain relationships rely heavily on trust, as it can reduce risks such as uncertainty and opportunism (Mora-Monge et al., 2019). Hamdi et al. (2023) further state that increased trust can reduce transaction costs associated with deep integration with suppliers. This result is corroborated by research from Hamdi et al. (2023), Parast (2020), and Ramirez et al. (2021), which demonstrates a positive link between trust and supply chain integration.

- H3 : Trust affects supply chain integration

Impact Of Supply Chain Integration On Supply Chain Performance

The connection between supply chain integration and performance has garnered considerable attention in recent studies. Supply chain integration involves collaborative actions among supply chain participants, fostering synergistic relationships both within and across organizations through shared goals, open information exchange, and synchronized processes (Ramirez et al., 2021). Som et al. (2019) highlight that supply chain integration is a vital component of supply chain management. On the other hand, supply chain performance reflects the supply chain's capacity to carry out activities effectively, balancing cost efficiency with customer satisfaction (Mofokeng & Chinomona, 2019). Numerous recent studies, including those by Aunyawong et al. (2020), Safitri & Huda (2022), Som et al. (2019), Sundram et al. (2020), and Sutanto & Japutra (2021), have consistently found a positive association between supply chain integration and performance.

- H4: Supply chain integration affects supply chain performance

Impact Of Information Technology On Supply Chain Performance

Alghofeli (2023) describes information technology as the technical capability to collect, process, and share data to support corporate decision-making while enhancing communication, coordination, and collaboration among supply chain partners. Similarly, Yuliana et al. (2022)

emphasize that information technology facilitates collaboration between companies and their supply chain partners, leading to improved overall supply chain performance. The findings of this study are consistent with those of Alghofeli (2023), Hendayani & Febrianta (2020), Nguyen & Hoang (2022), and Sundram et al. (2020), who all assert that information technology is crucial for enhancing supply chain performance through improved coordination and communication. However, Safitri & Huda (2022) present contrasting evidence, suggesting that information technology may not always have a significant impact on supply chain performance. This highlights the need for further research to identify the specific conditions under which information technology exerts its most substantial effects and to understand why its impact may not be apparent in certain cases.

- H5: Information Technology affects supply chain performance

Impact Of Information Sharing On Supply Chain Performance

Recent studies highlight the importance of information sharing in enhancing the efficiency and effectiveness of supply chain operations. Sutanto and Japutra (2021) identify a positive correlation between information sharing and supply chain performance, suggesting that better communication leads to improved performance results. Mukhsin & Suryanto (2023) reinforce this view, stating that accurate and timely information sharing not only boosts performance but also strengthens partnerships by fostering trust. Additional studies by Kusmantini et al. (2020, 2023), Mukhsin & Suryanto (2023), Setyawan Firmansyah & Siagian (2022), and Sundram et al. (2020) report a significant positive influence of information sharing on supply chain performance. However, research from Huo et al. (2021), Nurjanah et al. (2023), and Safitri & Huda (2022) suggests that information sharing does not always result in significant performance improvements. These mixed findings indicate that other factors may influence the effectiveness of information sharing in enhancing supply chain performance, highlighting the need for further investigation to gain deeper insights.

- H6: Information sharing affects supply chain performance

Impact Of Trust On Supply Chain Performance

Parast (2020) provided empirical evidence that trust-based supply chain systems can lead to significantly improved outcomes. Trust among partners allows for accurate and timely information sharing, which enhances supply chain efficiency (Owot et al., 2023). High levels of trust strengthen business relationships, enabling closer collaboration and more efficient communication, ultimately supporting supply chain performance (Kusmantini et al., 2023). Safitri & Huda (2022) also reinforce the significant influence of trust on supply chain performance, especially within small and medium-sized enterprises. Trust serves as a critical foundation for strategic partnerships between buyers and sellers, playing a dominant role in shaping supply chain relationships (Yulinda et al., 2021). Studies by Gwaltu & Mrisho (2023), Kusmantini et al. (2023), Mora-Monge et al. (2019), Nurjanah et al. (2023), Safitri & Huda (2022), and Sutanto & Japutra (2021) also support these positive effects of trust. However, Mukhsin & Suryanto (2021) found no significant effect of trust among supply chain members on performance improvement.

- H7: Trust affects supply chain performance

Impact Of Information Technology On Supply Chain Performance Through Supply Chain Integration

Research conducted by Yuliana et al. (2022) indicates that information technology facilitates the provision of high-quality information, which enhances supply chain performance. Sundram et al. (2020) further suggest that when supported by supply chain integration, information technology can effectively boost competitiveness and overall supply chain efficiency. Musau (2021) emphasizes that effectively integrated supply chain information systems are crucial for fully leveraging the advantages of information technology on supply chain

performance. This supports the idea that the success of information technology in enhancing supply chain performance is closely related to how well the information systems are integrated within the supply chain. Positive results have also been documented by Agyabeng-Mensah et al. (2019) and Rahman (2021). In summary, information technology enhances supply chain performance through better integration, but it is essential to recognize the variability in the outcomes achieved.

- H8: Information technology affects supply chain performance through supply chain integration

Impact Of Information Sharing On Supply Chain Performance Through Supply Chain Integration

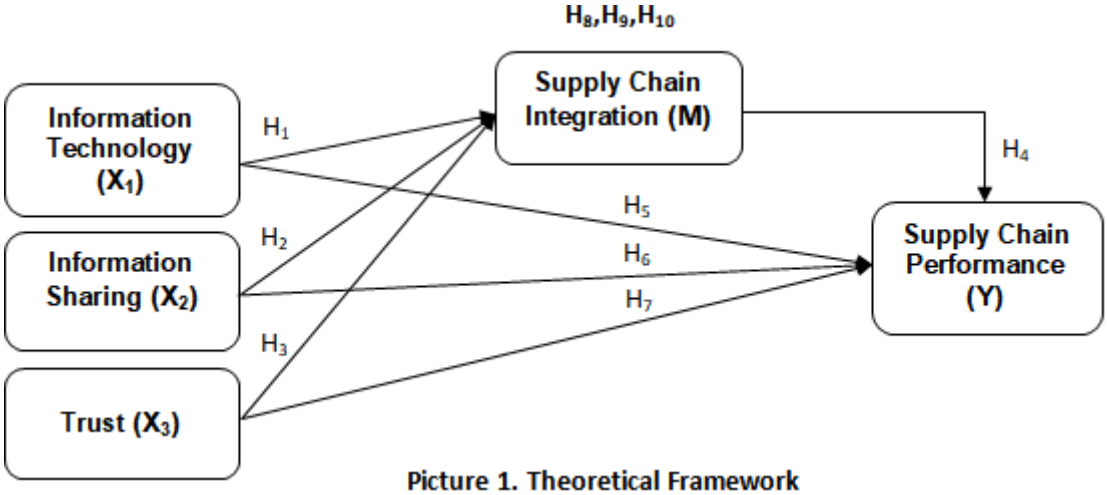
Effective information sharing enhances the performance of supply chain processes. This research investigates the moderating role of supply chain integration in the relationship between supply chain performance and business performance, with a specific focus on information sharing (Thahir et al., 2022). Integrated information sharing has a substantial impact, allowing supply chain participants to access operational or functional data across different sectors (Sundram et al., 2020). This outcome is consistent with other studies, which indicate that supply chain integration mediates the link between information sharing and business performance improvement, particularly within small and medium enterprises, as highlighted by Widowati et al. (2023). Given the limited research on the interactions among these variables and the scarcity of relevant literature, further studies are necessary to enhance understanding.

- H9: Information sharing affects supply chain performance through supply chain integration

Impact Of Trust On Supply Chain Performance Through Supply Chain Integration

Sutanto et al. (2024) found that in small retail environments, the integration of suppliers and customers, supported by trust, can significantly enhance supply chain performance. Similarly, research by Kunci et al. (2019) and Nurjanah et al. (2023) indicates that trust has a positive effect on supply chain performance. Therefore, it can be inferred that a greater level of trust in suppliers results in improved supply chain performance. Jang & Lee (2022) highlight that trust and commitment, cultivated through collaboration and integration between buyers and sellers, can lead to enhanced financial performance within the supply chain. Conversely, Hamdi et al. (2023) argue that high levels of trust might diminish the effects of increased integration on company performance. A review of existing research literature reveals a scarcity of studies exploring the relationship between these mediating variables, indicating a need for additional research to achieve a deeper understanding.

- H10: Trust affects supply chain performance through supply chain integration



Picture 1. Theoretical Framework

METHODS

This study employs a quantitative approach using a questionnaire for data collection. Data was gathered from respondents regarding the variables of Supply Chain Performance (Y), Supply Chain Integration (M), Information Technology (X1), Information Sharing (X2), and Trust (X3). The target population includes individuals engaged in the retail sector supply chain in Batam City, including business owners, managers, and operational staff, with a sample size totaling 236 participants.

Non-probability sampling, specifically purposive sampling, was applied, targeting individuals with characteristics relevant to the study's purpose. The questionnaire comprises 22 items: 7 items for information technology, 4 each for information sharing, supply chain integration, and supply chain performance, and 3 items for trust. In line with Hair et al. (2020), the sample size was calculated by multiplying the 22 items by 10, yielding a total of 220 respondents with a 10% margin of error (10% error rate and 90% confidence level).

The questionnaire, distributed via Google Forms, uses a five-point Likert scale, ideal for measuring latent constructs and capturing the views and attitudes of experts such as upper- and mid-level managers. The Likert scale options include: strongly agree (5), agree (4), neutral (3), disagree (2), and strongly disagree (1). Validity, reliability, and hypothesis testing were performed using Partial Least Squares (PLS) analysis with SmartPLS 3.0.

By employing variance-based structural equation modeling, PLS evalutes the measurement and structural models concurrently, allowing analysis of multiple dependent and independent variables. The measurement model assesses causal relationships through hypothesis testing within a predictive framework, while PLS model evaluation involves analyzing both the external and internal models.

Table 1 Response Rate Of Questionnaires

Distributed Questionnaires	236
Returned Questionnaires	236
Incomplete Questionnaires	0
Processable Questionnaires	236

RESULTS

Validity Test

The aim of validity testing is to assess the extent to which the instrument accurately measures the variables under investigation. A higher value indicates that the instrument more effectively captures the questions posed in the research. The root value of the AVE must exceed the correlation values with other variables (Wijaya, 2019). In addition, convergent validity is evaluated by confirming that the AVE scores for each variable exceed 0.5. The results from this convergent validity assessment reveal that all relevant variables have AVE scores above 0.5, thereby confirming the validity of each variable analyzed.

Table 2 Validity Test

Average Variance Extracted (AVE)	Results	
Information Technology	0,568	**Valid**
Information Sharing	0,683	**Valid**
Trust	0,650	**Valid**
Supply Chain Integration	0,637	**Valid**
Supply Chain Performance	0,639	**Valid**

(Source: SmartPLS processed data, 2024)

Reliability Test

A good reliability evaluation process is obtained from two statistical techniques: Cronbach's Alpha with a minimum value of 0.6 and Composite Reliability of 0.7, in accordance with testing standards (Wijaya, 2019). Based on the data recorded in (Table 3), it is noted that all Cronbach's Alpha values for each construct exceed 0.6, while all Composite Reliability values exceed 0.7. Thus, it can be interpreted that there are no issues with the values present in the model. The findings from the conducted tests indicate that the results are valid and reliable, and the respondents are able to understand and interpret the questions in the questionnaire effectively.

Table 3 Reliability Test

	Cronbach's Alpha	Composite Reliability	Results
Information Technology	0,747	0,840	**Reliable**
Information Sharing	0,769	0,866	**Reliable**
Trust	0,730	0,848	**Reliable**
Supply Chain Integration	0,715	0,840	**Reliable**
Supply Chain Performance	0,812	0,876	**Reliable**

(Source: SmartPLS processed data, 2024)

R-Square Test

R-squared (R^2) measures the extent to which independent latent variables impact dependent latent variables. An R^2 value of 0.75 signifies a strong effect, 0.5 indicates a moderate effect, and 0.25 suggests a weak effect. As shown in Table 4, supply chain integration experiences a moderate impact, with 49.6% of its variation explained by information technology, information sharing, and trust variables, while the remaining 50.4% is due to other factors outside this study. Similarly, the R^2 value reveals a moderate effect of 49.5% on supply chain performance, attributable to the same variables, with 50.5% affected by other factors not included here.

Table 4 R-squared

	R Square Adjusted	Results
Supply Chain Integration	0,496	**Moderate**
Supply Chain Performance	0,495	**Moderate**

(Source: SmartPLS processed data, 2024)

Hypothesis Testing

The main process in hypothesis testing involves examining the P-values. The P-values indicate the significance of the constructs by testing the direct effects of latent variables, which can be observed through the p-values column with a value of <0.05 in this inner model testing. Additionally, the indirect effects between latent factors and those using mediating variables will also be examined; if the p-values <0.05 criterion is met, it indicates a significant and positive relationship.

Table 5 Direct Effect

Direct Effect (Path Coefficients)			
	Sample Mean (M)	**P Values**	**Results**
Information Technology -> Supply Chain Integration	0,343	0,000	**Significant**
Information Sharing -> Supply Chain Integration	0,341	0,000	**Significant**
Trust -> Supply Chain Integration	0,176	0,012	**Significant**
Supply Chain Integration -> Supply Chain Performance	0,374	0,000	**Significant**
Information Technology -> Supply Chain Performance	0,266	0,000	**Significant**
Information Sharing -> Supply Chain Performance	0,008	0,858	**Not Significant**
Trust-> Supply Chain Performance	0,197	0,007	**Significant**
Indirect Effect			
Information Technology -> Supply Chain Integration -> Supply Chain Performance	0,130	0,003	**Significant**
Information Sharing -> Supply Chain Integration -> Supply Chain Performance	0,127	0,000	**Significant**
Trust-> Supply Chain Integration -> Supply Chain Performance	0,065	0,027	**Significant**

(Source: SmartPLS processed data, 2024)

DISCUSSION

The findings of the first hypothesis test confirm that information technology directly enhances supply chain integration, with a sample mean of 0.343 and a P-value of 0.000. This demonstrates a significant and positive link between information technology and integration within the supply chain. For instance, multi-channel retail companies implement RFID technology to track inventory in real time, reducing stockouts and enhancing product availability. Additionally, information technology supports data-driven decision-making for online retailers, enabling precise demand forecasting and inventory optimization. It also fosters better collaboration among stakeholders; for example, specialty stores can work closely with suppliers to monitor performance, address potential issues early, and prevent disruptions. These findings align with earlier research that supports the impact of information technology on supply chain integration (Nguyen & Hoang, 2022; Piprani et al., 2020; Safitri & Huda, 2022; Sallwa, 2023; Yu et al., 2021; Yuliana et al., 2022).

The second hypothesis test reveals that information sharing has a direct, positive effect on supply chain integration, evidenced by a sample mean of 0.341 and a P-value of 0.000. This significant relationship illustrates how real-time data exchange with suppliers enables companies, such as those in the fashion retail sector, to respond more effectively to demand, avoiding overstocking and ensuring product availability. This responsiveness is crucial in fast fashion, where timely access to trends drives competitive advantage. Previous studies similarly highlight the role of information sharing in advancing supply chain integration (Birhanu et al., 2022; Nguyen & Hoang, 2022; Phan et al., 2022; Thahir et al., 2022; Yuliana et al., 2022).

The third hypothesis test shows that trust has a direct, positive impact on supply chain integration, with a sample mean of 0.176 and a P-value of 0.012. Trust is essential in facilitating open collaboration and communication between partners, which lowers transaction costs and reduces the need for stringent supervision. For example, a large retail company with high trust in its suppliers can respond quickly to restocking needs, avoiding excess inventory and maintaining product availability for customers. Without trust, sharing sensitive information becomes challenging, hindering optimization of the supply chain. These findings align with earlier research

confirming the influence of trust on supply chain integration (Hamdi et al., 2023; Parast, 2020; Ramirez et al., 2021).

The fourth hypothesis test confirms that supply chain integration significantly enhances supply chain performance, as indicated by a sample mean of 0.374 and a P-value of 0.000. Integration allows companies to replenish products based on real-time demand, reducing lead times, storage costs, and stockout risks. Enhanced coordination among logistics, suppliers, and inventory management optimizes operations, lowers costs, and improves customer satisfaction. These results support previous findings that show a positive impact of supply chain integration on performance (Aunyawong et al., 2020; Safitri & Huda, 2022; Som et al., 2019; Sundram et al., 2020; Sutanto & Japutra, 2021).

The fifth hypothesis test results indicate that information technology has a direct effect on supply chain performance, with a sample mean of 0.266 and a P-value of 0.000. Information technology accelerates the flow of information, improving coordination across suppliers, manufacturers, and distributors. For instance, a company using Retail Link can automatically adjust shipments based on real-time sales, thus reducing operational costs and enhancing customer satisfaction. This finding aligns with research showing a positive impact of information technology on supply chain performance (Alghofeli, 2023; Hendayani & Febrianta, 2020; Nguyen & Hoang, 2022; Sundram et al., 2020; Yuliana et al., 2022).

The sixth hypothesis test found that information sharing does not significantly influence supply chain performance, with a sample mean of 0.008 and a P-value of 0.858. This suggests that when information is outdated or irrelevant, it may not contribute to performance improvements. For instance, a retailer providing outdated demand data to suppliers risks misaligned production, leading to overstock or shortages. Moreover, information sharing alone may not address deeper structural issues within the supply chain. This result aligns with earlier studies indicating a limited effect of information sharing on performance (Huo et al., 2021; Nurjanah et al., 2023; Safitri & Huda, 2022).

The seventh hypothesis test results indicate that trust has a positive effect on supply chain performance, with a sample mean of 0.197 and a P-value of 0.007. High trust among supply chain participants promotes accountability and supports sustainable raw material sourcing, enhancing performance. This finding corroborates prior research showing a significant positive impact of trust on performance (Gwaltu & Mrisho, 2023; Kusmantini et al., 2023; Mora-Monge et al., 2019; Nurjanah et al., 2023; Safitri & Huda, 2022; Sutanto & Japutra, 2021).

The eighth hypothesis test confirms that information technology positively impacts supply chain performance through supply chain integration as a mediator, shown by a sample mean of 0.130 and a P-value of 0.003. Adopting logistics information technology improves integration, allowing companies to better meet consumer needs and enhance competitiveness. This finding aligns with studies that emphasize the importance of integration for performance (Agyabeng-Mensah et al., 2019; Rahman, 2021).

The ninth hypothesis test results demonstrate that information sharing positively affects supply chain performance mediated by supply chain integration, with a sample mean of 0.127 and a P-value of 0.000. An efficient information flow facilitates better inventory management and resource utilization, which supply chain integration further enhances by promoting information flow and coordination. This finding is consistent with prior research on the importance of integration (Sundram et al., 2020).

Lastly, the tenth hypothesis test results reveal that trust positively influences supply chain performance, mediated by supply chain integration, with a sample mean of 0.065 and a P-value of 0.027. Jang & Lee (2022) note that trust strengthens partner integration, supporting superior performance and enabling companies to address uncertainties that could erode competitive advantage. This finding aligns with previous studies, further validating the hypothesis (Hamdi et al., 2023).

CONCLUSION

Studies on the interplay of factors influencing supply chain performance show that information technology, information sharing, and trust are key contributors to improving efficiency. The integration of advanced information technology allows all supply chain participants to access shared data, fostering better collaboration and effective information sharing. This transparency enables stores to quickly replenish popular items, and distribution centers can coordinate shipments based on real-time demand, reducing delivery delays and lowering operational costs, thereby creating a more responsive and competitive supply chain. Additionally, trust among supply chain partners strengthens due to enhanced data transparency, reassuring suppliers about timely orders and giving stores a reliable system to meet their demands. Together, these factors lead to significant improvements in supply chain performance and efficiency. Thus, adopting appropriate information technology, maintaining strong information-sharing practices, and building solid trust between supply chain members are crucial for gaining a competitive edge in Batam's retail sector. This enhanced integration through information technology supports better retail outcomes in Batam, including increased sales, optimized inventory management, and improved customer satisfaction.

SUGGESTION

This study offers valuable insights into the impact of Information Technology, Information Sharing, and Trust on Supply Chain Performance, mediated by Supply Chain Integration in Batam City's retail sector. However, further research can expand on these findings in several ways. Future studies could consider qualitative approaches to capture the perspectives and experiences of retail sector participants more deeply, providing a comprehensive understanding of how these variables influence supply chain performance on a practical level. Additionally, as this study focuses on a specific geographic area, subsequent research might extend to other regions or sectors to assess whether these findings hold across different contexts. Exploring additional mediating factors, such as organizational culture or customer satisfaction, could also enrich our understanding of the complex relationships within supply chain dynamics. By investigating these areas, future research can further contribute to strategies for enhancing supply chain performance and competitive advantage in the retail industry.

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