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THE EFFECT OF INVENTORY, PRODUCT QUALITY, SHIPPING SPEED, SHIPPING COSTS ON DISTRIBUTION CHANNEL PERFORMANCE AND ITS IMPLICATIONS ON DISTRIBUTOR SATISFACTION OF CV SINAR SUKSES

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Abstract

This study aims to analyze the influence of inventory, product quality, delivery speed, and shipping costs on distribution channel performance and their implications for distributor satisfaction of CV Sinar Sukses. The population was 192 distributors with a sample of 130 respondents using the Slovin formula. The analysis used SEM-PLS. All indicators are valid (outer loading 0.718–0.912) and reliable (Cronbach's Alpha 0.906–0.957; AVE 0.687–0.794). The average value of the variables is in the fairly good category (3.02–3.11).The results of the study showed that inventory (β=0.227; T=2.062; p=0.040), product quality (β=0.193; T=2.045; p=0.041), delivery speed (β=0.296; T=2.643; p=0.008), and shipping costs (β=0.308; T=3.010; p=0.003) had a significant positive effect on distribution channel performance. Distribution channel performance had a significant effect on distributor satisfaction (β=0.744; T=12.797; p=0.000). Shipping costs did not have a direct effect on satisfaction (β=-0.022; p=0.566). Adjusted R^2 showed that the contribution of exogenous variables to performance was 72.80% and performance to satisfaction was 87.40%. Path equation: $Y=0.227X_1+0.193X_2+0.296X_3+0.308X_4$; $Z=0.744Y$.

Keywords: inventory, product quality, delivery speed, delivery costs, distribution channel performance, distributor

INTRODUCTION

Overview of Research CV Sinar Sukses is a snack distribution company founded in 2016 and located in West Bandung Regency, West Java. The company has an extensive distribution network spanning West Java, Banten, Sumatra, East Java, Central Java, and Eastern Indonesia. As the business grows, the company continues to strengthen its distribution system and partnerships with agents in various regions. Since 2020, CV Sinar Sukses has focused its business on seaweed-based snack products. Products distributed include roasted, fried, sprinkled, and rolled seaweed snacks. This strategy was implemented in response to market trends for healthier, value-added snacks. Market performance demonstrates the opposite. **Background** CV Sinar Sukses experienced a decline in seaweed snack sales to distributors. Total sales to distributors in 2024 were Rp 9,410,235,917, while tofun 2025 amounted to Rp 8,213,768,342 or decreased by Rp 1,196,467,575 (12.71) from 2024. This information proves that there is a problem in seaweed snack sales. In connection with the sale of seaweed snacks using distributors as sellers, there is a problem related to the Distributor. Distributor satisfaction with the Company affects the Distributor's sales performance of the Company's Products. (Frazier, 2025). The number of frequencies of seaweed snack purchases by distributors during 2025 was 1,936 times, while in 2024 it was 2,280 times or decreased by 344 deliveries (15.09%). **Research Gap** The 12.71% decline in CV Sinar Sukses sales, 15.09% decline in distributor purchase frequency, and 40.11% increase in distributor complaints indicate serious problems in distribution channel performance and distributor satisfaction. These problems are related to inventory, product quality, delivery speed, and shipping costs. However, based on previous empirical studies, the relationship between these variables still shows research inconsistency and has not been fully studied in the context of local FMCG product distributors such as seaweed snacks. **Benefits of Research** Theoretically, this research contributes to the development of management science, particularly in the areas of distribution channel management and supply chain management. This study tests an integrative model linking inventory, product quality, delivery speed, and shipping costs to distribution channel performance and their implications for distributor satisfaction. This model enriches the literature, as most previous studies have examined variables partially and have been conducted primarily in the context of e-commerce or large companies.

LITERATURE REVIEW

Grand Theory The theory used in Grand Theory is Supply Chain Management Theory. (Chopra, 2022).Supply Chain Management Theory explains that organizational performance is determined by the integration of the flow of goods, information, and finances from upstream to downstream. This theory emphasizes the balance between responsiveness and efficiency in managing inventory, transportation, and distribution facilities. In the context of this research, supply chain operational coordination influences distribution channel performance and distributor satisfaction. **Variables Studied** Product Quality isThe ability of a product to perform its function and provide value to customers (Kotler & Armstrong, 2022). The dimensions of product quality consist of durability and conformance. The durability dimension has the following indicators: product not expired, product intact, product not moldy. The conformance dimension consists of contents according to the name on the packaging, product weight according to the label, and product size according to the packaging.

Previous Research Inventory management has a significant impact on supply chain efficiency at PT Krakatau Baja Konstruksi, including distribution channel performance (Muqoyyimah et al., 2025).Inventory management practices have a positive effect on supply chain performance (Gebisa, 2023). Most studies indicate that inventory impacts distribution performance or supply chain performance. Inventory management practices do not significantly impact firm performance in Indonesian MSMEs, although inventory efficiency does. (Aubrey et al., 2025)Inventory does not directly affect PT Suryadonasin's distribution performance. In certain contexts, inventory is not always the primary determinant of distribution channel performance (Ramdani et al., 2024). **Research Framework** This study uses a modern supply chain management and distribution management approach that emphasizes that distribution channel performance is the result of integrated operational management (inventory, product quality, speed, and cost) which ultimately impacts distributor satisfaction as a strategic partner in the channel relationship. Theoretically:

1. Inventory plays a role in maintaining the availability and continuity of supply (Jacobs & Chase, 2022).
2. Product quality determines the value and consistency of product standards in the distribution system (Kotler & Armstrong, 2022).
3. Delivery speed reflects the responsiveness of the supply chain (Chopra & Meindl, 2023).

Structurally, the research model can be described as follows:

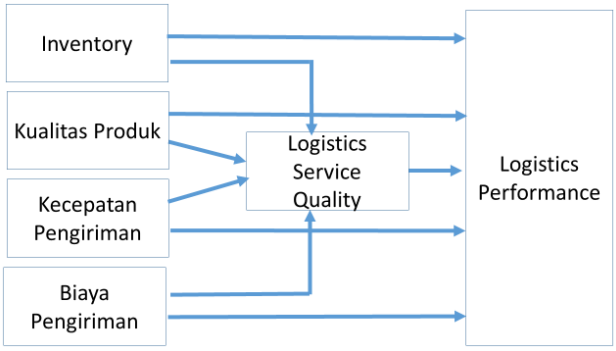

Figure. Research Model

Hypothesis Formulation H1: Inventory influences Distribution Channel PerformanceH2: Product Quality influences Distribution Channel PerformanceH3: Delivery Speed influences Distribution Channel PerformanceH4: Delivery Cost influences Distribution Channel PerformanceH5: Inventory influences Distributor SatisfactionH6: Product Quality influences Distributor SatisfactionH7: Delivery Speed influences Distributor SatisfactionH8: Delivery Cost influences Distributor SatisfactionH9: Distribution Channel Performance influences Distributor Satisfaction

H10: Inventory influences Distributor Satisfaction through Channel Performance Distribution H11: Product Quality influences Distributor Satisfaction through Performance Distribution Channels

H12: Delivery speed affects distributor satisfaction through Distribution Channel Performance

H13: Shipping Costs Influence Distributor Satisfaction through Performance

METHOD

Type of Research This study uses a quantitative approach because it aims to test the causal relationship between variables formulated in the research conceptual model (Sugiyono, 2021). The variables tested include Inventory, Product Quality, Delivery Speed, and Shipping Costs as independent variables, Distribution Channel Performance as a mediating variable, and Distributor Satisfaction as the dependent variable. The quantitative approach was chosen because it allows for objective measurement of variables through structured indicators and hypothesis testing using inferential statistical analysis (Sugiyono, 2021).

Operationalization of Variables Operationalization of variables is the process of defining research variables into dimensions, indicators, and measurement items that can be empirically measured (Sugiyono, 2021). The purpose of operationalizing variables is to ensure that each abstract concept, such as inventory, product quality, delivery speed, shipping costs, distribution channel performance, and distributor satisfaction, can be measured quantitatively through a structured research instrument.In this study, the operationalization of variables was based on the latest theoretical foundations and relevant empirical research. Each variable was broken down into several dimensions, then further elaborated into indicators that represent its theoretical construct. All indicators were measured using a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5), to capture distributors' perceptions of the company's distribution system.

Population and Sample A population is the entire subject or object that has certain characteristics determined by the researcher to be studied and then conclusions drawn (Sugiyono, 2021). A population does not only refer to the number of individuals, but also includes all elements relevant to the research variables and in accordance with predetermined criteria. In quantitative research, the population is the primary source of data that comprehensively describes the phenomenon being studied. A sample is a portion of the number and characteristics possessed by that population (Sugiyono, 2021). Samples were chosen because in many studies it is not possible to study the entire population, either due to time constraints, costs, or research efficiency. Based on company data, the number of active distributors who meet these criteria is 192 distributors. Thus, the population of this study is 192 distributors.
To determine a representative sample size for the population, the Slovin formula is used with a margin of error of 5% or a 95% confidence level. (Sugiyono, 2021) The Slovin formula is as follows:
$n = N / (1 + N e^2)$

With: N=192e = 0.05
So the calculation is:
$n=192/(1+192(0.05)^2)n=192/(1+192\times0.0025)n=192/(1+0.48)n=192/1.48n = 129.73$
The results were rounded up to 130 respondents.

Thus, the sample size in this study was 130 distributors from a total population of 192 distributors. This number was deemed to meet the established level of precision and was methodologically adequate for conducting quantitative analysis and testing the structural model in this study.

Data Collection Data collection in this study was conducted to obtain information related to the variables of inventory, product quality, delivery speed, delivery costs, distribution channel performance, and distributor satisfaction. The data collected consisted of primary and secondary data obtained systematically and structured to answer the research problem formulation and test the research hypothesis. (Sugiyono, 2021) The data collection techniques used included literature studies, observation, interviews, and questionnaires. (Sugiyono, 2021).

Hypothesis Testing Hypothesis Testing Hypothesis testing in this study was conducted using the bootstrapping

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method in SmartPLS 3. Bootstrapping was performed to obtain t-statistic and p-value values to determine the significance of the relationship between variables. The hypothesis testing criteria are as follows: If the t-statistic value is > 1.96 (5% significance level), then the hypothesis is accepted. If the p-value is < 0.05, then the hypothesis is accepted. If the t-statistic value is < 1.96 and the p-value is > 0.05, then the hypothesis is rejected (Hasnita, 2021).

RESULTS AND DISCUSSION

Respondent Characteristics The distribution of respondents shows that the majority came from West Java (30.8%), followed by DKI Jakarta (19.2%) and Banten (15.4%). This reflects the broad geographic representation of respondents across Java and its surrounding areas. This characteristic is important to ensure that the research results reflect the perceptions of distributors from various regions, ensuring that findings regarding distribution channel performance and distributor satisfaction are not biased toward one particular region. By understanding the provincial distribution, researchers can analyze whether geographic location influences purchasing decisions or shopping patterns at CV Sukses Makmur.

Research Results

Data collected in the questionnaire and originating from respondents before being processed using the Smart PLS.3 Application needs to be tested for validity and reliability (Hasnita, 2021). Validity test to ensure that the questionnaire provided provides opportunities for respondents to express strongly disagree, disagree, quite agree, agree, and strongly agree with the statements provided in the questionnaire, and respondents use the opportunity. (Hasnita, 2021). A variable is declared valid if the Outer loading value is above 0.700. Variables declared valid meet the requirements for processing the Structural Equation Model using SMART PLS 3. (Hasnita, 2021).

Table . Validity Test Results

No	Variables	Outer Loadings Value Range	Validity Standards	Decision
1	Inventory	0.837-0.900	0.700	Valid
2	Product Quality	0.848-0.898	0.700	Valid
3	Delivery Speed	0.718-0.909	0.700	Valid
4	Shipping costs	0.774-0.912	0.700	Valid
5	Distribution Channel Performance	0.872-0.910		
6	Distributor Satisfaction	0.798-0.880	0.700	Valid

Source: Questionnaire processed with Smart PLS (2025).

The information in Table ,explains that the range of values*outer loading*The value of all variables is above 0.700. The data provided by respondents in the questionnaire is declared valid. Valid data proves that the questionnaire is a quality data collection tool from respondents (Hasnita, 2021). Reliability Testing is a researcher's activity to ensure that respondents' opinions will remain consistent, whether the questionnaire was asked yesterday, today, or tomorrow. (Iman Supriadi). Variables are declared reliable if they have a Cronbach's Alpha value, rho_A value, Composite Reliability value above 0.700, and an Average Variance Extracted (AVE) value above 0.500. It can be explained if the data of all variables studied are declared reliable, so they meet the requirements to be processed by the Structural Equation Model using SMART PLS 3. (Hasnita
,2021).

The results of the Reliability Test are presented in Table

Table . Reliability Test Results

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Shipping costs	0.925	0.937	0.941	0.729
Inventory	0.935	0.942	0.949	0.755
Delivery Speed	0.906	0.917	0.928	0.687
Distributor Satisfaction	0.931	0.938	0.944	0.707
Distribution Channel Performance	0.957	0.958	0.964	0.794
Product Quality	0.939	0.944	0.952	0.766

Source: Questionnaire processed with Smart PLS (2025)

The information in Table 4.2 explains that*Cronbach's Alpha, Rho_A, Composite Reliability values*All variables are above 0.700 and the Average Variance Extracted (AVE) value is above 0.500. Considering the information in Table 4.10. and considering the opinion of Iman Supriadi (202), it can be explained that the data collected on all variables are stated as reliable. The data stated as reliable proves that the questionnaire is stated as a quality tool for collecting data from the questionnaire.

Hypothesis Test Results The research tested:

1. Direct Influence of Exogenous Variables (Inventory, Product Quality, Delivery Speed, Delivery Cost) on Intervening Variables (Distribution Channel Performance),
2. Direct Influence of Exogenous Variables (Inventory, Product Quality, Delivery Speed, Delivery Cost) on Endogenous Variables (Distributor Satisfaction), Direct Influence of Intervening Variables (Distribution Channel Performance) on Endogenous Variables (Distributor Satisfaction)

To facilitate analysis, the data is presented in Figure

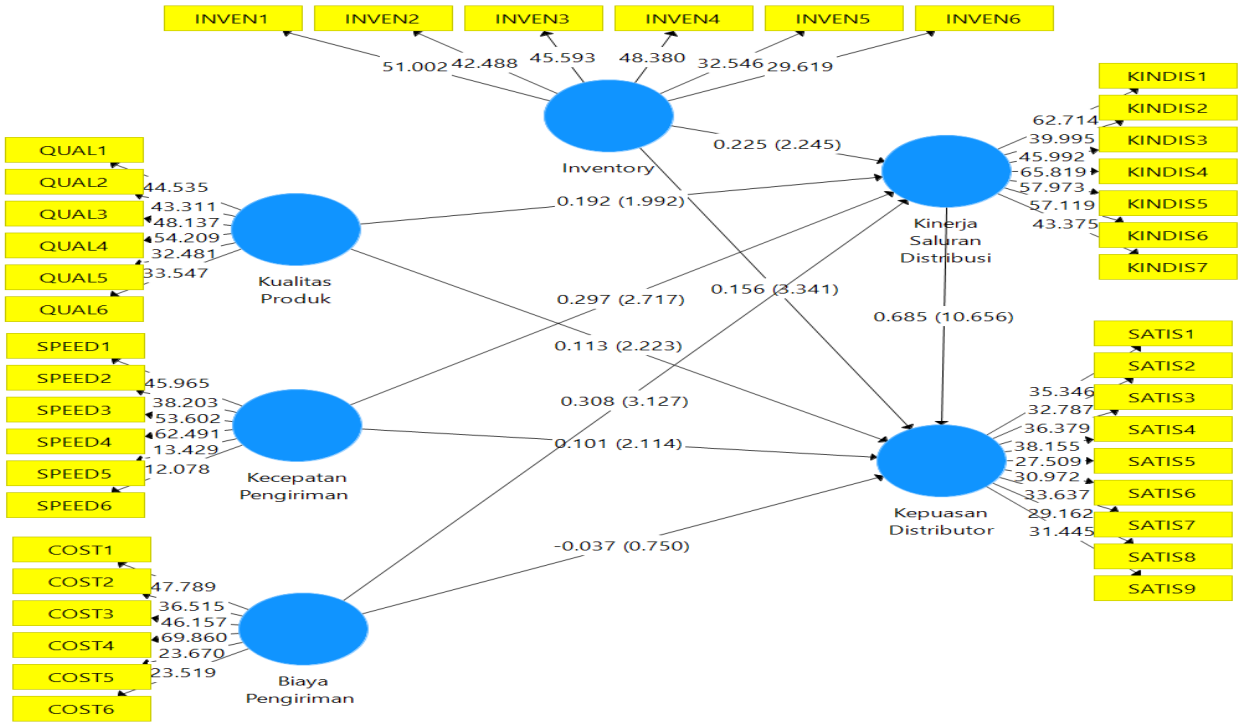

Figure . Research result

Table . Hypothesis Test Results (Continued)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Decisions
Shipping Cost -> Distribution Channel Performance -> Distributor Satisfaction	0.229	0.230	0.080	2,874	**0.004**	**Hypothesis accepted**
Inventory -> Distribution Channel Performance -> Distributor Satisfaction	0.169	0.162	0.077	2,203	**0.028**	**Hypothesis accepted**
Delivery Speed -> Distribution Channel Performance -> Distributor Satisfaction	0.220	0.222	0.091	2,415	**0.016**	**Hypothesis accepted**
Product Quality -> Distribution Channel Performance -> Distributor Satisfaction	0.144	0.134	0.068	2,118	**0.035**	**Hypothesis accepted**

Source: Questionnaire processed by Smart PLS3 (2026)

Paying attention to the information in Table 4.4. and paying attention to the requirements for a hypothesis to be declared proven or accepted (Hasnita, 2021)) it can be explained that only one hypothesis cannot be accepted and is proven not to have a positive but insignificant influence, namely there is a non-positive and insignificant influence of Shipping Costs on Distributor satisfaction with a T-value of 0.574 <1.96, and a P-value of 0.566 > 0.050. **Path Analysis Equation** The author uses the data in Table 4.4 to create a Path Analysis Equation of the Influence of Inventory, Product Quality, Delivery Speed, and Shipping Costs on Distribution Channel Performance.
as follows :

$Y = \beta 1X1 + \beta 2X2 + \beta 3X3$
Information:

Y= Distribution Channel Performance
β1 = Inventory Line Coefficient
X1 = Inventory Variable
β2 = Product Quality Path Coefficient
X2= Product Quality Variable
β3= Delivery Speed Path Coefficient
X3 = Delivery Speed Variable.
'β4= Shipping Cost Path Coefficient
X4= Shipping Cost Variable.
$Y = \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4$
Y= 0.223 X1 + 0.193 X2 + 0.296X 3 +0.308 X4

The meaning of the Path Analysis Equation is as follows:

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Without Inventory, Product Quality, Delivery Speed, Delivery Cost, the Distribution Channel Performance value = 0, but if one unit of Inventory, Product Quality, Delivery Speed, Delivery Cost is added, and the addition is done simultaneously, then the Distribution Channel Performance value which was originally 0 will increase to = 1.024

Coefficient of Determination Test The coefficient of determination value explains how much the exogenous variables contribute to influencing the intervening variables and how much the intervening variables contribute to influencing the endogenous variables. The coefficient of determination test value is seen from the Adjusted R Square Test Value.

Table. Adjusted R Square Test

	R Square	R Square Adjusted
Distributor Satisfaction	0.879	0874
Distribution Channel Performance	0.736	0.728

Source: Questionnaire. Data processed with Smart PLS (2026)

InformationThe table, second row explains that the Adjusted R Square for the positive and significant influence of Inventory, Product Quality, Delivery Speed, Shipping Costs on Distribution Channel Performance = 0.728. This means that the Determination Coefficient Value = 0.728 x 100% = 72.80%. The meaning of the Determination Coefficient of 72.80% is that the Contribution of Inventory, Product Quality, Delivery Speed, Shipping Costs is able to contribute to influencing Distribution Channel Performance by 72.80%. The remaining 100% - 72.80% = 17.20% is influenced by other variables not examined in this study.

CONCLUSION AND SUGGESTIONS

CONCLUSION This research has proven that:

1. There is a positive and significant influence of Inventory on Distribution Channel Performance with a T Statistics value of 2.062> 1.96 and a p value of 0.040. < 0.050.
2. There is a positive and significant influence of Product Quality on Distribution Channel Performance with a T Statistics value of 2.045> 1.96 and a p value of 0.041< 0.050.
3. There is a positive and significant influence of Delivery Speed on Distribution Channel Performance with a T Statistics value of 2.643 > 1.96 and a p value of 0.008. < 0.050.
4. There is a positive and significant influence of Shipping Costs on Distribution Channel Performance with a T Statistics value of 3.010> 1.96 and a p value of 0.003 < 0.050.
5. There is a positive and significant influence of Distribution Channel Performance on Distributor Satisfaction with a T Statistics value of 12.797 > 1.96 and a p value of 0.000. < 0.050.
6. There is a positive and significant influence of Inventory on Distributor Satisfaction with a T Statistics value of 3.342 > 1.96 and a p value of 0.01. < 0.05.
7. There is a positive and significant influence of Product Quality on Distributor Satisfaction with a Tstatistics value of 2.222,> 1.96 and a p value of 0.027. < 0.050.
8. There is a positive and significant influence of Delivery Speed on Distributor Satisfaction with a T Statistics value of 2.643 > 1.96 and a p value of 0.000. < 0.050.
9. There is a negative and insignificant influence of Shipping Costs on Distributor satisfaction with a T-value of 0.574 < 1.96, and a P-value of 0.566 > 0.050.
10. There is a positive and significant influence of Inventory on Distributor Satisfaction through Distribution Channel Performance with a T Statistics value of 2.203 > 1.96 and a p value of 0.028. < 0.050.

SUGGESTIONS

Here are 10 practical suggestions that can be given to CV Sinar Sukses based on the results of 13 research hypotheses:

1. CV Sinar Sukses needs to optimize its inventory management system by implementing a digital inventory system integrated with distributor sales data, so that stock availability can be maintained and support improved distribution channel performance.

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2. Companies should implement a demand forecasting system based on historical data and seasonal trends to ensure more accurate stock control and minimize the risk of overstock and stockout at the distributor level.
3. CV Sinar Sukses needs to strengthen product quality standards through strict SOP-based quality control, including pre-shipment inspections, to ensure that products received by distributors meet specifications.
4. Companies are advised to monitor defect rates and return rates regularly, and to use distributor feedback as a basis for continuous improvement in production and packaging processes.
5. To increase delivery speed, CV Sinar Sukses needs to optimize distribution routes using a GPS-based system and conduct regular evaluations of actual lead times compared to targets.
6. Companies should establish a clear Service Level Agreement (SLA) with transporters and distributors regarding delivery timeliness to ensure consistent service.
7. In managing shipping costs, CV Sinar Sukses needs to implement a load consolidation strategy so that vehicle capacity is more optimal and distribution costs per unit become more efficient.
8. Companies are advised to conduct a cost-to-serve analysis to determine the contribution of distribution costs to each distributor so that pricing and margin strategies can be more proportional.
9. Considering that shipping costs do not directly affect distributor satisfaction, CV Sinar Sukses needs to increase the transparency of its cost structure and provide a volume discount scheme so that distributors still feel fair value.
10. CV Sinar Sukses needs to set distribution Key Performance Indicators (KPI) based on OTIF (On Time In Full) and display a distribution performance dashboard as a management control tool.

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