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THE EFFECT OF DISTRIBUTION STRATEGY ON CIGARETTE PRODUCT AVAILABILITY IN TRADITIONAL RETAIL STORES

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Abstract. This study aims to examine the effects of distribution strategy and the use of distribution technology on cigarette product availability in traditional retail outlets in Jember Regency. A quantitative approach employing an explanatory and cross-sectional research design was adopted. The sample comprised 120 owners or managers of traditional retail outlets selected through purposive sampling. Data were collected using a five-point Likert-scale questionnaire and analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) with SmartPLS 3. The results show that distribution strategy has a positive and significant effect on product availability, with a path coefficient of 0.943, a t-statistic of 24.940, and a p-value of less than 0.001. In contrast, the use of distribution technology has a negative path coefficient of −0.075; therefore, the hypothesis proposing a positive effect of distribution technology use on product availability is not supported. The coefficient of determination (R^2) of 0.780 indicates that distribution strategy and the use of distribution technology jointly explain 78% of the variance in product availability. These findings demonstrate that delivery consistency, distributor–retailer relationships, distribution coverage, and order fulfillment accuracy play a more substantial role in maintaining product availability than the independent use of technology. Distribution technology should therefore be integrated with accurate inventory data, reliable order fulfillment processes, and responsive distributor services to provide more optimal operational benefits.

Keywords: distribution strategy; distribution technology; product availability; traditional retail; PLS-SEM

I. INTRODUCTION

Product availability at the point of sale is an important indicator of distribution success because it determines retailers' ability to meet consumer demand at the required time, place, quantity, and product variety. Low product availability can result in out-of-stock conditions, lost sales opportunities, reduced service levels, and the possibility of consumers switching to other brands or stores. Corsten and Gruen (2003) explained that out-of-stock problems are not merely related to inventory levels but also reflect ineffective distribution processes and operational implementation at the retail level. Aastrup and Kotzab (2010) also demonstrated that stockout problems remain a recurring issue in retail activities despite the development of various inventory management methods. From the consumer's perspective, product unavailability may lead to several responses, such as postponing a purchase, substituting the product size or variant, switching brands, or even switching stores (Campo et al., 2000). Therefore, a company's ability to maintain product availability is an essential component of customer value creation and sustainable sales performance.

Product availability is not only influenced by the amount of inventory held by companies or retailers but is also determined by the accuracy and effectiveness of distribution activities. Disruptions in demand planning, order processing, delivery, inventory recording, and stock replenishment may cause products to be unavailable even when they are still administratively recorded as inventory. DeHoratius and Raman (2008) found that inventory record inaccuracy is an operational problem that can reduce a company's ability to make appropriate procurement and stock replenishment decisions. Ehrenthal and Stölzle (2013) further showed that retail stockouts may originate from several points within the supply chain, including forecasting errors, ordering processes, order fulfillment, and stock replenishment activities at the store level. Grubor et al. (2016) also emphasized that inventory levels and the effectiveness of product flows within stores are associated with product availability and sales performance. These findings indicate that product availability is the outcome of the entire distribution process rather than merely the quantity of goods stored in warehouses or retail outlets.

From a supply chain management perspective, distribution strategy refers to a series of decisions concerning how a company delivers products from producers or distributors to retailers and final consumers. This strategy includes the selection and management of distribution channels, determination of geographical coverage, frequency of visits and deliveries, accuracy of order fulfillment, service levels, and management of relationships between distributors and retailers. An effective distribution strategy enables companies to align supply with demand, shorten order fulfillment time, and reduce the risk of stockouts. Wong et al. (2011) demonstrated that integration among supply chain parties is associated with operational performance, although the strength of this relationship is influenced by the level of environmental uncertainty. Shou et al. (2018) also found that integration with suppliers and customers can improve operational performance when it is aligned with the characteristics of the production and distribution system. In the Indonesian context, Siagian et al. (2021) showed that supply chain integration can improve flexibility, resilience, innovation, and business performance. Therefore, distribution strategy should be understood as the integrated management of product flows and relationships among supply chain actors rather than merely as a product delivery activity.

The importance of distribution strategy is even greater in traditional retail. The growth of modern retail in Asia has encouraged changes in procurement systems, the use of distribution centers, the development of logistics networks, and relationships with selected suppliers (Reardon et al., 2012). Nevertheless, traditional retail remains an important part of the trading system, particularly because of its proximity to consumers and its ability to serve local markets. Suryadarma et al. (2010) showed that the presence of supermarkets affects the business conditions of traditional traders in Indonesia but does not necessarily eliminate traditional retail establishments. The dispersed structure of traditional retail, its relatively small business scale, and its varying inventory management capabilities logically make the consistency of distributor visits, the speed of order fulfillment, and the quality of relationships with sales representatives or distributors essential factors in maintaining product availability.

These conditions are relevant to the distribution of cigarette products through traditional retail outlets. Products marketed through numerous outlets require adequate distribution coverage so that product availability is not concentrated only in certain locations. Retailers also require consistent deliveries because storage capacity, inventory planning capabilities, and demand patterns may differ across outlets. When distributors do not conduct regular visits or cannot fulfill the quantity and variety of products ordered, retailers may experience stockouts. Conversely, distribution supported by an appropriate frequency of visits, equitable geographical coverage, responsive communication, and consistency between orders and delivered products can improve outlets' ability to maintain product availability. This study specifically positions the owners and managers of traditional retail outlets in Jember Regency as the parties responsible for assessing distribution effectiveness and the availability of cigarette products at their outlets.

In addition to conventional distribution activities, digitalization has encouraged the use of technology in ordering processes, inventory monitoring, shipment tracking, information exchange, and supply chain activity control. Hagberg et al. (2016) explained that digitalization changes the relationships among retailers, suppliers, products, and consumers through the integration of physical and digital activities. In supply chain management, digital technology can improve information visibility, coordination speed, and a company's ability to respond to changes in demand (Büyüközkan & Göçer, 2018). Digital transformation does not merely involve the use of applications or devices but also includes changes in processes, organizational structures, resources, and the ways in which companies create value (Verhoef et al., 2021). Therefore, the use of distribution technology has the potential to help companies improve ordering accuracy and manage product supply more efficiently.

Although technology offers opportunities to improve distribution effectiveness, its implementation does not automatically result in better performance. Nasiri et al. (2020) showed that the benefits of digital transformation in supply chains depend on a company's ability to integrate smart technology with organizational processes and interorganizational relationships. This means that technology will generate benefits only when the information produced is accurate, users are capable of operating the system, and order fulfillment processes are properly implemented based on the available information. Avlijas et al. (2021) found that automatic replenishment systems can improve product availability and reduce stockouts within retail networks, although their effectiveness is also influenced by product characteristics, store characteristics, and system implementation. In traditional retail, problems such as discrepancies between digital orders and received products, delays in information updates, or low levels of trust in the system may encourage retailers to return to direct ordering through sales representatives. Therefore, the effect of technology on product availability needs to be empirically examined in accordance with user characteristics and distribution processes.

Previous studies have provided an important foundation for understanding product availability, but several limitations remain. First, most studies on out-of-stock conditions have focused on supermarket networks, chain stores, or modern retail businesses that already have relatively structured procurement and inventory recording systems (Aastrup & Kotzab, 2010; Corsten & Gruen, 2003; DeHoratius & Raman, 2008). Second, several studies have placed greater emphasis on consumer responses to product unavailability, the internal causes of inventory inaccuracies, or the influence of inventory levels on sales (Campo et al., 2000; Ehrenthal & Stölzle, 2013; Grubor et al., 2016). Third, digitalization research generally examines digital transformation and supply chain technology in relation to operational performance or relationship performance more broadly, whereas studies examining the direct effect of distribution technology on product availability in traditional retail remain relatively limited (Büyüközkan & Göçer, 2018; Nasiri et al., 2020). Fourth, the reviewed literature contains only a limited number of studies that simultaneously compare the contribution of distribution strategy implementation and the use of distribution technology to the availability of cigarette products in traditional retail outlets in Indonesia.

Based on these research gaps, this study aims to analyze the effects of distribution strategy and the use of distribution technology on the availability of cigarette products in traditional retail outlets in Jember Regency. The novelty of this study lies in three aspects. First, the study positions product availability as a direct outcome of the distribution process rather than merely as part of purchasing decisions or sales performance. Second, the study is conducted in traditional retail outlets, which have different operational and inventory management characteristics from modern retail businesses. Third, the study compares the contributions of distribution implementation and the use of distribution technology in explaining product availability. Theoretically, this study is expected to extend the application of the supply chain management perspective to the context of traditional retail. Practically, the findings may serve as a basis for companies and distributors to improve visit frequency, distribution coverage, order fulfillment accuracy, relationships with retailers, and the quality of ordering and distribution-monitoring systems.

Supply Chain Management

Supply chain management is a systematic approach to coordinating the flow of goods, information, and resources from suppliers until products are received by final customers. Mentzer et al. (2001) define supply chain management as the strategic and systematic coordination of business functions within a company and among companies involved in a supply chain. This coordination aims to improve the long-term performance of each supply chain member and the overall supply chain system. Therefore, supply chain management is not limited to the physical movement of goods but also includes information exchange, relationship management, process alignment, and decision-making coordination.

Integration is one of the main elements of supply chain management. Frohlich and Westbrook (2001) explain that the broader a company's integration with suppliers and customers, the greater its opportunity to improve operational performance. Integration enables companies to obtain more accurate demand information, coordinate inventory requirements, and respond more rapidly to market changes. However, the effectiveness of integration is not always the same under different conditions. Wong et al. (2011) show that the effect of supply chain integration on operational performance may depend on the level of environmental uncertainty. Shou et al. (2018) also find that the benefits of integration must be aligned with the characteristics of a company's production system and operational processes.

In the context of distribution, supply chain management ensures that products flow from producers or distributors to sales outlets at the time, location, quantity, and variety required by the market. Integrated distribution can reduce delivery delays, order fulfillment errors, and information discrepancies between distributors and retailers. Siagian et al. (2021) demonstrate that supply chain integration can improve flexibility, resilience, innovation, and company performance. These findings indicate that coordination between distributors and retailers is an important component of the supply chain's ability to respond to market demand.

The implementation of supply chain management is increasingly important in traditional retail because each outlet has different storage capacities, inventory management capabilities, and demand patterns. Traditional retail also continues to hold an important position within Indonesia's trade structure, despite the growth of supermarkets and modern retail businesses (Suryadarma et al., 2010). Therefore, product availability in traditional retail is highly dependent on the ability of companies and distributors to continuously coordinate deliveries, ordering, inventory monitoring, and stock replenishment.

From a supply chain management perspective, distribution strategy and the use of distribution technology are two mechanisms that can support product availability. Distribution strategy is related to the implementation of physical product flows and the company's relationship with retailers, while distribution technology supports information flows, order processing, inventory monitoring, and distribution coordination. Conceptually, both mechanisms can reduce supply disruptions and help companies maintain product availability at the point of sale.

Product Availability

Product availability refers to a retailer's ability to provide the products required by consumers at the time of purchase. In the retail context, product availability is not only determined by the existence of goods in a warehouse but also by the actual presence of products at the point of sale. Low product availability may result in an out-of-stock condition, which occurs when the product required by consumers is unavailable for purchase.

Corsten and Gruen (2003) explain that out-of-stock conditions may result from various weaknesses in supply chain processes, including inaccurate planning, ordering errors, delivery delays, improper inventory replenishment, and weaknesses in operational implementation at the outlet level. Aastrup and Kotzab (2010) emphasize that out-of-stock conditions remain an important issue in retail management because they involve numerous actors and stages within the supply chain. Therefore, product availability should be viewed as the outcome of comprehensive coordination throughout the distribution process.

Product availability is also influenced by the accuracy of inventory information. DeHoratius and Raman (2008) show that discrepancies between system records and physical inventory quantities can disrupt ordering and stock replenishment decisions. When inventory information is inaccurate, the system may indicate that products are still available even though they are physically out of stock. Conversely, companies may also deliver or store excessive quantities when recorded inventory is lower than the actual physical stock.

In this study, cigarette product availability is defined as the ability of traditional retail outlets to consistently provide products in accordance with outlet requirements and consumer demand. Product availability can be reflected in the presence of stock, the frequency of replenishment, the low incidence of stockouts, the availability of product varieties, and retailers' assessments of supply continuity. This availability is expected to be influenced by the quality of distribution strategy implementation and the use of technology in the distribution process.

Distribution Strategy and Product Availability

Distribution strategy refers to the pattern of decisions and actions undertaken by a company in delivering products from producers or distributors to retailers and final consumers. In this study, distribution strategy is not only understood as the selection of distribution channels but also as the quality of distribution implementation, including delivery frequency, geographical coverage, order fulfillment accuracy, distributor–retailer relationships, and the ability to respond to outlet requirements.

Frohlich and Westbrook (2001) show that external integration with suppliers and customers can strengthen a company's ability to coordinate supply chain activities. In distributor–retailer relationships, this integration is reflected in regular communication, the exchange of information regarding stock requirements, adjustments to order quantities, and the resolution of delivery problems. The stronger the coordination between distributors and retailers, the lower the likelihood of order fulfillment errors and product stockouts.

Wong et al. (2011) explain that customer integration helps companies understand changes in market demand and adjust their operational processes accordingly. In cigarette product distribution, retailers can provide information regarding fast-selling products, required product varieties, and the amount of inventory that needs to be replenished. Distributors can use this information to determine visit frequency, delivery quantities, and order fulfillment priorities for each outlet.

An effective distribution strategy also requires alignment between distribution processes and the operational characteristics of outlets. Shou et al. (2018) show that the effect of supply chain integration on operational performance is influenced by the compatibility of the systems and process characteristics used. In traditional retail, differences in location, business scale, storage capacity, and sales volume require distributors to implement visit and delivery patterns that correspond to the needs of each outlet.

Consistent distribution activities can help retailers maintain adequate inventory levels. Conversely, delayed visits, uneven distribution coverage, discrepancies in product quantities, and low distributor responsiveness can increase the risk of stockouts. Corsten and Gruen (2003) explain that weaknesses in ordering, delivery, and inventory replenishment are important causes of product unavailability at the retail level.

In the Indonesian context, Siagian et al. (2021) find that supply chain integration can improve flexibility and a company's ability to respond to disruptions. Such flexibility is necessary so that companies can adjust distribution volumes, schedules, and routes when changes in demand or operational constraints occur. Therefore, a distribution strategy implemented through consistent delivery, strong relationships with retailers, adequate geographical coverage, and accurate order fulfillment is expected to improve product availability in traditional retail outlets.

Based on the preceding explanation, the first hypothesis is formulated as follows:

H1: Distribution strategy has a positive effect on the availability of cigarette products in traditional retail outlets.

Use of Distribution Technology and Product Availability

The use of distribution technology refers to the application of information technology and digital systems to support ordering, inventory recording, shipment tracking, information exchange, and the control of distribution activities. Distribution technology may include digital ordering applications, distribution information systems, tracking technology, inventory-monitoring systems, automated replenishment, and data integration between companies and retailers.

Büyüközkan and Göçer (2018) explain that digital supply chains use technology to improve connectivity, transparency, speed, and the quality of decision-making within supply chain networks. Through digitalization, information regarding demand, inventory, orders, and deliveries can be communicated more rapidly to the parties involved. The availability of such information enables companies to plan distribution and product replenishment more accurately.

Digitalization also changes the relationships among retailers, suppliers, products, and consumers. Hagberg et al. (2016) explain that retail digitalization integrates physical activities with digital information systems. In distribution processes, such integration can be implemented through digital ordering, order-status updates, shipment monitoring, and electronic transaction recording. These systems can reduce dependence on manual processes that are vulnerable to delays and recording errors.

The use of accurate and timely data is one of the main benefits of distribution technology. Kache and Seuring (2017) state that the use of digital information in supply chains can support visibility, forecasting, coordination, and decision-making. Wamba et al. (2017) also demonstrate that data analytics capabilities can support company performance when they are integrated with organizational capabilities. In distribution management, sales and inventory data can be used to estimate replenishment requirements and determine delivery priorities.

Nasiri et al. (2020) explain that smart technologies can support digital supply chain management by improving connectivity and interorganizational relationship performance. Technology enables distributors and retailers to exchange information more rapidly, allowing changes in demand or declining inventory levels to be immediately identified. When this information is followed by effective order fulfillment processes, distribution technology can help reduce waiting times and the risk of stockouts.

The effect of technology on product availability is also demonstrated by Avlijas et al. (2021). Their study shows that the implementation of automated replenishment systems can improve product availability in retail stores. Replenishment systems can use sales and inventory information to determine the timing and quantity of orders, meaning that restocking processes do not depend entirely on retailers' manual assessments.

Nevertheless, the use of technology does not automatically improve product availability. Digital transformation requires adjustments to processes, resources, organizational structures, and user capabilities (Verhoef et al., 2021). Technology that is not integrated with distribution processes, produces inaccurate information, or is not followed by consistent order fulfillment will not provide optimal benefits. Therefore, distribution technology must be supported by user readiness, system quality, information reliability, and the company's operational responsiveness.

In traditional retail outlets, ordering applications and distribution information systems have the potential to help retailers communicate their product requirements without having to wait for sales representatives to visit. Tracking technology can also provide information regarding order status and delivery times. When the system operates accurately and reliably, retailers can plan their inventory more effectively, while companies can replenish products before stockouts occur.

Based on the preceding explanation, the second hypothesis is formulated as follows:

H2: The use of distribution technology has a positive effect on the availability of cigarette products in traditional retail outlets.

Conceptual Framework

The conceptual framework of this study is developed based on the supply chain management perspective, which positions the flow of goods and the flow of information as two important components in maintaining product availability. Distribution Strategy (X1) represents the implementation of physical product flows and the management of distribution relationships, while the Use of Distribution Technology (X2) represents the support provided by digital systems for information flows and the control of distribution processes.

Distribution Strategy (X1) includes the effectiveness of distribution channel implementation, distribution frequency, distributor–retailer relationships, geographical distribution coverage, and the accuracy of demand fulfillment. The more effectively these aspects are implemented, the greater the company's ability to ensure that products are available at outlets according to the required time, quantity, and variety.

The Use of Distribution Technology (X2) includes the use of distribution information systems, tracking technology, distribution process automation, technological integration with retailers, and the effectiveness of technological systems. The use of technology is expected to accelerate information exchange, improve ordering accuracy, support inventory monitoring, and speed up product replenishment.

Product Availability (Y) refers to a condition in which cigarette products are consistently available in traditional retail outlets to meet consumer needs. This variable is reflected in the level of stock availability, replenishment frequency, the low incidence of stockouts, the availability of product varieties, and retailer satisfaction with supply continuity.

The relationships among the variables in the research model are illustrated as follows:

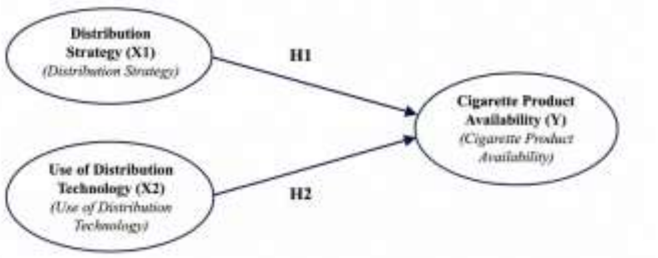

Figure 1. Conceptual Framework

Based on this framework, the study assumes that Distribution Strategy and the Use of Distribution Technology have direct effects on Cigarette Product Availability. Distribution strategy plays a role in ensuring the smooth physical flow of products, while distribution technology supports the accuracy and speed of information flows. The combination of these two factors is expected to help companies reduce the risk of stockouts and maintain supply continuity in traditional retail outlets.

II. RESEARCH METHODS

This study employs a quantitative approach with an explanatory design and cross-sectional data collection. The explanatory approach is used to examine the causal-predictive relationships between Distribution Strategy and the Use of Distribution Technology and the Availability of Cigarette Products in traditional retail outlets. Data for all variables were collected within a single observation period through a structured survey administered to the owners or managers of traditional retail outlets.

The quantitative approach was selected because the relationships among the variables in the research model are tested using numerical data and statistical procedures. The analysis was conducted using Partial Least Squares–Structural Equation Modeling (PLS-SEM). This method is appropriate for studies oriented toward examining predictive relationships among latent constructs, explaining the variance of endogenous constructs, and using multiple indicators to measure each construct (Hair et al., 2019; Ringle et al., 2020).

Population, Unit of Analysis, and Sample

The research population comprises all traditional retail outlets selling cigarette products in Jember Regency. The unit of analysis is the traditional retail outlet, while the unit of observation is the owner or manager who has knowledge of and is directly involved in ordering, receiving, inventory management, and cigarette product sales activities. Therefore, one respondent represents one traditional retail outlet.

The sample was selected using purposive sampling. This technique was used because not all members of the population possess sufficient knowledge and experience to provide information regarding distribution activities and product availability. Respondents were required to meet the following criteria: (1) they were owners or managers of traditional retail outlets in Jember Regency; (2) the outlet sold cigarette products; (3) the respondent was involved in ordering, receiving, or managing cigarette product inventory; and (4) the respondent was willing to complete the research questionnaire in full.

A total of 120 outlets met the criteria and were included in the research sample. Sample adequacy was assessed based on statistical power analysis and the characteristics of the PLS-SEM model. The structural model consists of two predictors directed toward one endogenous construct. Assuming a significance level of 5%, statistical power of 80%, and a medium effect size of $f^2 = 0.15$, the minimum required sample for a model with two predictors is approximately 68 respondents (Cohen, 1992). Therefore, the sample of 120 respondents exceeds the minimum requirement.

This sample adequacy is also consistent with the inverse square root approach developed by Kock and Hadaya (2018) for estimating sample size in PLS-SEM. Based on this approach, a sample of 120 respondents allows the model to detect a minimum path coefficient of approximately 0.23 at a 5% significance level with adequate statistical power. The use of power analysis is considered more justifiable than relying solely on the ten-times rule, which is regarded as less accurate in determining the minimum sample size for PLS-SEM.

Types and Sources of Data

The primary data in this study were obtained directly through questionnaires distributed to the owners or managers of traditional retail outlets. Primary data were used to measure respondents' perceptions of distribution strategy implementation, the use of distribution technology, and the availability of cigarette products in their respective outlets.

The study also used secondary data obtained from scientific articles, official publications, company documents, and relevant literature. Secondary data were used to establish the conceptual foundation, develop measurement indicators, and support the interpretation of the research findings. Secondary data were not used as the primary data for testing the structural model.

Research Instrument and Variable Measurement

The research instrument consisted of a closed-ended questionnaire developed based on a literature review concerning distribution integration, supply chain digitalization, and product availability. All constructs were treated as reflective constructs because changes in the constructs were assumed to be reflected in changes in their indicator values.

Respondents' responses were measured using a five-point Likert scale, namely 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The use of five response categories was selected because it provides sufficient options to distinguish respondents' levels of agreement without creating an excessive cognitive burden (Revilla et al., 2014).

Table 1. Operationalization of Research Variables

Variable	Operational definition	Initial indicators	Adaptation sources
Distribution Strategy (X1)	Retailers' assessment of the ability of companies or distributors to deliver products regularly, reach outlets, establish distribution relationships, and accurately meet product requirements.	DS1: effectiveness of distribution channels; DS2: distribution frequency; DS3: distributor–retailer relationship; DS4: geographical distribution coverage; DS5: accuracy of demand fulfillment.	Frohlich and Westbrook (2001); Wong et al. (2011); Siagian et al. (2021)
Use of Distribution Technology (X2)	The extent to which digital systems and information technology are used to support ordering, tracking, information integration, and the control of product distribution.	DT1: distribution information system; DT2: tracking technology; DT3: distribution automation; DT4: technological integration with retailers; DT5: technology effectiveness.	Kache and Seuring (2017); Büyüközkan and Göçer (2018); Nasiri et al. (2020)
Product Availability (Y)	The ability of outlets to consistently provide cigarette products in accordance with store requirements and consumer demand.	PA1: stock availability; PA2: restocking frequency; PA3: stockout level; PA4: availability of product varieties; PA5: retailer satisfaction with supply continuity.	Corsten and Gruen (2003); Aastrup and Kotzab (2010); Avlijas et al. (2021)

Source: Developed by the researcher based on the literature.

The questionnaire items were formulated by adapting them to the characteristics of traditional retail outlets and cigarette product distribution activities in Jember Regency. The adaptation retained the conceptual substance of each indicator while using language that could be easily understood by outlet owners and managers.

Data Collection Technique

Data were collected through a survey by distributing questionnaires directly to respondents who met the research criteria. Direct distribution enabled the researcher to ensure that the questionnaires were received by owners or managers who understood the processes of ordering, receiving, and managing cigarette product inventory.

Before completing the questionnaire, respondents were provided with an explanation of the research objectives and instructions for completion. They were asked to provide assessments based on the actual distribution and inventory conditions experienced at their respective outlets. Questionnaires that were incomplete or did not meet the respondent criteria were excluded from the analysis. Following the screening process, 120 complete questionnaires were considered eligible for analysis.

Data Analysis Technique

The data were analyzed using SmartPLS version 3. The analysis was conducted in two stages: descriptive statistical analysis and PLS-SEM analysis. Descriptive statistics were used to describe respondent characteristics and the distribution of responses for each variable. PLS-SEM analysis was used to evaluate the quality of the measurement model and test the structural relationships among constructs.

PLS-SEM was selected because of the predictive orientation of the study, the use of latent constructs measured by multiple indicators, and the objective of explaining the variance in Product Availability. PLS-SEM also enables the simultaneous evaluation of the measurement model and the structural model (Hair et al., 2019; Ringle et al., 2020).

Evaluation of the Measurement Model

Because all constructs were modeled reflectively, the measurement model was evaluated through tests of indicator reliability, internal consistency reliability, convergent validity, and discriminant validity.

First, indicator reliability was evaluated based on outer loading values. An indicator was considered to have good reliability when its outer loading was equal to or greater than 0.708. Indicators with values between 0.40 and 0.70 were not automatically removed but were assessed based on the effect of their removal on composite reliability, Average Variance Extracted, and the content validity of the construct. Indicators with values below 0.40 should be removed from the model (Hair et al., 2019).

Second, the internal consistency of each construct was evaluated using Cronbach's Alpha and composite reliability. Values ranging from 0.70 to 0.95 indicate adequate reliability. Values that are excessively high, particularly above 0.95, should be examined carefully because they may indicate that the indicators are overly similar or redundant.

Third, convergent validity was evaluated using Average Variance Extracted (AVE). A construct was considered to meet the convergent validity requirement when its AVE value was at least 0.50. This value indicates that the construct explains at least 50% of the variance in its indicators.

Fourth, discriminant validity was tested using the heterotrait-monotrait ratio (HTMT). Discriminant validity was considered established when the HTMT value between constructs was below 0.90. HTMT was selected because it is considered more sensitive in detecting discriminant validity problems than the Fornell–Larcker criterion and cross-loading assessment (Henseler et al., 2015).

Because all predictor and dependent-variable data were obtained from the same respondents using a single instrument, the potential for common method bias was evaluated using the full collinearity approach. Variance inflation factor values below 3.3 indicate that common method bias is not a serious problem in the model (Kock, 2015).

Evaluation of the Structural Model

The evaluation of the structural model began with an examination of collinearity among predictor constructs using variance inflation factor values. VIF values below 5 indicate that no collinearity problem exists that could interfere with the estimation of path coefficients.

After the collinearity requirement was satisfied, the structural model was assessed based on path coefficients, the coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). The R^2value was used to indicate the proportion of variance in Product Availability jointly explained by Distribution Strategy and the Use of Distribution Technology. The interpretation of R^2 was conducted by considering the context and complexity of the study rather than relying solely on categorical thresholds.

The f^2 value was used to assess the contribution of each exogenous variable to changes in the R^2 value of the endogenous construct. An f^2 value of 0.02 indicates a small effect, 0.15 indicates a medium effect, and 0.35 indicates a large effect. Mathematically, the f^2 value cannot be negative.

The predictive relevance of the model was evaluated using the Stone–Geisser Q^2value through the blindfolding procedure. A Q^2value greater than zero indicates that the model has predictive relevance for the indicators of the endogenous construct.

The significance of the path coefficients was tested through a bootstrapping procedure using 5,000 subsamples. The test applied a 5% significance level and a two-tailed test. A relationship was considered significant when the t-statistic exceeded 1.96 or the p-value was below 0.05.

The hypotheses were assessed not only on the basis of statistical significance but also according to whether the direction of the coefficient was consistent with the hypothesis. Therefore, a positive-effect hypothesis was accepted when the path coefficient was positive and statistically significant. When the coefficient was negative, even if statistically significant, the positive-effect hypothesis was considered unsupported.

III. RESULTS AND DISCUSSION

PLS-SEM Model Estimation Results

Figure 1 presents the estimation results of the Partial Least Squares–Structural Equation Modeling (PLS-SEM) model, which illustrates the relationships among Distribution Strategy, the Use of Distribution Technology, and Cigarette Product Availability. The model displays the outer loading values of each indicator, the path coefficients among constructs, and the coefficient of determination $(R^2)$for the Product Availability construct.

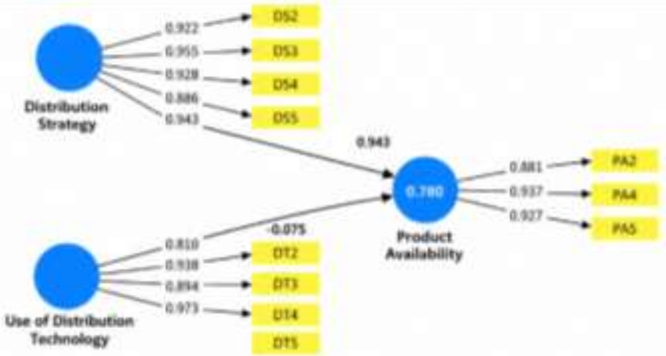

Figure 2. PLS-SEM Model of Distribution Strategy, the Use of Distribution Technology, and Product Availability
Source: PLS-SEM output, 2025.

Evaluation of the Measurement Model

The measurement model, or outer model, was evaluated to assess the ability of each indicator to represent its respective construct. The evaluation included indicator reliability, internal consistency reliability, and convergent validity.

Outer Loadings

Convergent validity at the indicator level was evaluated using outer loading values. Hair et al. (2019) state that indicators with outer loading values of 0.70 or higher are considered capable of adequately representing their constructs. Indicators with values below this criterion may be considered for removal when their elimination improves the quality of the measurement model without reducing the construct's content validity.

The final outer loading estimation results are presented in Table 2.

Table 2. Indicator Outer Loading Values

Construct	Indicator	Outer Loading	Result
Product Availability	PA2	0.881	Valid
Product Availability	PA4	0.937	Valid
Product Availability	PA5	0.927	Valid
Use of Distribution Technology	DT2	0.810	Valid
Use of Distribution Technology	DT3	0.938	Valid
Use of Distribution Technology	DT4	0.894	Valid
Use of Distribution Technology	DT5	0.973	Valid
Distribution Strategy	DS2	0.922	Valid
Distribution Strategy	DS3	0.955	Valid
Distribution Strategy	DS4	0.928	Valid
Distribution Strategy	DS5	0.886	Valid

Source: Processed data, 2025.

In the initial estimation, indicator DS1, or Distribution Channel Effectiveness, obtained an outer loading value of

0.286, while indicator PA3, or Stockout Level, obtained a value of 0.508. Both values were below the recommended threshold; therefore, indicators DS1 and PA3 were removed from the model. After these two indicators were excluded, the model was re-estimated.

The re-estimation results showed that indicator PA1, or Stock Availability, had an outer loading value of 0.639, while indicator DT1, or Distribution Information System, obtained a value of 0.614. Because both values remained below the outer loading criterion of 0.70, indicators PA1 and DT1 were also removed from the research model.

The elimination process was conducted gradually to improve the quality of the measurement model. Indicators with a low ability to represent their respective constructs were removed, while indicators with adequate representational ability were retained in the final model.

After indicators DS1, PA3, PA1, and DT1 were removed, the final model retained eleven indicators with outer loading values ranging from 0.810 to 0.973. All values exceeded the minimum threshold of 0.70. Therefore, all retained indicators were considered valid and capable of adequately representing the constructs of Distribution Strategy, the Use of Distribution Technology, and Product Availability.

These results indicate that the model met the criteria for indicator reliability and convergent validity at the indicator level. Therefore, the evaluation proceeded to tests of internal consistency reliability and convergent validity at the construct level.

Construct Reliability and Validity

Construct reliability and validity were evaluated to ensure that each construct was measured consistently and accurately. Internal consistency reliability was assessed using Cronbach's Alpha, while convergent validity was assessed using Average Variance Extracted (AVE).

According to Hair et al. (2019), a construct is considered to have adequate internal consistency reliability when its Cronbach's Alpha value exceeds 0.70. Convergent validity is considered established when the AVE value exceeds 0.50. An AVE value above 0.50 indicates that the construct can explain more than 50% of the variance in its indicators.

The construct reliability and validity results are presented in Table 3.

Table 3. Construct Reliability and Validity

Variable	Cronbach's Alpha	AVE	Result
Product Availability (Y)	0.903	0.838	Reliable and valid
Use of Distribution Technology (X2)	0.940	0.848	Reliable and valid
Distribution Strategy (X1)	0.942	0.852	Reliable and valid

Source: Processed data, 2025.

Based on Table 3, all constructs had Cronbach's Alpha values above 0.70. Product Availability had a Cronbach's Alpha value of 0.903, the Use of Distribution Technology had a value of 0.940, and Distribution Strategy had a value of 0.942. These results demonstrate that each construct had a very high level of internal consistency.

The AVE values of all constructs were also above the minimum threshold of 0.50. Product Availability had an AVE value of 0.838, the Use of Distribution Technology had a value of 0.848, and Distribution Strategy had a value of 0.852. Therefore, more than 50% of the variance in the indicators could be explained by their respective constructs.

Based on the Cronbach's Alpha and AVE values, all constructs met the criteria for internal consistency reliability and convergent validity. Among the three constructs, Distribution Strategy had the highest Cronbach's Alpha value, namely 0.942, while the Use of Distribution Technology had an AVE value of 0.848. All constructs were considered suitable for use in structural model testing.

Evaluation of the Structural Model

The structural model, or inner model, was evaluated to assess the model's ability to explain the variance in the endogenous construct and to test the relationships among constructs. This evaluation included the coefficient of determination (R^2), effect size (f^2), path coefficients, and the significance of the relationships.

Coefficient of Determination

The coefficient of determination, or R^2, was used to measure the proportion of variance in the endogenous construct that could be explained by the exogenous constructs in the model. A higher R^2 value indicates a greater ability of the model to explain the variance in the endogenous construct. Hair et al. (2019) explain that an R^2 value of 0.75 can be categorized as substantial or strong, a value of 0.50 as moderate, and a value of 0.25 as weak. Nevertheless, the interpretation of R^2 should also consider the context and characteristics of the research field.

The R^2 test results are presented in Table 4.

Table 4. R-Square Values

Endogenous Variable	R-Square	Adjusted R-Square	Result
Product Availability (Y)	0.780	0.777	Moderate to strong

Source: Processed data, 2025.

Based on Table 4, the Product Availability construct obtained an R^2 value of 0.780 and an Adjusted R-Square value of 0.777. These values indicate that Distribution Strategy and the Use of Distribution Technology jointly explain 78% of the variance in Cigarette Product Availability in traditional retail outlets.

The remaining 22% of the variance in Product Availability is explained by other factors not included in the research model. These factors may include distributor service quality, consumer demand levels, retailers' inventory management capabilities, storage capacity, competitive intensity, product prices, and other distribution-environment factors.

Referring to the criteria proposed by Hair et al. (2019), an R^2 value of 0.780 indicates that the model has relatively strong explanatory power. Therefore, the research model is considered adequate for explaining the relationships between Distribution Strategy, the Use of Distribution Technology, and Cigarette Product Availability in traditional retail outlets.

Effect Size

Effect size, or f^2, was used to determine the magnitude of each exogenous construct's contribution to the R^2 value of the endogenous construct. Hair et al. (2019) categorize an f^2 value of 0.02 as a small effect, 0.15 as a medium effect, and 0.35 or higher as a large effect.

The effect size test results are presented in Table 5.

Table 5. Effect Size Values

Relationship	f^2	Result
Distribution Strategy (X1) → Product Availability (Y)	1.441	Large effect
Use of Distribution Technology (X2) → Product Availability (Y)	-0.009	Very small effect/output requires verification

Source: Processed data, 2025.

Based on Table 5, the relationship between Distribution Strategy and Product Availability obtained an f^2 value of 1.441. This value exceeds the threshold of 0.35 and is therefore categorized as a large effect. This finding indicates that Distribution Strategy makes a dominant contribution to explaining changes in Product Availability in traditional retail outlets.

The result suggests that changes in the quality of Distribution Strategy will substantially affect retailers' ability to maintain product availability. Delivery frequency, distributor–retailer relationships, geographical coverage, and the accuracy of demand fulfillment are important aspects contributing to the continuity of product availability at retail outlets.

Meanwhile, the relationship between the Use of Distribution Technology and Product Availability obtained an f^2 value of -0.009. Based on the value reported in the research output, the contribution of the Use of Distribution Technology to Product Availability is very small. This finding indicates that the presence of distribution technology has not provided a meaningful additional contribution to explaining Product Availability in the research model.

Nevertheless, an f^2 value should not conceptually be negative. Therefore, the value of -0.009 should be re-examined by comparing the R^2 value of the model when the Use of Distribution Technology construct is included with the R^2 value when the construct is excluded.

Hypothesis Testing

Hypothesis testing was conducted through an analysis of path coefficients. Path coefficients were used to evaluate the direction and magnitude of the relationships among constructs. A coefficient approaching +1 indicates an increasingly strong positive relationship, while a coefficient approaching -1 indicates an increasingly strong negative relationship.

The significance of the relationships was evaluated using t-statistics and p-values obtained from the bootstrapping procedure. At a 5% significance level using a two-tailed test, a relationship is considered significant when the t-statistic is greater than 1.96 and the p-value is less than 0.05.

The hypothesis-testing results are presented in Table 6.

Table 6. Hypothesis-Testing Results

Hypothesis	Relationship	Original Sample	T Statistics	P Values	Result
H1	Distribution Strategy (X1) → Product Availability (Y)	0.943	24.940	0.000	Accepted and significant
H2	Use of Distribution Technology (X2) → Product Availability (Y)	-0.075	2.014	0.004	Rejected, although the relationship was reported as significant

Source: Processed data, 2025.

The H1 test results show that Distribution Strategy has a positive and significant effect on Product Availability. This relationship is indicated by a path coefficient of 0.943, a t-statistic of 24.940, and a p-value of 0.000.

The positive path coefficient indicates that an improvement in the quality of Distribution Strategy is followed by an increase in Product Availability in traditional retail outlets. Therefore, the better the distribution frequency, distributor–retailer relationships, geographical distribution coverage, and accuracy of demand fulfillment, the greater the outlet's ability to maintain the availability of cigarette products. Based on the direction of the coefficient and its significance level, H1 is accepted.

The H2 test results show that the Use of Distribution Technology has a path coefficient of -0.075 toward Product Availability. The negative coefficient indicates that the direction of the relationship is contrary to the hypothesis, which proposed a positive effect.

The reported bootstrapping results show a t-statistic of 2.014 and a p-value of 0.004. Based on these values, the relationship is statistically significant. However, because the path coefficient is negative, H2, which proposed a positive effect of the Use of Distribution Technology on Product Availability, is considered unsupported or rejected.

This finding indicates that the use of distribution technology has not yet made a positive contribution to improving product availability in traditional retail outlets. The existing technology has not directly improved supply control, delivery accuracy, or product replenishment processes. This condition suggests that distribution technology still requires optimization so that its benefits can be experienced more effectively in supporting distribution processes and product availability.

Overall, the structural model results show that Distribution Strategy is the main predictor of Product Availability. The Use of Distribution Technology has a negative coefficient and a very small effect contribution. The research model explains 78% of the variance in Product Availability, indicating that the model has relatively strong explanatory power.

The Effect of Distribution Strategy on Product Availability

The test results show that Distribution Strategy has a positive and significant effect on Cigarette Product Availability in traditional retail outlets. This relationship is indicated by a path coefficient of 0.943, a t-statistic of 24.940, and a p-value of 0.000. Therefore, H1, which states that Distribution Strategy has a positive effect on Cigarette Product Availability in traditional retail outlets, is accepted.

The path coefficient of 0.943 indicates a very strong positive relationship. This means that the better the implementation of the distribution strategy, the greater the ability of traditional retail outlets to maintain the availability of cigarette products. This finding confirms that product availability at the outlet level is not determined solely by the amount of inventory held by retailers but also by the ability of companies and distributors to manage product flows consistently. Appropriate visit and delivery frequencies, strong relationships between distributors and retailers, adequate distribution coverage, and accurate order fulfillment are important components in maintaining supply continuity.

This finding is consistent with the supply chain management perspective, which positions distribution as part of the integration process among companies, distributors, and customers. Frohlich and Westbrook (2001) explain that broader integration with suppliers and customers can improve a company's ability to coordinate the flow of goods and information. In the context of this study, such integration is reflected in communication between distributors and retailers, the adjustment of deliveries to outlet requirements, and distributors' ability to respond to changes in demand. When these relationships function effectively, information regarding stock requirements can be received more rapidly and translated into more accurate delivery activities.

The findings are also consistent with Wong et al. (2011), who found that supply chain integration contributes to improved operational performance. Integration enables companies to align internal activities with the needs of suppliers and customers so that demand fulfillment processes can be conducted more responsively. In cigarette product distribution, such responsiveness is reflected in distributors' ability to adjust visit frequency, delivery quantities, and product varieties according to the conditions of each traditional retail outlet. Therefore, an effective distribution strategy can reduce the gap between the number of products required by retailers and the number of products actually received.

This finding also supports Shou et al. (2018), who showed that supplier and customer integration can improve operational performance when it is aligned with the characteristics of the systems and processes being implemented. Traditional retail outlets have different characteristics from modern retail businesses, particularly in terms of storage capacity, inventory recording, demand patterns, and ordering frequency. Therefore, implementing a uniform distribution strategy for all outlets may not necessarily produce optimal performance. Distributors need to adjust visit schedules, supply quantities, and product varieties according to the business scale, location, and product turnover rate of each outlet.

The findings are also consistent with Siagian et al. (2021), who demonstrated that supply chain integration can improve flexibility, resilience, and a company's ability to respond to environmental changes. Distribution flexibility is required when retailer demand changes, sales of certain product variants increase, or delivery-route constraints arise. Flexible distributors can adjust delivery quantities, schedules, and routes, thereby minimizing the risk of stockouts.

The relationship between distribution strategy and product availability can also be explained through the literature on retail out-of-stock conditions. Corsten and Gruen (2003) stated that product stockouts at the retail level may be caused by weaknesses in planning, ordering, delivery, and inventory replenishment. Aastrup and Kotzab (2010) also explained that out-of-stock problems involve various stages of the supply chain and cannot be resolved merely by increasing inventory quantities. Distribution delays or delivery discrepancies can cause products to become unavailable even when consumer demand remains present. The findings of this study reinforce this argument because distribution strategy was proven to be the primary predictor of product availability in traditional retail outlets.

The strong effect of Distribution Strategy is also supported by an effect size of $f^2 = 1.441$, which is categorized as large. This value indicates that removing Distribution Strategy from the model would substantially reduce the model's ability to explain Product Availability. In other words, distribution strategy is not only statistically significant but also has considerable practical importance in managing cigarette product availability.

The measurement model evaluation showed that the distributor–retailer relationship indicator, or DS3, had the highest outer loading value for the Distribution Strategy construct, namely 0.955. This value indicates that the distributor–retailer relationship is the strongest indicator reflecting Distribution Strategy. However, a high outer loading does not directly mean that this indicator has the greatest causal effect on Product Availability. Instead, it indicates that the quality of distributor–retailer relationships is a particularly strong representation of distribution strategy as perceived by respondents.

The strong representation of distributor–retailer relationships indicates that distribution strategy in traditional retail cannot rely solely on product delivery mechanisms. Interpersonal relationships, communication, trust, and distributor responsiveness are inseparable components of distribution implementation. Retailers need to communicate information regarding stock conditions, fast-selling variants, less popular products, and replenishment requirements. Conversely, distributors need to provide information regarding product availability, visit schedules, price changes, delays, and possible product substitutions.

Order fulfillment accuracy is also important because discrepancies between ordered and received quantities can disrupt retailers' inventory planning. DeHoratius and Raman (2008) demonstrated that inventory information inaccuracy is a problem that can hinder replenishment decisions. In the context of this study, discrepancies between orders and received products may cause retailers to develop an inaccurate

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understanding of distributors' supply capabilities. When such conditions occur repeatedly, the risk of stockouts increases and retailers' trust in the distribution system may decline.

Theoretically, the results strengthen the supply chain management perspective that product availability is an outcome of coordinated flows of goods and information among supply chain actors. An effective distribution strategy serves as an integration mechanism that connects outlet requirements with the company's supply capacity. This study extends the evidence to the context of traditional retail and cigarette products, which still largely depend on distributor visits and direct services.

Practically, companies need to position distribution strategy as a primary priority in maintaining product availability. Companies should ensure that distributor visit schedules are implemented consistently, particularly for outlets with high product turnover rates. Geographical distribution coverage should be evaluated to ensure that outlets located relatively far away continue to receive adequate service. Companies also need to develop outlet classifications based on sales volume, demand patterns, location, and storage capacity so that delivery frequency and quantities can be adjusted to the needs of each retailer.

Companies also need to strengthen relationships with retailers through responsive communication, rapid complaint resolution, and order-confirmation mechanisms. Each order should be confirmed in terms of available product quantities, delivery schedules, and possible changes in quantity. These measures can reduce information gaps and increase retailers' trust in distributors. Therefore, improving distribution strategy is not only related to expanding geographical coverage or increasing the number of delivery vehicles but also to improving coordination quality and the overall implementation of distribution services.

The Effect of the Use of Distribution Technology on Product Availability

The test results show that the Use of Distribution Technology has a path coefficient of -0.075 toward Product Availability, with a t-statistic of 2.014 and a reported p-value of 0.004. Based on these values, the relationship between the Use of Distribution Technology and Product Availability is negative and statistically significant. Because H2 predicted a positive effect, whereas the resulting coefficient was negative, H2 is considered unsupported or rejected.

This interpretation differs from the statement that distribution technology "has no significant effect." Based on the reported figures, the main issue is not the absence of statistical significance but rather the direction of the relationship, which is contrary to the hypothesis. Nevertheless, the coefficient of -0.075 indicates that the magnitude of the relationship is relatively weak compared with the effect of Distribution Strategy. Therefore, this result should be interpreted cautiously and cannot be used to conclude that all uses of technology necessarily reduce product availability.

This finding indicates that the existence of technology does not automatically improve product availability. Distribution technology provides benefits only when the system is integrated with order fulfillment processes, the data generated are accurate, and users trust the system. Kache and Seuring (2017) explain that digital information can improve visibility and decision-making in supply chains, but its use also creates technical, organizational, and data-management challenges. Therefore, technology utilization must be supported by data quality, process integration, and the organization's ability to convert information into operational action.

The result can also be explained through Nasiri et al. (2020), who showed that smart technologies play a role in digital supply chains by improving relationship quality and coordination. However, these benefits emerge when digital transformation and technology are integrated with organizational processes and interorganizational relationships. In the context of traditional retail, ordering applications or tracking systems will not improve product availability when digital orders are not accurately transmitted, distributor inventory is not updated, or deliveries continue to experience delays.

The findings differ from those of Avlijas et al. (2021), who found that automated replenishment systems can improve product availability in retail stores. The difference may be explained by differences in context and system maturity. The automated replenishment system examined by Avlijas et al. (2021) was implemented in a retail network with more structured sales data, inventory records, and replenishment processes. In traditional retail outlets, however, the use of distribution technology may operate alongside manual recording, direct communication with sales representatives, and inventory systems that are not fully integrated.

This difference in findings confirms that technology does not operate independently of distribution processes. Verhoef et al. (2021) explain that digital transformation involves broader changes than merely adopting devices or applications. Digital transformation requires adjustments to strategy, processes, resources, organizational structures, and user capabilities. When a company merely provides an application without improving order fulfillment processes and operational support, technology may become an additional layer that increases complexity for retailers.

Field observation notes from this study indicate that some retailers were familiar with and had previously used technology-based ordering systems. However, usage tended to decline when retailers experienced discrepancies between orders submitted through the system and the products received. In some cases, orders were reportedly not delivered, or the quantities received differed from the quantities ordered. Such experiences may reduce retailers' trust and encourage them to return to direct communication with sales representatives or distributors.

The explanation based on these observations should be positioned as a contextual interpretation rather than as an additional causal-testing result. The research model only examined the relationship between perceptions of distribution technology use and product availability. This study did not specifically test system quality, user trust, data accuracy, technological readiness, or consistency between orders and deliveries. Therefore, these factors provide plausible explanations based on field conditions but require further empirical testing.

The small negative coefficient may indicate that increased use of technology has not been accompanied by improvements in operational processes. Retailers who use technology more frequently may also be more likely to experience or identify system errors, delayed status updates, and order discrepancies. In addition, technology may create process duplication when retailers still need to contact sales representatives after submitting orders through an application. Under these conditions, technology does not reduce transaction burdens but instead adds stages to the ordering process.

The measurement model evaluation showed that the technology effectiveness indicator, or DT5, had the highest outer loading value for the Use of Distribution Technology construct, namely 0.973. This indicates that perceptions of technology effectiveness are the strongest indicator reflecting the construct. This finding implies that retailers do not assess technology merely based on the existence of applications or features but primarily on its ability to produce more effective distribution processes. Technology that is available but unable to ensure that orders are processed, goods are delivered, and information is accurately updated is unlikely to be perceived as useful.

Theoretically, this finding supports a contingency approach to supply chain technology implementation. Technology does not necessarily produce the same performance outcomes in every context. Its benefits are influenced by process readiness, integration quality, user capabilities, outlet characteristics, and infrastructure reliability. Therefore, the relationship between distribution technology and product availability cannot be understood solely through the level of adoption. The quality of technology use and the company's ability to integrate it with distribution processes are more important than the number of features or frequency of use.

Practically, it is not sufficient for companies merely to provide ordering applications, tracking systems, or information platforms. Companies need to ensure that product availability data in the system correspond to actual physical inventory conditions. DeHoratius and Raman (2008) demonstrated that inaccurate inventory records can become a serious problem in retail management. When the system displays a product as available even though physical inventory is insufficient, retailers receive incorrect information and may experience order fulfillment failures.

Companies also need to connect ordering systems with warehouse processes, route planning, and delivery confirmation. Incoming orders should receive clear statuses, such as received, processed, partially available, shipped, or unable to be fulfilled. When the available quantity differs from the ordered quantity, retailers should receive notification and be provided with alternative actions before delivery takes place. Such transparency can reduce uncertainty and build trust in the system.

User training and assistance remain necessary, but they should not be treated as the sole solution. Low technology use is not always caused by retailers' limited digital capabilities. Retailers may stop using a system because they perceive its benefits to be lower than those of direct communication with sales representatives. Therefore, companies need to improve service quality and order fulfillment consistency alongside training activities.

The results suggest that companies should prioritize strengthening core distribution processes before expanding technology use. Technology should be positioned as a support for distribution strategy rather than as a substitute for distributor relationships and services. Direct interaction with sales representatives may still be maintained, particularly for resolving complaints, validating specific requirements, and assisting retailers who are new to the system. However, these interactions should be integrated with digital systems to prevent the creation of two different sources of information.

Overall, this study demonstrates a clear difference between the contributions of Distribution Strategy and the Use of Distribution Technology. Distribution Strategy has a strong positive effect and a large effect size on Product Availability. In contrast, the Use of Distribution Technology shows a weak negative relationship and does not support the hypothesized direction. These findings indicate that, in the context of traditional retail outlets in Jember Regency, the quality of physical distribution execution and distributor–retailer relationships remains more decisive than the independent use of technology.

Technology still has the potential to improve product availability, but these benefits can only be realized when technology is integrated with accurate inventory data, consistent order processing, timely delivery, and responsive problem-resolution mechanisms. Therefore, the main contribution of this study is the demonstration that distribution digitalization cannot replace the quality of distribution implementation. Technology creates value when it strengthens distribution processes that are already operating effectively, rather than when it is used to conceal weaknesses in operational processes.

IV. CONCLUSIONS

This study demonstrates that distribution strategy is the primary factor determining the availability of cigarette products in traditional retail outlets in Jember Regency. Distribution strategy was proven to have a positive and significant effect on product availability, indicating that the better the implementation of distribution activities, the greater the retailers' ability to provide products consistently. Regular delivery frequency, strong relationships between distributors and retailers, adequate geographical distribution coverage, and accurate order fulfillment are important elements in maintaining supply continuity and reducing the risk of stockouts at the outlet level. These findings confirm that product availability in traditional retail outlets is determined not only by the amount of inventory but also by the overall quality of distribution coordination and implementation.

In contrast to distribution strategy, the use of distribution technology did not demonstrate a positive effect on product availability. The resulting relationship coefficient was negative and relatively small; therefore, the hypothesis stating that the use of distribution technology has a positive effect on product availability was not supported. These results indicate that the availability of ordering applications, distribution information systems, and tracking technologies does not automatically improve product availability when such technologies are not supported by process integration, data accuracy, accurate order fulfillment, and reliable distribution services. Retailers' experiences with undelivered orders or discrepancies between the quantities ordered and received may also reduce trust in the system and encourage retailers to return to direct communication with sales representatives or distributors.

Overall, this study confirms that, within the context of traditional retail, the quality of physical distribution implementation and the relationship between distributors and retailers remain more decisive than the independent use of technology. Distribution technology still has the potential to support product availability, but it should be positioned as a mechanism for strengthening distribution strategy. Companies need to ensure that technological systems are integrated with inventory data, order-processing procedures, warehousing activities, and delivery operations. Companies also need to improve the transparency of order status, the accuracy of delivered quantities, the speed of complaint handling, and assistance provided to retailers so that the use of technology can generate tangible operational benefits.

This study has several limitations because it only covers traditional retail outlets in Jember Regency; therefore, the generalization of the findings to other regions should be approached cautiously. The respondents were also limited to outlet owners or managers and did not include the perspectives of consumers, sales representatives, or distributors. Furthermore, all traditional retail outlets were analyzed as a single group without distinguishing their business scale, location, sales volume, storage capacity, or operational characteristics. The research model also included only distribution strategy and the use of distribution technology, whereas product availability may be influenced by other factors that were not examined in this study.

Future research is recommended to expand the geographical scope and involve a larger number of respondents to improve the representativeness of the findings. Subsequent studies may also conduct analyses based on outlet type, scale, and location to identify differences in distribution requirements among retail groups. In addition, the research model may be extended by incorporating distributor service quality, technological readiness, digital literacy, trust in the system, inventory information accuracy, system quality, organizational support, and inventory management capability as independent, mediating, or moderating variables. The use of longitudinal research designs and the integration of perception-based data with actual data on delivery frequency, order fulfillment rates, and stockout occurrences may also provide a more comprehensive understanding of the factors determining product availability in traditional retail outlets.

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