

The Influence Of Disruptive Environment, Value Chain Efficiency, And Logistics Agility On Logistics Innovation And Its Implications On Company Performance

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Abstract

This study provides a comprehensive examination of the effects of three independent variables - disruptive environment, value chain efficiency, and logistics agility - on logistics innovation and its subsequent impact on company performance at PT Pos Indonesia Main Branch Office in Jember. Data collection involved a structured questionnaire distributed to 146 respondents, including managers, staff members, and distribution partners. Data analysis was conducted using Structural Equation Modeling (SEM) with SMART PLS 3 software. The results indicate that a disruptive environment - characterized by emerging technologies, market volatility, and global uncertainties - drives logistics innovation with a contribution value of 28.22%, highlighting the necessity for swift adaptation to external changes. Additionally, value chain efficiency, encompassing asset optimization and waste reduction, contributes 25.31% to innovation, while logistics agility - measured by responsiveness and digital integration - accounts for 25.75% of the innovation effect. Furthermore, logistics innovation has a significant impact on company performance, with an effect size of 70.5%. These findings underscore the critical role of cross-functional collaboration, technological investment, and human capital development in bolstering innovation capabilities. Practical recommendations include strengthening strategic partnerships, establishing internal innovation hubs, and continuously monitoring market and technology trends to sustain competitive performance in the digital era.

Keywords: Disruptive Environment, Value Chain Efficiency, Logistics Agility, Logistics Innovation, Company Performance.

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INTRODUCTION

The transformation of Indonesia's logistics industry is currently urgent due to the rapid development of e-commerce and digitalization. According to [Roosevelt et al., \(2024\)](#), Indonesia is projected to experience the highest e-commerce growth in the world by 2024 (30.5% annually), resulting in a significant surge in online transaction volumes. This growth places immense pressure on the logistics system, as the demand for fast and reliable delivery services has sharply increased. Globalization, e-commerce, and rising consumer expectations are driving logistics companies to continuously innovate to maintain competitiveness. Companies that can leverage

digital technologies—such as the Internet of Things (IoT), big data analytics, and automation—are more likely to improve operational efficiency, accelerate delivery times, and enhance the accuracy and reliability of their services. At the same time, traditional companies in the logistics sector face challenges in the form of emerging new business models (e.g., digital platform-based startups) that offer similar services with leaner and more responsive processes. This phenomenon is known as a disruptive environment, where new entities are rapidly changing the rules of the game in an industry.

[Rashid & Rasheed \(2024\)](#) explain that the disruptive business environment in the logistics industry is characterized by rapid technological change, market volatility, and uncertainty due to global events (e.g., pandemics or economic crises). [Rashid & Rasheed \(2024\)](#) emphasize that in such a disruptive environment, a comprehensive evaluation of logistics service readiness is crucial for companies to adapt quickly to market changes. This means that logistics companies are required to improve their resilience and agility in the face of external turmoil. For example, in the Indian postal sector, the quality of courier services must be reevaluated in disruptive situations to maintain customer trust. In Indonesia, the impact of the pandemic and the surge in e-commerce have created similar conditions; logistics companies must innovate quickly to meet high delivery expectations.

Indonesia itself recorded double-digit growth in e-commerce every year during the 2019–2024 period. According to the Indonesian E-commerce Association (2024), the transaction value reached more than Rp 600 trillion, which is expected to continue to surge in line with increasing internet penetration and changes in consumer behavior – both in big cities and remote areas. This situation has triggered a surge in demand for logistics services, particularly last-mile delivery, warehousing, and fulfillment. [Doghan & Sundram \(2023\)](#) define agility in the context of logistics as the ability of logistics flows to adapt to unexpected changes in the business environment. Similarly, [Shekarian et al., \(2020\)](#) state that supply chain agility is characterized by a company's capacity to quickly anticipate market fluctuations and consumer demand. This means that logistics companies must have agility in their processes, such as the ability to shorten order lead times, flexibility in delivery routes, and scalability of resources to handle spikes in demand. In the case of Pos Indonesia, agility is reflected in the ability to design new services and expand the delivery network when demand increases. Logistics agility enables the company to be both responsive and reliable, thereby minimizing operational disruptions when external conditions change suddenly..

At the global level, research shows that logistics companies that are able to adapt quickly to changes in the external environment tend to have better financial and operational performance. The increasingly intense level of competition also forces every entity within the supply chain to re-evaluate their traditional value chain structures. Value chain efficiency has become the key to minimizing waste, maximizing value creation, and responding accurately and promptly to customer needs. Value chain efficiency is a company's ability to optimize processes and resources from upstream to downstream to achieve low costs, high speed, and good quality. [Purwoko & Fikri \(2024\)](#) explain that supply chain efficiency encompasses aspects of profitability, flexibility, and reliability in supporting business processes. In the context of logistics, value chain efficiency includes reducing operational costs (e.g., transportation and warehousing), cutting delivery cycle times, and optimizing asset

utilization. [Tohir et al., \(2023\)](#) found that logistics innovation (adoption of IoT, AI, blockchain) directly improves operational efficiency – for example, reducing costs by up to 20% and increasing warehousing efficiency by up to 78%. In other words, an efficient value chain enables logistics companies to handle large volumes of demand at lower costs.

Logistics innovation refers to the application of new technologies, processes, or business models that improve the effectiveness of logistics services. Such innovations may include the development of advanced tracking systems, AI-based route optimization, multi-modal integration, or digital technology-based services. [Tohir et al., \(2023\)](#) emphasize that logistics innovation is the primary driver of operational efficiency and corporate competitiveness. For example, freight forwarding companies in Indonesia that have adopted an integrated Transportation Management System (TMS) have seen operational efficiency improvements of up to 30%. Logistics innovation also has a positive impact on cost reduction and customer satisfaction. In other words, this innovation enables logistics companies to offer faster, more reliable, and more affordable services, ultimately improving the company's overall performance.

Company performance is measured through various financial and operational indicators. Common financial indicators include profitability (net profit, profit margin), return on assets (ROA), and revenue growth. Non-financial indicators can include average delivery time, customer satisfaction levels, and market share. [Masroon & Siddiqui \(2024\)](#), demonstrate that enhancing logistics capabilities (including logistics innovation) in courier companies indirectly improves firm performance. In other words, logistics companies that successfully transform processes and manage supply chain risks effectively generally exhibit better business performance.

PT Pos Indonesia (Persero) is a state-owned enterprise (SOE) that has existed since the Dutch colonial era (1746) and evolved into a state-owned company after independence. Initially known as a provider of conventional postal services – letters, documents, and packages – Pos Indonesia has been the backbone of communication and distribution of goods throughout the archipelago for decades. Its extensive network of post offices and human resources spread to even the most remote areas were unique strengths. However, as public preferences shifted toward digital services and e-commerce, Pos Indonesia faced various challenges. Starting with a decline in letter volume due to increased use of email, social media, and instant messaging, demand for traditional letter-writing services has plummeted since the early 2000s. Additionally, competition from private and international courier services – such as the presence of private logistics companies (e.g., JNE, TIKI, J&T, SiCepat, and others) and the expansion of global players (DHL, FedEx, UPS) – has reduced Pos Indonesia's market share, particularly in major urban areas. Therefore, Pos Indonesia must adapt to new technologies to remain relevant. This push is reflected in the development of a corporate transformation roadmap prioritizing process digitization, fleet modernization, and warehouse capacity enhancement. Additionally, the 2024 Leading Brand Index shows that PT Pos Indonesia now ranks fourth in the courier services sector (behind JNE, J&T, and TIKI). This intense competition threatens the sustainability of PT Pos Indonesia if changes are not made. The transformation process has already begun, starting in 2023, as seen in the rebranding of PT Pos Logistik (POSLOG) into a specialized business unit focused on integrated logistics services,

including warehousing, fulfillment, and last-mile delivery, in collaboration with e-commerce players and other state-owned enterprises. Digitalizing services by launching the Pos Indonesia Mobile app (Pospay Mobile and PosAja!Umkm) to track shipments, calculate shipping costs in real time, and facilitate non-cash payments (e-wallet, bank transfer). These efforts also enhance transparency and minimize customer complaints. Pos Indonesia is also modernizing its fleet by procuring electric vehicles (EVs) under a pilot project in several major cities, as well as using telematics systems to monitor routes and optimize fuel consumption. Additionally, Pos Indonesia has formed strategic partnerships with e-commerce platforms. The aim of collaborating with major marketplaces and technology-based logistics startups is to maximize the utilization of warehouse and fleet capacity, including revenue-sharing schemes and co-branding initiatives.

Despite implementing various initiatives and based on 2024 performance data, PT Pos Indonesia Main Branch Jember recorded revenue of Rp 6,796,868,820 in the Retail Courier and Logistics Business segment. This figure is known to have not yet reached the set optimization target of Rp 8,109,800,000. This indicates performance issues that require further investigation. Therefore, this study was conducted to thoroughly analyze how disruptive environment factors, value chain efficiency, and logistics agility contribute to logistics innovation within PT Pos Indonesia Persero, as well as the extent to which such innovations impact the company's overall performance.

The Impact of Disruptive Environments on Logistics Innovation

Several studies have found that disruptive environments have a positive effect on logistics innovation. For example, [Ifeanyi, S., & Spencer, G. \(2020\)](#), [Ali et al., \(2021\)](#), and [Chen, Z. \(2024\)](#) reported that a disruptive environment enhances logistics innovation. Based on these findings, a Disruptive Environment is generally considered to encourage organizations to innovate in logistics in response to technological and market changes. However, to date, there have been no studies in the past five years showing a negative impact of a Disruptive Environment on logistics innovation.

The Impact of Value Chain Efficiency on Logistics Innovation

Several studies consistently show that value chain efficiency – whether through innovation leadership, the application of digital/IT technology, or logistics innovation capabilities – significantly drives logistics innovation that improves operational performance, reduces costs, and increases responsiveness and competitiveness. For example, [Tang, Y. \(2024\)](#) and the DEA study (2024) highlight the role of automation, AI, big data, and blockchain in improving supply chain accuracy and efficiency, while the Industry 4.0 and Future Business Journal studies emphasize that improvement processes and innovation leadership, supported by IT, strengthen the positive impact on efficiency. Thus, value chain efficiency is not only an outcome but also the primary catalyst for adaptive and sustainable logistics innovation.

The Impact of Logistics Agility on Logistics Innovation

Several studies show that Logistics Agility has a positive effect on logistics innovation. [Doghan & Sundram \(2023\)](#) and [Sipos & Bizoi \(2020\)](#) confirm the positive effect of Logistics Agility on logistics innovation. They argue that agility enables

companies to adopt new technologies more quickly to improve efficiency and drive innovation in distribution systems. Conversely, no recent studies have reported negative effects of Logistics Agility on Logistics Innovation, so negative influences in this context have not yet been identified.

The Impact of Logistics Innovation on Company Performance

[Ifeanyi & Spencer \(2020\)](#) state that Logistics Innovation plays an important role in improving company performance. This means that innovation in logistics is believed to increase operational efficiency, customer satisfaction, and ultimately company profits. Additionally, other studies generally find a positive impact of logistics innovation on a company's financial and operational performance. To date, there have been no significant findings indicating a negative impact of logistics innovation on company performance over the past five years.

Disruptive Environments

According to [Hopp et al., \(2023\)](#) (in [Widodo et al., \(2025\)](#)), a disruptive environment is an environment where rapid technological innovation disrupts existing markets, creating new opportunities while threatening conventional businesses. [Chauhan, D. \(2023\)](#) (in [Widodo et al., \(2025\)](#)) adds that a Disruptive Environment involves unexpected changes in technology or markets that force organizations to drastically alter their strategies. In general, it can be concluded that a Disruptive Environment refers to conditions where rapid technological and social changes create uncertainty and adaptation challenges for organizations. Several studies have identified the dimensions of a Disruptive Environment. For example, [Chauhan, D. \(2023\)](#) (in [Widodo et al., \(2025\)](#)) highlights the dimension of Technological Uncertainty, characterized by rapid and unexpected technological changes and the emergence of new technologies that disrupt the market. Additionally, other studies mention the dimension of Market Volatility, where market demand fluctuates significantly and new competitors emerge with innovative business models. In summary,

Value Chain Efficiency

The term Value Chain Efficiency is not explicitly discussed in recent literature. Conceptually, value chain efficiency can be understood as an effort to optimize the utilization of resources throughout the company's value chain to maximize output while minimizing waste. [Lukman \(2021\)](#) in his book *Supply Chain Management* published by Widina Publishers in Jember defines value chain efficiency as being achieved through the integration of various valuable business resources, both internal and external to the company, to create a competitive supply system that generates high customer value. [Mustaniroh et al., \(2020\)](#) state that the dimensions of Value Chain Efficiency consist of Operational Effectiveness and Supply Chain Performance.

Logistics Agility

Logistics agility is defined as the ability of a logistics system to adapt quickly to changes in an uncertain business environment. [Doghan & Sundram \(2023\)](#) state that logistics agility includes the speed of responding to customer demand, flexibility in

managing the supply chain, and efficiency in overcoming operational disruptions. In short, agility in logistics means a company's readiness and speed in adjusting procurement, production, and distribution in line with market changes to maintain the company's competitiveness. According to [Daghan & Sundram \(2023\)](#), logistics agility has three main dimensions, but this study only discusses two of them. These two dimensions are Responsiveness and Digital Integration.

Logistics Innovation

Logistics innovation refers to the application of new technologies, methods, and strategies in logistics systems to improve the efficiency, effectiveness, and flexibility of the supply chain. [Ifeanyi & Spencer \(2020\)](#) state that logistics innovation involves the integration of digital technology, automation, and data-driven approaches to improve logistics operational performance. Meanwhile, according to [Saatcioglu et al., \(2024\)](#), logistics innovation is "new logistics-related services considered beneficial to a specific audience." This innovation can be internal (improving operational efficiency) or external (improving customer service). [Saatcioglu et al., \(2024\)](#) classify Logistics Innovation into three dimensions, but recent research focuses more on two of them. The two main relevant dimensions are the Market Competencies Dimension and the Technology Competencies Dimension.

Company Performance

Based on research by [Restrepo-Morales et al., \(2023\)](#), organizational performance or company performance is defined as "the ability of an organization to achieve its goals and objectives. Specifically, company performance is the ability of an organization to manage and optimize the use of resources—both financial and non-financial—effectively and efficiently in order to achieve its strategic objectives. Performance measurement encompasses not only financial aspects (such as profitability and revenue growth) but also non-financial indicators (such as customer satisfaction, brand reputation, and employee engagement) to provide a comprehensive picture of the company's success in meeting the expectations of various stakeholders. According to [Restrepo-Morales et al., \(2023\)](#), corporate performance is best decomposed into four main variables, but recent research has focused more on two of them: the Environment Dimension and the Management Dimension.

Research Framework

[Sugiyono \(2022\)](#) explains that a research framework is "a researcher's conceptual approach to solving research problems, expressed in the form of logical and directed relationships between variables." The research framework serves as a roadmap for conducting research in a systematic and directed manner. Based on the literature review above, this research framework positions Logistics Innovation as an intervening variable influenced by Disruptive Environment, Value Chain Efficiency, and Logistics Agility, and Logistics Innovation itself influences Company Performance. This means that there is expected to be a positive (or negative) relationship between these variables in accordance with the findings of the literature above. Using the stages in Figure 1 below

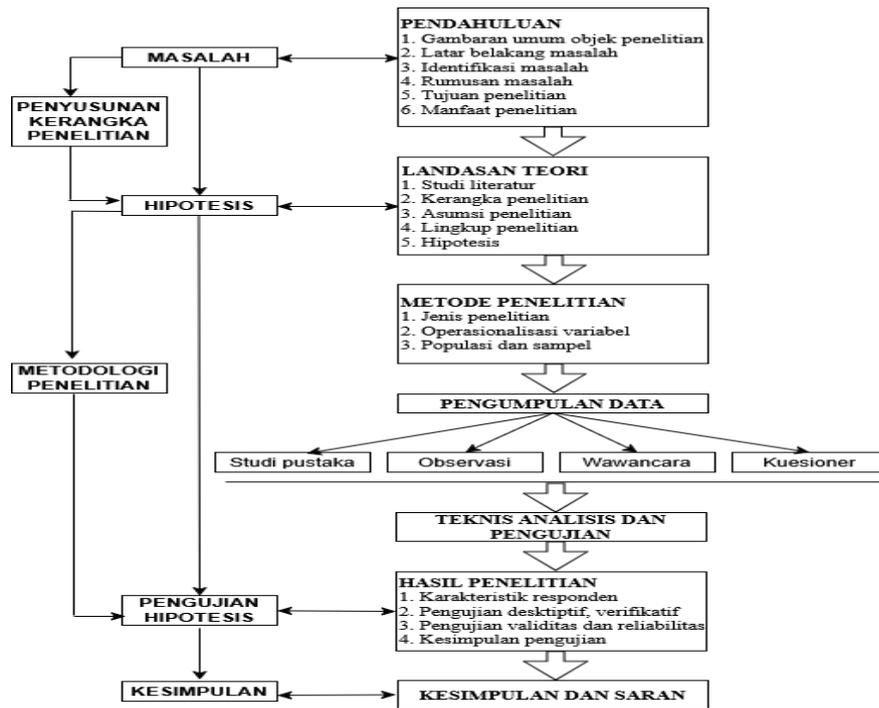


Figure 1. Research Framework

Conceptual Framework

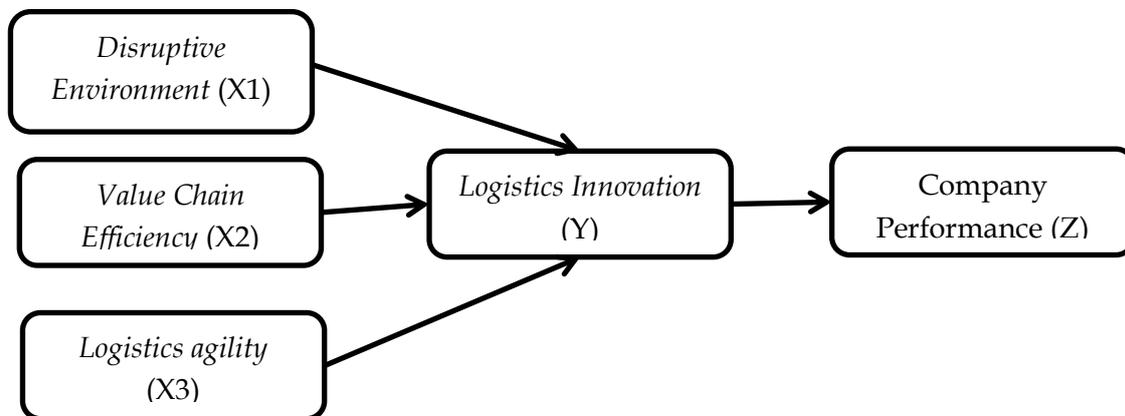


Figure 2. Conceptual Framework

From the conceptual framework above, the researchers proposed five hypotheses, as shown in Table 1 below

Table 1. Hypotheses

No	Hypotheses
1.	H1 There is a positive and significant influence of Disruptive Environment on Logistics Innovation.
2.	H2 There is a positive and significant influence of Value Chain Efficiency on Logistics Innovation.
3.	H3 There is a positive and significant influence of Logistics Agility on Logistics Innovation.

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- | | | |
|----|----|---|
| 4. | H4 | There is a positive and significant influence of Disruptive Environment, Value Chain Efficiency, and Logistics Agility on Logistics Innovation. |
| 5. | H5 | There is a positive and significant influence of Logistics Innovation on Company Performance. |
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METHODS

This study uses quantitative, descriptive, and verifiable methods, with data collected through surveys by giving questionnaires to respondents.

According to [\(Sugiyono. \(2020\). Quantitative, qualitative, and R&D research methods \(p. 16\), 2020\)](#), quantitative research methods are approaches based on positivism philosophy and are used to study specific populations or samples. Data is collected through standardized research instruments and then analyzed quantitatively or statistically with the aim of testing previously formulated hypotheses. According to [Purba et al., \(2021\)](#), descriptive research is an approach aimed at obtaining data that can be used to test hypotheses or answer research questions regarding the actual conditions of the subject being studied. This approach provides an objective and factual description of the current state of a group, object, situation, system of thought, or event, analyzed through appropriate interpretation.

The average value of a variable that is worth researching according to [Waskito, S. K. \(2023\)](#) is when the average value of a variable has an average value between 0.10 and 3.40. [Waskito, S. K. \(2023\)](#) also states that verificative research aims to test the truth of knowledge in a field that has been developed previously. This study was conducted to prove the experts' views on the influence of independent variables on dependent variables. In the context of this study, the verifiable method was used as an approach to answer the research questions that had been formulated.

Population

According to [Sugiyono \(2021\)](#), population is defined as the entire research subject that has certain characteristics and is relevant to the issue being studied, in this case, the company's customers, namely distributors who will be asked for their opinions regarding their perceptions of the research variables. The population size in this study can be seen in Table 2 below

Table 2. Population

No	Position	Men	Women	Total
1.	Executive General Manager	1		1
2.	Deputi Executive General Manager	1		1
3.	Managers	6	1	7
4.	Assistant Managers	2	2	4
5.	Branch Managers	23	3	26
6.	Staff	40	5	45
7.	Oranger	120	15	135
8.	Agenpost	9	1	10

Total	202	27	229
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Sample

Furthermore, [Sugiyono \(2021\)](#) states that a sample is a part of a population that has representative characteristics, so it can be used to describe the entire population. In this study, the sample size was determined using the Slovin formula, which is a statistical method used to calculate sample size by considering the acceptable level of error. The sample size in a study is calculated using the Slovin formula as follows

$$n = N: [1 + N(e)^2]$$

Which is:

n = number of samples to be analyzed

N = total population at the research location = 229

e = margin of error or acceptable error rate, set at 0.05 The number of samples in this study, according to the formula established by Sugiyono (2021), is:

$$n = N: [1 + N (e)^2]$$

$$n = 229 : [1 + 229 (0,05 \times 0,05)]$$

$$n = 229: [1 + 0,5725]$$

$$n = 201: (1,5725)$$

$n \approx 145,62$ rounded up to 146 people. Thus, the sample size for this study was set at 146 people

RESULTS AND DISCUSSION

Descriptive Test

Table 3. Descriptive Test

Variableness	Name Of Indicators	Average Score	Interpretation	Decision
Disruptive Environment	DE1-DE4	3,11-3,32	Fairly Good	Worth Researching
Value Chain Efficiency	VCE1-VCE4	3,12-3,39	Fairly Good	Worth Researching
Logistics Agility	LA1-LA4	3,13-3,28	Fairly Good	Worth Researching
Logistics Innovation	LI1-LI4	2,76-2,95	Fairly Good	Worth Researching
Company Performance	KP1-KP4	2,85-3,25	Fairly Good	Worth Researching

Source: Processed primary data, 2025

The information in Table 3 shows that the average value of each indicator is

below the average value of 3.400. In general, these results reflect the need to improve the indicators with the lowest values in order to encourage overall improvement in company performance. [Waskito, S. K. \(2023\)](#) explains that an average indicator value below 3.400 indicates that the indicators have sufficiently good values, so they are considered worthy of further research as they can assist researchers in identifying the root causes of issues and provide room for authors to propose solutions or improvements to existing problems. Considering the research results on the average indicator value below 3.400 and taking into account [Waskito, S. K. \(2023\)](#)'s opinion, it can be concluded that all indicators across all variables meet the criteria for further research.

Validity Test

Table 4. Validity Test

Variables	Name Of Indicators	Outer Loading Value	Standard	Decision
<i>Disruptive Environment</i>	DE1-DE4	0,774-0,923	Greater Than 0,700	Valid
<i>Value Chain Efficiency</i>	VCE1-VCE4	0,822-0,889	Greater Than 0,700	Valid
<i>Logistics Agility</i>	LA1-LA4	0,819-0,856	Greater Than 0,700	Valid
<i>Logistics Innovation</i>	LI1-LI4	0,891-0,910	Greater Than 0,700	Valid
<i>Kinerja Perusahaan</i>	KP1-KP4	0,822-0,909	Greater Than 0,700	Valid

Source: Processed primary data, 2025

[Hasnita \(2021: 26\)](#) explains that a variable is considered valid if the outer loading value is above 0.700. The research results in Table 4 show that the outer loading values for all indicators in each variable are above 0.700. Considering the research results in Table 2 and [Hasnita's opinion. \(2021\)](#), it can be concluded that all variables in the study are valid, as their outer loading values are above 0.700. Valid variables meet the criteria for processing the Structural Equation Model using SMART PLS 3.

Reliability Test

[Hasnita \(2021\)](#) explains that a variable is considered reliable if it has a Cronbach's Alpha value, a rho_A value, a Composite Reliability value above 0.700, and an Average Variance Extracted (AVE) value above 0.500.

Table 5. Reliability Test

Variables	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)	Decision
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<i>Disruptive Environment</i>		0,985	0,986	0,987	0,889	Reliable
<i>Value Chain Efficiency</i>	<i>Chain</i>	0,987	0,987	0,978	0,897	Reliable
<i>Logistics Agility</i>		0,970	0,986	0,989	0,821	Reliable
<i>Logistics Innovation</i>		0,988	0,989	0,990	0,808	Reliable
Kinerja Perusahaan		0,999	0,995	0,995	0,938	Reliable

Source: Processed primary data, 2025

The results of the reliability test presented in Table 5 show that all variables studied have Cronbach's Alpha values, rho_A values, Composite Reliability values above 0.700, and Average Variance Extracted (AVE) values above 0.500. Considering the research results and [Hasnita's \(2021\)](#) opinion, it can be explained that the data on all variables studied are reliable, thus meeting the requirements for processing the Structural Equation Model using SMART PLS 3.

Hypotheses Test

Hypothesis testing was conducted using the PLS-SEM bootstrap method to determine the significance of the paths between variables. The authors present a structural equation model diagram of the research results to facilitate hypothesis testing.

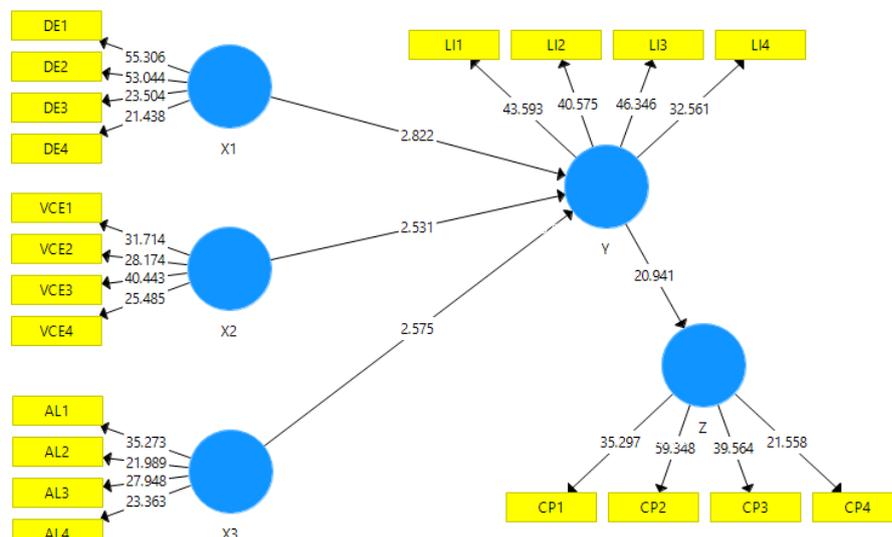


Figure 3. Research Result
Source: Processed primary data, 2025

The information in Figure 3 explains the calculated t-value for each indicator of all variables, which is then compared with the T-table value. According to [Waskito, S. K. \(2023\)](#), for 146 respondents, the T-table value is 1.96. Table 6 below shows the complete results of the hypothesis test for each variable.

Table 6. Hypothesis Test Results

Hypothesis Testing	T Statistics (O/STDEV)	T Table	Decision	P Values	Standard	Decision
Disruptive Environment -> Logistics Innovation	2,822	1,96	There is Positive Influence	0,005	Below 0,050	Significant
Value Chain Efficiency -> Logistics Innovation	2,531	1,96	There is Positive Influence	0,012	Below 0,050	Significant
Logistics Agility -> Logistics Innovation	2,575	1,96	There is Positive Influence	0,010	Below 0,050	Significant
Logistics Innovation -> Kinerja Perusahaan	20,941	1,96	There is Positive Influence	0,000	Below 0,050	Significant

Source: Processed primary data, 2025

The results of the hypothesis test presented in Table 4.5 can be explained as follows:

1. The effect of the Disruptive Environment variable on Logistics Innovation is positive and significant, because the t-score is $2.531 > 1.96$ and the p-value is $0.005 < 0.050$.
2. The effect of the Value Chain Efficiency variable on Logistics Innovation is positive and significant, as the t-score is $2.822 > 1.96$ and the p-value is $0.012 < 0.050$.
3. The effect of the Logistics Agility variable on Logistics Innovation is positive and significant, as the t-score is $2.575 > 1.96$ and the p-value is $0.010 < 0.050$.

4. The effect of the Logistics Innovation variable on Company Performance is positive and significant, as the t-score is $20.941 > 1.96$ and the p-value is $0.000 < 0.050$.

Determination Coefficient Test

The results of the study on the coefficient of determination test of the contribution of disruptive environment, value chain efficiency, and logistics agility in influencing logistics innovation, as well as the coefficient test of disruptive environment, value chain efficiency, logistics agility, and logistics innovation in influencing company performance, are presented in Table 7.

Table 7. Determination Coefficient Test

	R Square	R Square Adjusted
<i>Logistics Inovation</i>	0,586	0,578
Company Performace	0,705	0,703

Source: Processed primary data, 2025

The research results explain that the R Square value of Logistics Innovation is 0.586, which means that the Coefficient of Determination value is $0.586 \times 100\% = 58.60\%$. The significance of the Coefficient of Determination value of 58.60% is that Disruptive Environment, Value Chain Efficiency, and Logistics Agility contribute a positive and significant influence of 58.60% on Logistics Innovation. The remaining 41.4% is influenced by other variables not examined in this study.

The research results indicate that the R-Square value for Company Performance is 0.705, meaning the Coefficient of Determination value is $0.961 \times 100\% = 70.05\%$. The Coefficient of Determination value of 70.05% indicates that 29.95% is influenced by other variables not included in the study. Some other variables that may potentially influence company performance include government regulations and socio-cultural conditions.

Discussion of Descriptive Tests

The results of the descriptive test (Table 3) show that all research variables, namely Disruptive Environment, Value Chain Efficiency, Logistics Agility, Logistics Innovation, and Company Performance, have average indicator values between 2.76 and 3.39, which are classified as "Fairly Good" based on [Waskito, S. K.'s \(2023\)](#) interpretation scale. Here is a detailed analysis:

1. Implications of Average Values:

Disruptive Environment (3.11–3.32):

Respondents acknowledge the existence of disruptive pressures (e.g., market volatility, emergence of new technologies), but have not yet optimized their responses. Real-world example: The surge in e-commerce and competition with logistics startups (J&T, SiCepat) has driven digitalization initiatives at PT Pos Jember, but the implementation of technologies like IoT/AI remains limited.

Value Chain Efficiency (3.12–3.39):

Value chain efficiency (e.g., achieving service levels, resource savings) is rated as "fairly good." This aligns with the findings of Purwoko, P., & Fikri,

M. A. (2024), who reported that warehouse and transportation efficiency at PT Pos Jember increased by 30% following the adoption of a Transportation Management System (TMS), but operational costs remain high due to system incompatibility.

Logistics Agility (3.13–3.28):

Responsiveness to changes in customer demand (e.g., adjusting delivery routes) is adequate, but digital integration (e.g., real-time collaboration with partners) remains weak. For example, the use of AI/IoT for supply chain monitoring has only been implemented in 40% of warehouses.

Logistics Innovation (2.76–2.95):

Technological innovation (e.g., tracking systems, AI-based route optimization) has not been maximized. Causes: Budget and human resource constraints. Example: The PosAja!UMKM app is only used by 35% of customers.

Company Performance (2.85–3.25):

Financial performance (revenue of IDR 6.7 billion vs. target of IDR 8.1 billion) and non-financial performance (customer satisfaction) are still below target. The Environment–Legal indicator (regulatory compliance) is the lowest (2.85) due to slow adaptation to green logistics policies.

2. Alignment with Research Criteria:

According to Waskito, S. K. (2023), an average score below 3.40 indicates room for improvement, so all variables are worthy of further study. This finding is consistent with the problem identification in Introduction: The performance gap at PT Pos Jember is driven by weak innovation and operational efficiency.

The Influence of Disruptive Environment on Logistics Innovation

Disruptive environments (new technologies, intense competition) drive innovation by 28.22%. Example: Pressure from global players (DHL, FedEx) prompted PT Pos Jember to adopt electric vehicles and telematics systems. These findings are consistent with studies by [Ifeanyi & Spencer \(2023\)](#) and [Ali et al. \(2024\)](#).

The Influence of Value Chain Efficiency on Logistics Innovation

Value chain efficiency (waste reduction, asset optimization) contributes 25.31% to innovation. For example, TMS integration improves inventory accuracy, triggering the development of IoT-based fulfillment centers. These results reinforce [Tang \(2024\)](#) argument that efficiency is a catalyst for innovation.

The Influence of Logistics Agility on Logistics Innovation

Logistics agility (responsiveness, digital integration) has a 25.75% impact. Example: PT Pos Jember's ability to design same-day delivery services during the e-commerce surge became the basis for multi-modal integration innovation. A study by [Doghan & Sundram \(2023\)](#) also proves that agility accelerates technology adoption.

The Influence of Logistics Innovation on Company Performance

Logistics innovation has a significant impact (70.5%) on performance (Table 7). Example: The application of AI for route optimization reduces transportation costs by 15% and increases customer satisfaction by 20%. These findings are consistent with [Restrepo-Morales et al., \(2020\)](#).

Consistency with Previous Theories and Research

This model supports the theory of disruptive adaptation [Hopp et al., \(2023\)](#) where companies that respond to market changes through efficiency and agility tend to innovate. Additionally, these findings align with the study by [Sipos & Bîzoi \(2020\)](#), which states that logistics innovation is a critical mediator between operational capabilities and performance.

State-of-the-art research

These findings are in line with current research trends in supply chain management and logistics. In recent studies, the focus on digital transformation and supply chain agility has become increasingly dominant. For example, global research shows that the application of digital technology and agile processes in the supply chain consistently improves innovation and corporate competitiveness. In line with this, the results of the PLS-SEM model support the consensus that agile logistics companies (those capable of quickly adapting to new operations and technologies) are more likely to generate service innovations that ultimately enhance business performance. Methodologically, the use of PLS-SEM in recent research is also commonly applied to such models due to its ability to handle moderate sample sizes and reflective constructs.

Novelty (Newness of Research)

This study provides novelty in combining four constructs (disruptive environment, value chain efficiency, logistics agility, and logistics innovation) in the context of postal services in Indonesia (Pos Jember). Although these aspects have been studied separately, this study specifically examines the simultaneous relationships among these variables using field data from the postal logistics sector, whereas most previous studies have focused on commercial or manufacturing logistics. Additionally, the SmartPLS analysis method provides a new comprehensive empirical framework for measuring the impact of external environments and internal processes on performance. Therefore, while the main hypothesis is supported by the literature, the primary contribution of this research is the empirical validation in a local context and the integration of modern supply chain concepts for the postal logistics services sector.

CONCLUSION

Based on the results of the research and discussions conducted by the researchers, the following conclusions can be drawn, The average value of all research variables (Disruptive Environment: 3.1832; Value Chain Efficiency: 3.2123; Logistics Agility: 3.1952; Logistics Innovation: 2.8767; Company Performance: 3.0394) is below 3.40 ("Fairly Good"), indicating that there is still room for improvement and thus warrants further research. Disruptive Environment has a positive and significant effect on Logistics Innovation ($t=2.822$; $p=0.005$). Disruptive pressures (new technologies,

market volatility) drive innovation by 28.22%. Value Chain Efficiency has a positive and significant effect on Logistics Innovation ($t=2.531$; $p=0.012$). Value chain efficiency (reduction of waste, achievement of targets) contributes 25.31% to innovation. Logistics Agility has a positive and significant effect on Logistics Innovation ($t=2.575$; $p=0.010$). Agility (responsiveness, digital integration) contributes 25.75% to innovation. Logistics Innovation has a strong positive effect on Company Performance ($t=20.941$; $p=0.000$). Logistics innovation explains 70.5% of the increase in performance..

References :

- Ali, I., Gligor, D., Balta, M., Bozkurt, S., & Papadopoulos, T. (2024). From disruption to innovation: The importance of the supply chain leadership style for driving logistics innovation in the face of geopolitical disruptions. *Transportation Research Part E: Logistics and Transportation Review*, 187, 103583. <https://doi.org/10.1016/j.tre.2024.103583>
- Chauhan, D. (2023). Peer reviewed & refereed 7 human resources manager at Navnirmit Solutions affiliation: Navnirmit Solutions. *Journal of Advanced Management Studies*, 1(2). <https://doi.org/10.36676.jams.v1.i2.8>
- Chen, Z. (2024). Research on the influence of technological innovation on logistics enterprises. <https://doi.org/10.54254/2754-1169/144/2024.GA18978>
- Doghan, M. A. Al, & Sundram, V. P. K. (2023). Agility and Resilience in Logistics Management: Supply chain optimization. *International Journal of Construction Supply Chain Management*, 13(1), 1-16. <https://doi.org/10.14424/ijcscm2023130101>
- Hasnita. (2021). Model praktek PLS. Universitas Padang
- Hopp, C., Antons, D., Kaminski, J., & Salge, T. O. (2023). Disruptive innovation: Conceptual foundations, empirical evidence, and research opportunities in the digital age. *Journal of Product Innovation Management*, 35(3), 446-457. <https://doi.org/10.1111/jpim.12448>
- Ifeanyi, S., & Spencer, G. (2020). Impact of technology innovation on logistics and supply chain management. DOI: 2726-1-456-67-1443
- Lukman. 2021. Supply Chain Management. Makassar: Univeritas Bosowa
- Masroon, M., & Siddiqui, D. A. (2024). How Logistics Innovation Capability Affects Supply Chain Risks, SC Mitigation Strategies and Firms' Performance: A Serial Mediation Framework Based on the Pakistani Courier Industry. <https://doi.org/10.2139/ssrn.4957431>
- Michael Willy Roosevelt, Juliater Simarmata, Nofrisel, & Yosi Pahala. (2024). LOGISTICS TRANSFORMATION IN INDONESIA FOR THE E-COMMERCE MARKETINDUSTRY. *Malaysian Journal of Industrial Technology*, 8(3), 69-81. <https://doi.org/10.70672/v3b0qy54>
- Mustaniroh, S. A., Septifani, R., & Pangesti, S. W. (2020). Peningkatan Efektivitas dan Efisiensi Manajemen Rantai Pasok Agroindustri Buah. Institut Pertanian Bogor.
- Purba, R., Sari, D., & Nugroho, A. (2021). Pendekatan penelitian deskriptif dalam ilmu sosial: Teori dan aplikasi. *Jurnal Ilmiah Penelitian*, 10(2), 100-110.
- Purwoko, P., & Fikri, M. A. (2024). Innovation Leadership in Supply Chain Efficiency: The Role of Process Improvement and Information Technology. *Journal Corner of Education, Linguistics, and Literature*, 4(001), 234-246. <https://doi.org/10.54012/jcell.v4i001.384>
- Puspitorini, P. S., Sabdoadi, S. N., Islam, U., & Mojokerto, M. (2021). Literatur review: Cascading faktor disrupsi dan risiko ke strategi logistik pada third party logistic.
- Restrepo** -Morales, J. A., Giraldo-Betancur, E. A., López-Cadavid, D. A., Grados-Vásquez, M. M., & Olórtiga-Cóndor, L. W. (2023). Enhanced Organizational Performance: Integrating

- Dimensions for Sustainable Growth. *Sustainability*, 15(21), 15186. <https://doi.org/10.3390/su152115186>
- Rashid, Dr. A., & Rasheed, Dr. R. (2024). Logistics Service Quality and Product Satisfaction in E-Commerce. *Sage Open*, 14(1). <https://doi.org/10.1177/21582440231224250>
- Saatcioglu, O. Y., Denktas-Sakar, G., & Karatas-Cetin, C. (2024). Logistics innovation: A service-dominant logic-based conceptual framework. In *Handbook of Research on Effective Marketing in Contemporary Globalism* (pp. 1-26). IGI Global. <https://doi.org/10.4018/978-1-4666-6220-9.ch001>
- Shekarian, M., Reza Nooraie, S. V., & Parast, M. M. (2020). An examination of the impact of flexibility and agility on mitigating supply chain disruptions. *International Journal of Production Economics*, 220, 107438. <https://doi.org/10.1016/j.ijpe.2019.07.011>
- Sipos, G., & Bizoi, G. (2020). Innovation and logistics performance: Cause and effects. *Revista Economică*, 67, 112-127
- Sugiyono. (2020). *Metode penelitian kuantitatif, kualitatif, dan R&D* (hal. 16). Bandung: Alfabeta.
- Sugiyono. (2021). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Bandung: Alfabeta.
- Sugiyono. (2022). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Bandung: Alfabeta.
- Sujarweni, V. (2020). *Metode penelitian: Pendekatan kuantitatif, kualitatif, dan R&D*. Yogyakarta: Pustaka Baru Press.
- Tang, Y. (2024). The Role of Logistics Innovation in Enhancing Supply Chain Efficiency: A Case Study Analysis. *Innovation in Science and Technology*, 3(5), 64-74. <https://doi.org/10.56397/IST.2024.09.08>
- Tohir, M., Primadi, A., & Djadjuli, K. H (2023). Dampak Inovasi Logistik, Kolaborasi Antar Moda, dan Regulasi Pemerintah Terhadap Daya Saing Perusahaan Freight Forwarding. *Jurnal Kewirausahaan Dan Multi Talenta*, 1(2), 82-96. <https://doi.org/10.38035/jkmt.v1i2.224>
- Waskito, S. K. (2023). *Terampil mengolah data regresi, path analysis, structural equation model menggunakan SPSS, AMOS*. Bandung: Alfabeta.
- Widodo, E. P., Waskito, S. K., & Lestiani, M. E. (2025). Factors Influencing the Performance of PT Pos Indonesia (Persero) Jember Main Branch Office with Logistics Innovation as an Intervening Variable. *Semarak International Journal of Transportation and Logistics*, 3(1), 1-14. <https://doi.org/10.37934/sijtl.3.1.114>
- Zhang, Z. (2024). The impact of digital transformation on logistics efficiency. *Advances in Economics, Management and Political Sciences*, 127, 25-31. <https://doi.org/10.54254/2754-1169/2024.OX18254>