

Impact Competence of Human Resources and Infrastructure in Logistic Performance Improvement

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IMPACT COMPETENCE OF HUMAN RESOURCES AND INFRASTRUCTURE IN LOGISTIC PERFORMANCE IMPROVEMENT

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Abstract

Logistical problems are not only on human resource competencies, but are very influential on the available infrastructure that must be used by human resources. This problem often occurs inaccurate time in handling and distributing consumer requests such as problems in the demand process, problems in negotiations and purchases, delivery problems, problems in the process of receiving and storing goods. The purpose of the research is how the relationship competence of human resources with infrastructure toward the performance of logistics. Data processing based on Structural Equation Model. The results of the study have a positive effect on Human Resource Competency and infrastructure on Logistics Performance

1. Introduction

The key to success in the company and on the market is the existence of effective and efficient logistics [1]. Stated that efforts to improve logistics require the support of advanced information and communication technology from logistics providers [2]. Stated that Logistics is the backbone of global supply chains [3]. Logistics is now recognized as a strategic process that contributes positively to gross domestic product (GDP) and influences overall logistics performance from a competitive environment and global supply chain. Aside from the cost and customs efficiency of the most important components discussed, there are also some relevant things such as information and interesting knowledge about logistics performance.

Increasing economic growth is still visible problems that often occur in the field such as problems in the handling of goods, problems in negotiation and delivery of goods, problems in the process of receiving and storing goods. One of the causes of the problem is that it is less efficient in handling logistics [4].

One of the effects or perceived impacts of poor logistics performance is that many customers are still experiencing delays in receiving shipments, there is still a shortage of stock and price fluctuations, still high service times and operational barriers that indicate that logistics distribution performance is still far from customer expectations. These factors can cause adverse effects on the expected performance of logistics.

Apart from that, Indonesia's logistics performance has declined based on the 2016 Logistics Performance Index survey published by the World Bank that Indonesia ranks 63th out of 160 countries with an overall score of 2.98 or down 10 points compared to 53 in the previous year. Decrease in logistics performance in value based on six parameters that influence namely customs, infrastructure, competence, shipping goods abroad, tracking and recording and limiting the shipment of goods [World Bank, 4]. Of the six parameters there are three parameters that are very influential in reducing performance, namely customs, infrastructure and competency can be seen in table 1.



Table 1. Indonesian LPI Score 2014 - 2016

Indonesia Logistics Performance	2014	2016	Ups and down
LPI Internasional Score	3.08	2.98	↓ 0.10
Customs	2.87	2.69	↓ 0.18
Competency	3.21	3.00	↓ 0.21
Infrastructur	2.92	2.65	↓ 0.27
Just In Time	3.53	3.46	↓ 0.07
International Shipping	2.87	2.90	↑ 0.03
Track and Tracking	3.11	3.19	↑ 0.08

Researchers' analysis of the above problems highlights that human resources are the most important thing for a country, because a country has skilled and qualified human resources and will be able to manage the existing natural resources. Problems that occur such as the exact time of service in completing customs indicate the inability of HR in carrying out their duties. The quality of information and communication technology that has not supported the availability of reliable infrastructure and networks, and the lack of human resources that are less supportive are obstacles to logistics efficiency.

Stated that the better the quality of logistics performance with human resources can provide solutions in handling customer requests, reduce conflicts and customer complaints, increase the level of efficiency due to responsiveness (reducing time), so that the need for human resource competencies quality to improve logistical efficiency and the possibility of meeting time targets [1].

The study conducted [5] studied the impact of topography and transportation on economic improvement and infrastructure involvement. The results show that the main geographical factors influence the participation of global markets and infrastructure facilitating economic improvement and international contributions.

The development of technology to accelerate the process of globalization also includes all modes of transportation. The effect of this progress is the development of an integrated system that allows transportation of various modes and interconnects. Economic and transportation development cannot be separated, so it is necessary to study infrastructure that supports logistics to improve transportation [6].

Based on the background above, the researcher wants to see the extent of infrastructure and competency contributions to improving logistics performance, 1). What variables are the most influential in improving logistics performance so that they can answer the weaknesses of why logistics has not been integrated so far?. 2). How big is the competence contribution of human resources and infrastructure in improving logistics performance so as to form a maximum level of service to overcome logistical performance weaknesses?

The general objectives of this study can be described as below, 1). Analyzing the factors of human resource competency to find out what competency variables are more dominant towards improving logistical performance that can apply generally in the company, 2)Knowing how much contribution of human resource competency and infrastructure variables is effective for improving logistics performance in the system.

2. Method

2.1. Method Research

Data collection was carried out on logistic-related activities in North Sumatra by taking a sample of 250 respondents with probability sampling method, [27], on the grounds that North Sumatra was so vast that random sampling was conducted. The number of samples taken is based on the Generalized least square estimation technique with 200-500 samples of data, so that with 250 data is sufficient the

specified minimum limit. The results of the research by distributing questionnaires were processed using a structural equation model, [28].

2.2. Competency

Competence is a combination of knowledge, skills, attitudes, and other personal characteristics needed to achieve success in a job, which can be measured using agreed standards, and which can be improved through training and development [7]. Competence is the ability to carry out or carry out a job or task based on skills and knowledge and supported by the work attitude demanded by the job. Competence shows skills or knowledge that is characterized by professionalism in a particular field as the most important and which is superior in certain fields [8]

Research [9], explains that the factors that influence human resources are cost, quality, delivery, asset, marketing, product and economic factor. Indicators that affect human resources provide positive results for logistics performance. According [10], human resource management provides positive results for performance. Indicators that affect human resources are input and innovation in achieving performance. The indicator is employee knowledge, skills, abilities and attitudes. Based on the results of research [11] HR competency consists of three competency factors which consist of knowledge, skill and set-meta-quality attributes. The competency model according [12] consists of know how, skills and self concept. Based on the literature relating to human resource competency, there are three variables, namely Knowledge, Skill and Attitudes.

2.3. Infrastructure

Economic growth requires infrastructure development. Defines infrastructure as needed because it is one of the determinants of economic development (industry) [13]. Good infrastructure development will affect production activities and other sectors, [14].

Factors affecting infrastructure are roads, water, electricity and telephone [15]. The results of research [16], found that transportation infrastructure and communication technology had a significant positive effect on regional economic growth. Infrastructure plays an important role in determining logistics performance. The main logistics activities include transportation and warehousing, require, airport infrastructure, seaport, railroad, railway and information and communication technology (ICT). Based on previous researchers, the researchers took the indicator factors on infrastructure are Transportation, Electricity and Information Technology.

2.4. Logistics

Logistics according to the Council of Supply Chain Management Professionals [17] is part of supply chain management in planning, implementing, and controlling the flow and storage of effective and efficient goods, information and services from the point of origin to the appropriate destination with consumer demand. To flow goods from the point of origin to the destination point will require several activities known as key activities in logistics including: 1) Transportation, 2) Location, 3) warehousing and storage, 4) Third party Logistics, 5) Strategic Decision (material handling, Inventory, Packaging), [17].

Logistics systems and inventory systems are initially obtained from the term supply chain system. The term supply chain system is often exchanged with the logistics system while the inventory system is understood as an integral part of both. Argues that logistics is a set of resources such as capital, labor, information that is related to receiving, handling, storing, moving and shipping of materials tangible [18]. This definition includes transportation and distribution activities.

In the literature, various empirical studies [19], shows that logistics is a strategic factor in corporate organization and influences performance, namely in terms of service quality and overall profitability. Management of logistics activities has become a valuable way to secure competitive advantage and improve organizational performance [20].

Logistic research and analyzing logistics performance were first shown in the work [21], who reported that logistical performance measurement consisted of a methodology for analyzing the source

of a logistics function, and its main purpose was monitoring and control of logistics operations. In line with the importance of internal logistics also has an impact on effectiveness and profitability, as mentioned [1]. In carrying out empirical research to analyze the interrelationships between different indicators of logistical performance and their impact on organizational dimensions. Indicator of logistical performance consists of efficiency, effectiveness and differentiation. The results of the study found [1] developed [22], became the basis for developing research for researchers by taking the Logistics Performance Variables.

Indicators of differentiation as the ability to create value for customers through the uniqueness and distinctiveness of logistics services. In fulfilling company objectives and satisfying customers by adding service level indicators and responsiveness in providing logistical competitiveness, [3]. In his research also added indicators of logistics costs and Flexibility. Logistics costs in his research to see how much the cost reduction might be more efficient in logistics services while the flexibility to see how much time difference occurs when using e-systems. [23] explains that using the seven indicators can be seen which indicators are more influential in improving logistics performance which are influenced by competencies and competitive advantage.

Based on the study of the literature so that the model built is like Figure 1

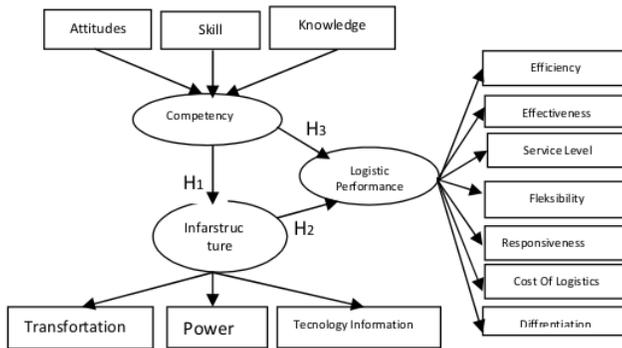


Figure 1. Conceptual Development Model

2.5. Hypothesis Formulation

The hypothesis formulation is based on the concept model in Figure 1:

2.5.1. Formulation of the Hypothesis of Human Resources Competence with Infrastructure

There is still a need for an in-depth study of competencies with infrastructure to see how far together they influence logistical performance. The hypothesis proposed is:

H1: Human Resource Competency Factors have a positive effect on competitive advantage

2.5.2. Formulation of the Infrastructure Hypothesis on Logistics Performance

Sislognas [26], stated that the causes of low logistical performance were caused by infrastructure. In this case, it is necessary to study and evaluate the extent of the influence of infrastructure in improving logistics performance. For that, it is necessary to test the variables that influence the following hypothesis:

H2: Infrastructure factors have a positive effect on Logistics Performance

2.5.3. Formulation of Human Resources Competency Hypothesis with Logistics Performance

There are still many human resources that influence the researchers to examine the competence of human resources from three dimensions, namely the ability of Knowledge, Skills and Attitudes. Thirdly, this dimension is tested to provide improvements to human resource competencies such as the following hypothesis

H3: Human Resource Competency Factors have a positive effect on Logistics Performance

3. Results and Discussion

3.1 Test Validity and Reliability

Validity test to find out the measuring instrument used can measure real conditions. Instrument question items are said to be valid if the t-count is greater or equal to the t-table, and vice versa. In this study, the calculation of validity is not done manually and the calculation is fully assisted with the Amos program version 23.

Based on the r product moment table, where the amount of data is 30 then the degree of freedom (dk = 30-22 = 28), with a confidence level of 95%, obtained r value of 0.362 (critical = 0.362). All data is valid and Reliability.

3.2. Match Analysis

Analysis of the suitability of the data with the model is done through several stages, namely (2008):

3.2.1. Match analysis of the whole model (overall model fit)

Recapitulation of calculation results in table 2.

Table 2. Overall Modification Model Match Results

Measurement GOF	Target match rate	Estimation Result	Match Rate
<i>Chi-square</i>	Value of ter small	735.237	<i>Good fit</i>
<i>Goodness of Fit Index (GFI)</i>	≥ 0.90	0.897	<i>Marginal fit</i>
<i>Probability</i>	≤ 0.05	0.000	<i>Good fit</i>
<i>Root Mean Square Error of Approximation (RMSEA)</i>	≤ 0.08	0.015	<i>Good fit</i>
<i>CMIN / DF</i>	< 5 (wheaton,1977) < 2 (Byrne, 1988)	1.108	<i>Good fit</i>
<i>Non-Centrality Parameter (NCP)</i>	Nilai yang kecil < <i>Chi-square</i>	11.673	<i>Good fit</i>
<i>Tucker-Lewis Index (TLI)</i>	≥ 0.90	0.915	<i>Good fit</i>
<i>Adjusted Goodness of Fit Index (AGFI)</i>	≥ 0.90	0.895	<i>Marginal Fit</i>
<i>Normed Fit Index (NFI)</i>	≥ 0.90	0.886	<i>Marginal Fit</i>
<i>Incremental Fit Index (IFI)</i>	≥ 0.90	0.944	<i>Good fit</i>
<i>Comperative Fit Index (CFI)</i>	≥ 0.90	0.939	<i>Good fit</i>
<i>Parsimonious Normed Fit Index (PNFI)</i>	≥ 0.90	0.876	<i>Marginal Fit</i>
<i>Parsimonious Goodness of Fit (PGFI)</i>	≥ 0.90	0.880	<i>Marginal Fit</i>

Based on Table 2. it can be seen that there are 8 GOF sizes showing a good match, 5 GOF sizes show marginal fit. This indicates that although there are several GOF measures that show marginal compatibility, most GOF sizes show a good match, so that it can be concluded that the suitability of the whole model is good fit.

3.2.2 Analysis of compatibility with measurement models (measurement model fit)

All standard values load factor from indicator variables (≥ 0.5). Based on the statement that the validity of all manifest variables against latent variables is good. After an analysis of construct validity is done, then analyze the construct reliability. The results of calculations from construct reliability (CR) and variance extracted (VE) have been carried out.

Table 3. Analysis of Measurement Models

Measuring	The calculation results		Analysis
	CR	VE	
Competency	0.887	0.569	Good
Infrastructure	0.893	0.526	Good
Logistics Performance	0.913	0.518	Good

3.2.3. Compatibility Analysis of Structural Model Fit

The results of the calculation of all the parameter values of the latent variables in the structural model significantly have a positive influence on the endogenous latent variables. In Table 4. the results of the structural model in this study are summarized.

Table 4. Evaluation of the Coefficient of Structural Models

<i>Path</i>	<i>t-count</i>	Parameter Value	Probability	Conclusion
KSDM→ INF	2.947	0.656	0.004	Positive and significant influence
KSDM → KL	2.613	0.575	0.011	Positive and significant influence
INF → KL	2.431	0.594	0.019	Positive and significant influence

3.3. Research Hypothesis Evaluation

1. Hypothesis 1: The value of t-count (the value of the critical ratio) = 2.947 > 1.96 is in the area of acceptance and probability 0.004 < 0.05, it can be stated that H1 is accepted, namely the competency of human resources has a positive and significant impact on Infrastructure
2. Hypothesis 2: Value because t-count (critical ratio value) = 2.613 > 1.96 is in the area of acceptance and probability 0.011 < 0.05, it can be stated that H2 is accepted, namely Competence of human resources has a positive and significant effect on Logistics Performance.
3. Hypothesis 3: The value of t-count (the value of the critical ratio) = 2.431 > 1.96 is in the area of acceptance and probability of 0.019 < 0.05, it can be stated that H1 is accepted, namely Infrastructure has a positive and significant impact on logistics performance

4. Conclusions and Recommendations

1. The most influential variables in improving logistics performance based on the results of analysis and evaluation are infrastructure variables with a factor coefficient of 0.594, while human resource competencies with a factor coefficient of 0.575, and hypotheses are acceptable and have a positive effect on logistic performance.
2. The results of the study show that the competence of human resources and infrastructure significantly affects logistical performance. Based on the value of direct and indirect effects that human resource competencies contribute 0.887 and Infrastructure contributes 0.893 to logistics performance

Recommendations the next researcher is expected to develop logistical performance measurement by adding variables other than human resource and infrastructure competencies. Besides that, it can develop other indicators that affect logistics performance and the results of the research that has been carried out, still allow for further research related to logistics performance to be implemented in an effort to improve company performance.

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