THE IMPACT OF SHIPMASTER LEADERSHIP STYLE AND SHIP LOGISTICS MANAGEMENT ON SHIP CREWS PERFORMANCE: IMPLICATIONS FOR TANKER SHIP OPERATIONAL PERFORMANCE

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Article history:
Received
18 September 2023

Revised
25 November 2023

Accepted
15 December 2023

Available online
31 January 2024

Abstract: The research aims to identify the influence of the shipmaster leadership style and logistics management on the operational performance of tanker ships, which is mediated by the performance of the Ship's Crew. The research used a sample of 30 tanker and ship crew members at the Indonesian national shipping company PT. Waruna Nusa Sentana. The data analysis method applies a path analysis model to test direct and indirect effects. The research results show that leadership style, logistics management, and crew performance partially influence Ship operational performance. Leadership style and logistics management are also proven to influence crew performance directly. The captain's leadership style and logistics management indirectly affect the Ship's operational performance through the performance of the Ship's Crew. Overall, the operating performance of tankers at the shipping company PT. Waruna Nusa Sentana is influenced by the captain's leadership style, ship logistics management, and crew performance, both directly and indirectly.

Keywords: shipmaster leadership style, ship logistics management, ship crews performance, tanker ship operational performance

Abstrak: *Tujuan penelitian adalah mengindentifikasi pengaruh gaya kepemimpinan nakhoda kapal dan manajemen logistik kapal terhadap kinerja operasional kapal tanker yang dimediasi oleh kinerja awak kapal. Penelitian menggunakan sampel sebanyak 30 orang awak kapal dan anak buah kapal (ABK) tipe kapal tanker pada perusahaan pelayaran nasional Indonesia PT. Waruna Nusa Sentana. Metode analisis data mengaplikasikan model analisis jalur yang dapat menguji pengaruh langsung dan tidak langsung. Hasil penelitian menunjukkan bahwa gaya kepemimpinan, manajemen logistic, dan kinerja awak secra parsial berpengaruh langsung terhadap kinerja operasional kapal. Gaya kepemimpinan, dan manajemen logistic terbukti juga secara parsial berpengaruh langsung terhadap kinerja awak. Gaya kepemimpinan nahkoda dan manajemen logisitk secara indivisu berpengaruh tidak langsung terhadap kinerja operasional Kapal melalui kinerja Awak Kapal. Secara keseluruhan bahwa kinerja operasional kapal tanker pada perusahaan pelayaran PT. Waruna Nusa Sentana dipengaruhi oleh gaya kepemimpinan nakhoda, manajemen logistik kapal, dan kinerja Awak Kapal, baik secara langsung maupun tidak langsung.*

Kata kunci: *gaya kepemimpinan nakhoda kapal, manajemen logistik kapal, kinerja awak kapal, kinerja operasional kapal tanker*

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INTRODUCTION

Economic and transportation activities are very closely related and can influence each other. The transportation sector is essential for economic activities and requires a reliable, efficient, and effective transportation system (Widiyanto, 2021). Ships are a relatively efficient and effective mode of transportation. The Ship can meet adequate carrying capacity in an integrated and orderly manner. Sea transportation is an essential means of transportation for Indonesia. Considering Indonesia is archipelagic, sea or Ship transportation also aims to develop community interaction in various fields.

One of the problems that often occurs in shipping is the performance or productivity of ships, which still needs to be improved. Preliminary observations have been carried out to reveal this problem on the MT Green Park ship and the MT Laura ship at the PT shipping company. Waruna Nusa Sentana. Internal and external factors mainly caused the decline in the productivity of these ships. One of the internal factors that emerged was the low morale of ship crew members (ABK). This is due to the salary provisions at MT Green Park, which are at least below the salary standards determined worldwide. Apart from that, the leadership style applied by shipmaster is considered to be less supportive of increasing ship productivity (Theotokas & Progoulaki, 2007)

In addition to internal factors, it was found that there were external factors, namely from the delivery of ship logistics goods carried out by the ship logistics management of PT Waruna Nusa Sentana as the management of ship owners who were not smooth and convoluted in shipping and logistics processing, so that it often caused the Ship's operating process to be hampered. This is what causes the operational performance of the Ship to decline.

Empirical studies related to the influence of leadership style, logistics management, and employee performance on operational performance have developed but still provide contradictory findings. Some studies have provided empirical support documenting a positive relationship between leadership style and functional performance (Lee et al. 2020; Overstreet et al. 2014; Hernández-Perlines & Araya-Castillo, 2020). Lee et al. (2020) prove that a transformational leadership style or leaders who constructively influence subordinates can improve operational performance. Overstreet et al. (2014) found that servant leadership styles build worker commitment and improve performance in the motor vehicle industry. Hernández-Perlines and Araya-Castillo (2020) also show that the servant leadership style positively affects operational performance.

Based on several empirical findings, logistics management positively affects operational performance. The study by Lyu et al. (2019a) concluded that the resources "Logistics infrastructure," "Logistics location," and "Logistics information" have a significant effect on operational performance. Lyu et al. (2019b) also prove that logistics infrastructure improves a company's performance. Ristovska et al. (2017) found that optimizing logistics activities can benefit from increasing business efficiency, customer satisfaction, and competitiveness. Lai and Wong (2012) revealed that Green Logistic Management (GLM) positively affects operational performance.

Leadership style and logistics management also have an impact on employee performance. Virgiawan et al. (2021), Riyanti et al. (2021), Zainudin et al. (2021), and Santoni et al. (2021) prove that a transformational leadership style can improve employee performance. Pawirosumarto et al. (2017) found that leadership style positively affects employee performance. Hapsari et al. (2021) revealed that transformational leadership can inspire others by generating enthusiasm and optimism to improve employee performance. Atan and Mahmood (2019) found that transformational leadership increases employee competitiveness, which also has a positive impact on company performance. Ellinger et al. (2002) show that logistics is a strategic factor in company organizations and influences performance. Stainer (1997) revealed strategic aspects of logistics related to achieving expected market and economic results in developing a logistics strategy that affects the creation of a company's competitive advantage.

Few studies have related the influence of leadership style and logistics management on operational performance by using employee performance as a mediating variable. Ogbonna and Harris (2000) provide empirical evidence indicating that the existing organizational culture mediates the relationship between leadership style and performance. Hussain et al. (2019) and Almutairi (2016) revealed that organizational commitment mediates the influence of transformational leadership style on employee performance. Saleem (2015) demonstrated that transformational leadership has a positive impact

on job satisfaction, and transactional leadership has a negative impact on job satisfaction. The findings also show that perceptions of organizational politics partially mediate the relationship between leadership style and job satisfaction. Various literature reviews show that there is a research gap that determines the position of this study, which is different by using employee performance variables as a mediating factor in operational performance from the determining factors of leadership style and logistics management.

One of the research problems that has been identified is that the leadership style of Shipmaster has never been seriously discussed by the company's management, even though, based on the author's observations, the problem of the shipmaster leadership style is one of the causes of the Ship is not optimal operational performance so far; Ship logistics management does not yet have an effective program and special programs to improve the performance of crews and operational performance of ships, lack of motivation in working on MT Green Park and MT Laura ships which causes low operational performance of vessels, there is still a lack of efforts made by the company to improve the operating performance of MT Green Park and MT Laura ships.

Therefore, the research aims to identify the impact of the shipmaster leadership style, logistics management, and ship crews performance directly on ship operational performance at PT Waruna Nusa Sentana. Apart from that, it also examines the impact of the ship captain's leadership style and logistics management directly on the performance of the Ship's Crews. This research also investigates the impact of the shipmaster leadership style and logistics management indirectly on ship operational performance through the performance of the ship crew at PT Waruna Nusa Sentana. The research topic is included in operations and supply chain management.

METHODS

The research uses a quantitative approach to analyze the determining factors of ship operational performance. The research object is the ship crews of the Indonesian national shipping company, taking the case of PT Waruna Nusa Sentana Jakarta with a tanker-type ship. The research was conducted using a survey method from May to July 2022. The research population was all MT Green tankers at PT. Waruna Nusa Sentana Indonesia, numbering 30 people. With a limited population, using the saturated sample method, the entire population of 30 people was used as the research sample.

The type of research data is primary, which was obtained using a survey method by distributing questionnaires to ship crew respondents. The data collection method is carried out using a questionnaire. It gives a questionnaire to the participants and instructs them to choose different responses from the five-option menu when responding to a question.

The data were analyzed using the Path Analysis method with the help of the SPSS for Windows version 26 program. Crew management is essential in shipping operations (Anastasiou, 2017). Crew management performance is determined by the shipmaster leadership style and logistics management. In an era of increasingly rapid change and automation, leadership in the shipping industry has become a much-needed competency related to the survival and safety of ship crews and the growth of shipping companies. Leadership styles can be divided into transformational and transactional (Keeloway et al. 2006). Transformational leadership is built on individual interactions, resulting in better quality exchanges and greater concern for well-being (Bass & Avolio, 1997).

In contrast, transactional leadership is built through social exchange relationships such as reward and monitoring systems to meet specific goals (Reid et al. 2008), which consists of three main leadership dimensions, namely: contingent rewards, active management, and passive management (Hater & Bass, 1988). Transformational leaders inspire subordinates to do more than expected, while transactional leaders motivate subordinates to do as expected. Oltedal and Wadsworth (2010) show that a safety-oriented ship management style, proactive work practices, and good reporting practices all contribute to better perceptions of ship safety, while high-efficiency demands contribute to more negative perceptions of ship safety levels. Additionally, safety is considered better when work is done as a team.

Logistics management is a part of supply chain management that deals with managing goods efficiently. It is a management process that integrates the movement of goods, services, information, and capital from the source of raw materials to the consumer (Springinklee

& Wallenburg, 2012). Ristovska et al. (2017) studied the impact of logistics management practices on company performance. They found that successfully managing all logistics activities can increase business efficiency, competitive advantage, and customer satisfaction. Studies from Bagshaw (2017) and Ellinger et al. (2000) found that logistics management significantly and positively affects company performance.

The hypotheses in this study are as follows:

H1: The Shipmaster's leadership style impacts the crew performance of the PT Waruna Nusa Sentana ship.

H2: Logistics management has an impact on the crew performance of the PT Waruna Nusa Sentana ship.

H3: The Shipmaster's leadership style impacts the operational performance of the PT Waruna Nusa Sentana ship.

H4: Ship Logistics Management Impacts the Operational Performance of the PT Waruna Nusa Sentana ship.

H5: Ship Crews performance impacts the operational performance of the PT Waruna Nusa Sentana ship.

H6: The shipmaster Leadership Style mediated by Crew Performance influences the Ship Operational Performance of the PT Waruna Nusa Sentana ship.

H7: Ship Logistics Management mediated by Ship Crews Performance influences the Operational Performance of the PT Waruna Nusa Sentana ship.

RESULTS

Respondents

The study was conducted on an Indonesian national shipping company by taking a case at PT Waruna Nusa Sentana Jakarta with samples on MT tangker type ships. Green. The research survey was conducted from May to July 2022. In this study, the unit of analysis is a tangker type ship while the observation unit is the ship crew (ship crews) where what is meant by the crew consists of the ship leader or popularly known as the shipmaster (shipmaster) and all crew other than the ship leader / captain (shipmaster) who work or are employed on board by ship owners or ship operators to perform duties on board in accordance with their positions listed in the certificate / seafarer book (Ref. Law No. 17 of 2008 concerning Shipping). The number of respondents in this study was 30 crew members, all of whom were men aged between 20 and 50 years with experience working on ships / sailing between 5 and 20 years. The entire crew of 30 people was sampled (saturated samples). The following is illustrated in the table Number of Respondents by Age.

Path Analysis Test

$X2 = \alpha + P21X1 + P2\varepsilon1$

Thus, the following model is obtained:
$X_2 = 2.868 + 0.353X_1 + e$; $R^2 = 0.731$

The equation shows: The R Square value of 0.731 states that the contribution of X_1 (Shipmaster Leadership Style), affecting X_2 (Ship Logistics Management), is 53.6%. In contrast, the remaining 46.4% contributes to other variables that were not studied. The constant (α) = 2.868 indicates the positive influence of the variable X_1 (Shipmaster Leadership Style) on X_2 (Ship Logistics Management). If the Shipmaster Leadership Style variable rises or affects one unit, the Ship Logistics Management variable will increase or be fulfilled. The regression coefficient X 1 is 0.353, meaning that if the variable X_1 (Shipmaster Leadership Style) increases by one unit, then X_2 (Ship Logistic Management) will experience an increase of 21.3%. The coefficient is positive, meaning that Shipmaster Leadership Style and Ship Logistics Management have a positive relationship. The rise in Shipmaster Leadership Style will increase Ship Logistics Management.

Structure Line Model II

$X3 = \alpha + P_{31} X_1 + P_{32} X2 + P_3 \varepsilon 2 \varepsilon_2$

Thus, the following model is obtained:
$X_3 = 2.827 + 0.464\ X\ 1 + 1.208\ X_2 + e$; $R^2 = 0.720$

The equation is: The R Square value of 0.720 states that the contribution of X_1 (Shipmaster Leadership Style) and X2 (Ship Logistics Management) affects X_3 (Crew Performance) is 72%. In contrast, 28% is the contribution of other variables that were not studied. The constant (α) = 2.827 indicates the positive influence of variables X_1 (Shipmaster Leadership Style) and X_2 (Ship Logistics Management) on X_3 (Crew Performance). Suppose the Shipmaster Leadership Style and Ship Logistics

Management variables increase or affect one unit. In that case, the variables of Crew Performance will go up or be fulfilled. The regression coefficient X 1 is 0.464, meaning that if the variable X_1 (Shipmaster Leadership Style) increases by one unit, X_3 (Crew Performance) will increase by 46.4%. The coefficient is positive, meaning that Shipmaster Leadership Style and Ship Logistics Management have a positive relationship. The increase in Shipmaster Leadership Style will increase the Crew's performance.

The regression coefficient X2 amounts to 1.208, meaning that if the variable X_2 (Ship Logistic Management) increases by one unit, X_3 (Crew Performance) will increase by 12.08%. The coefficient is positive, meaning that Ship Logistics Management and Crew Performance have a positive relationship. The increase in Ship Logistics Management will increase the Performance of the Crew.

Structure Line Model III

$$Y = \alpha + P\,y1\,X_1 + P_{y2}\,X_2 + P_{y3}X\,3 + Py\varepsilon\,3\;\varepsilon_3$$

Thus, the following model is obtained:
$Y = 0.842 + 0.117X_1 + 0.335X_2 + 0.435X_3 + e$; $R^2 = 0.922$

The equation shows: The R Square value of 0.922 states that the contribution of X_1 (Shipmaster Leadership Style), X2 (Ship Logistics Management), and X_3 (Crew Performance) affects Y (Ship Operational Performance) is 9 2.2%. In contrast, the remaining 7.8% contributes to other variables that were not studied. The constant (α) = 1.724 indicates the positive influence of variables X_1 (Shipmaster Leadership Style), X_2 (Ship Logistics Management), and X_3 (Crew Performance) on Y (Ship Operational Performance). Suppose the Shipmaster Leadership Style, Ship Logistics Management, and Crew Performance variables increase or affect one unit. In that case, the variables of Ship Operational Performance will go up or be met. The regression coefficient X 1 is 0.117, meaning that if the variable X_1 (Shipmaster Leadership Style) increases by one unit, Y (Ship Operational Performance) will increase by 10.7%. The coefficient is positive, meaning that the Shipmaster Leadership Style and Ship Operational Performance have a positive relationship. The increase in Shipmaster Leadership Style will increase Ship Operational Performance.

The regression coefficient X2 is 0.335, meaning that if the variable X_2 decreases by one unit, Y (Ship Operational Performance) will reduce by 27%. The coefficient is negative, meaning that Ship Logistics Management and Ship Operational Performance do not have a positive relationship. The decline in Ship Logistics Management will result in a decrease in Ship Operational Performance.

The regression coefficient X3 is 0.435, meaning that if the variable X_3 (Crew Performance) increases by one unit, Y (Ship Operational Performance) will increase by 76%. The coefficient is positive, meaning that the Performance of the Crew and the Operational Performance of the Ship has a positive relationship. The increase in crew performance will increase the operational performance of the Ship.

Based on these influence models, a relationship trajectory model can be compiled or called a path analysis model, with the influence of *error* determined as follows:
$P\varepsilon_1 = \sqrt{1-R_1^2}$, then
$P\varepsilon_1 = \sqrt{}\ 1-0{,}731 = 0.518\ \sqrt{}0{,}269$
$P\varepsilon_2 = \sqrt{}\ 1-0{,}720 = 0.529\ \sqrt{}0{,}280$
$P\varepsilon_3 = \sqrt{}\ 1-0{,}922 = 0.279\ \sqrt{}0{,}078$

Path Diagram Image

Empirical Causal Relationship Path Diagram X_1 to Y (Figure 1 and Figure 2). Empirical Causal Relationship Path Diagram X1, X 2, and X3 to Y (Figure 3). The Figure 4 shows the magnitude of the influence on the path between the free and bound variables (Ship Operational Performance) through the intervening variable (Crew Performance). The direct effect is the relationship of Shipmaster Leadership Style (X_1) and Ship Logistic Management (X_2) to Ship Operational Performance (Y), with partial regression values of 0.267 and 0.435. However, the weight on the relationship between Crew Performance and Ship Operational Performance obtained a value of 0.317 because the value of X_3 Crew Performance was higher, while the Y value of Operational Performance.

The Ship is relatively low compared to the Performance of the Crew. The intervening effect is an indirect effect due to the inclusion of intervening variables between the relationship between Shipmaster Leadership Style (X_1) and Ship Logistics Management (X_2) relationship paths on Ship Operational Performance (Y).

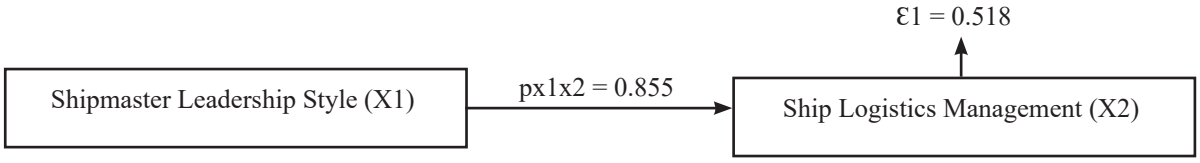

Figure 1. Empirical Causal Relationship Path Diagram X1 to X2

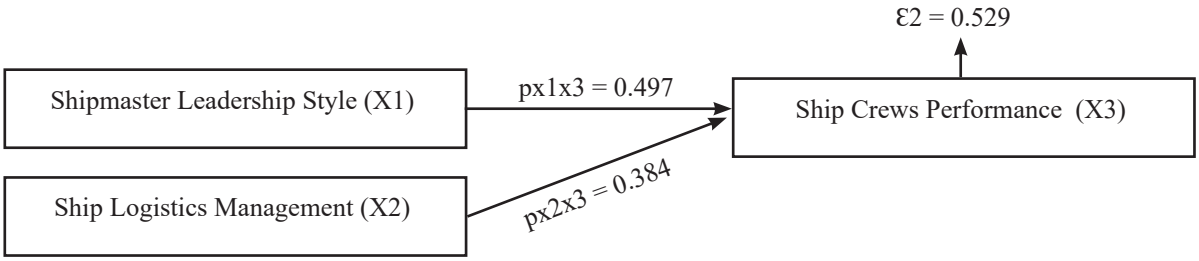

Figure 2. Empirical Causal Relationship Path Diagram X1, X2 and X3

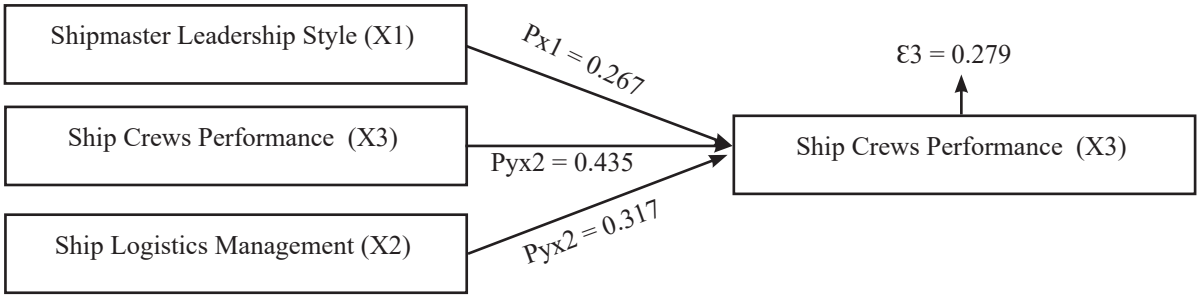

Figure 3. Empirical Causal Relationship Path Diagram X1, X2 and X3 and Y

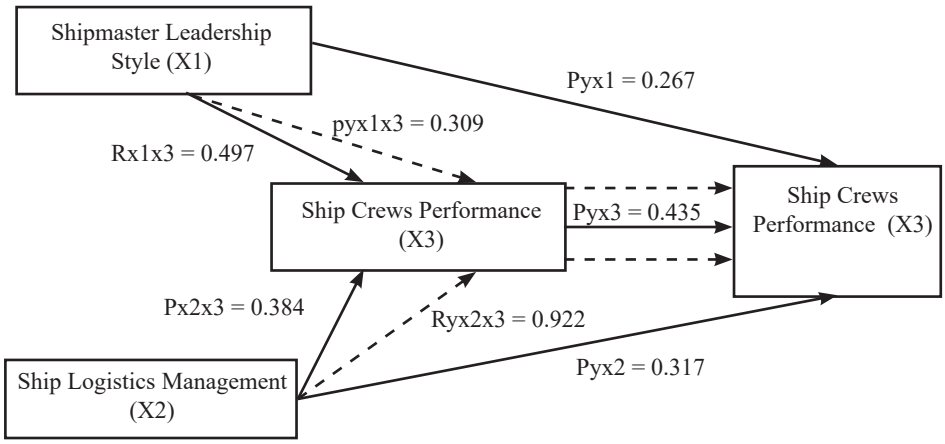

Figure 4. Empirical model of relationship paths between variables

Based on Table 1, it can be concluded as follows: The direct influence of the variable X_1 on Y is 0.267; The direct effect of the variable X_2 on Y is 0.317; The direct impact of the variable X_3 on Y is 0.435; The direct influence of the variable X_1 with X_3 is 0.497; The direct effect of the variable X_2 with X_3 is 0.384; The direct effect of the variable X_1 on Y is 0.267. Meanwhile, the indirect influence of the variable X_1 on Y through X_3 is 0.042. So that the effect of the total variable X_1 on Y is: 0.267 + 0.042 = 0.309; The direct effect of the variable X_2 on Y is 0.317. Meanwhile, the indirect influence of the variable X_2 on Y through X_3 is 0.053. So that the effect of the total variable X_2 on Y is: 0.317 + 0.053 = 0.370

Total Coefficient of Determination Model Conformity Test

$R2_m = 1 – (1 – R^2_1).(1 – R\ 2_2)$
$= 1 – (1-0.922). (1-0,720). (1-0,731)$
$= 1 – 0.058$
$= 0.942$

The result of the calculation of the total coefficient of the determination model is 0.942. The guidelines for interpreting the correlation coefficient show that the correlation between the Operational Performance of the Ship and its independent variables is "powerful" because it is between the intervals of 0.80 – 1.000. This means that variations of independent variables can explain 9 4.2% variation in Ship Operational Performance, while the rest (100% - 9 4.2% = 5.8%) are explained by variables outside this research model.

Effective Donations

The output value of R^2 (R Square) from the double regression analysis of 72% shows the effective contribution of Shipmaster Leadership Style, Ship Logistic Management, and Crew Performance to Ship Operational Performance. In contrast, the remaining 28% is a compelling contribution of free variables that also affect the bound variables of Ship Operational Performance but are not included in this study. The calculation of the size of the effective contribution of each variable (Table 2) showed that the practical assistance of the Shipmaster Leadership Style variable was 23.9%, vessel logistics management variables of 28.4%, variable Crew Performance 39.6%, and other variables of 7.8%.

The Direct Influence of Shipmaster Leadership Style on the Operational Performance of PT Waruna Nusa Sentana Tanker. The research findings state a significant direct influence of Shipmaster Leadership Style on Ship Operational Performance of PT Waruna Nusa Sentana Tankers. Partially, the Shipmaster's Leadership Style influences the Ship's Operational Performance. The R Square value shows a value of 0.806 or 80%, meaning that the Ship's Operational Performance variable is influenced by 80% by Shipmaster Leadership Style. In comparison, other variables outside the free variables studied influence the remaining 20%.

This finding shows that ships' high and low operational performance on the PT Waruna Nusa Sentana tanker is directly influenced by the level of the Shipmaster's leadership style. The higher the frequency of the Shipmaster Leadership Style, the more the value of Ship Operational Performance on the PT Waruna Nusa Sentana Tanker increases. This illustrates that the Shipmaster Leadership Style has a strong influence on improving Ship Operational Performance on PT Waruna Nusa Sentana Tankers. This can be understood because the Shipmaster**'s** Leadership Style affects the successful implementation of optimizing ship operational performance in general. Shipmaster, the leader on board the Ship, has a considerable role. The research results support the findings of Zohar et al. (2012) and Kim and Gausdal (2020), who suggest that the leadership style of an ax captain can improve crew performance and ship operations. The research results support the findings of Zohar et al. (2012) and Kim and Gausdal (2020), who suggest that the leadership style of an ax captain can improve crew performance and ship operations.

A leader's leadership effectiveness can be seen from the Role of a determinant, change agent, spokesperson, and coach. These three aspects can be implemented if a leader can apply a leadership style to influence his followers to carry out duties and responsibilities effectively. However, there needs to be a clear and unmistakable understanding of what distinguishes between good and bad leaders. In this case, the issue of leadership style should be used as something other than a benchmark that an individual can or should maintain a leadership style consistently in all his activities and situations. On the contrary, it must be flexible and adapt its kind to the specific situation and the needs of the individuals concerned.

Table 1. Model of decomposition of the influence of causality between variables

Influence of Variables	Causal Influence		Total
	Immediately	Via X3	
X1 to Y	0.267	0.042	0.309
X2 against Y	0.317	0.053	0.370
X3 to Y	0.435	-	0.435
X1 to X3	0.497	-	0.497
X2 to X3	0.384	-	0.384
Rx1x2x3	0.720	-	0.720
Ryx1x2x3	0.922	-	0.922

Table 2. Determination index of each exogenous variable against endogenous variable

Variable	Beta	rxy	Determination (β.rxy)	Simultaneous Influence
X1	0.267	0.898	0.239	-
X2	0.317	0.898	0.284	-
X3	0.435	0.912	0.396	-
X1, X2, and X3	-	-	-	0.922

From the opinions presented above and referring to this research, it can be concluded that the Shipmaster has the task and responsibility of equipping his Ship perfectly, crewing his Ship correctly according to procedures, making his Ship seaworthy, and being responsible for safety in shipping, accountable for the protection of the Crew on board and obeying the orders of the Ship's entrepreneur by the laws and regulations that in force. Meanwhile, the leader's Role or absence in the organization's success is reflected in the leadership style that influences his followers. This leadership style suits the needs of its followers to make its followers or subordinates act together to achieve the goals of an organization. Therefore, to maintain and improve the Ship's operational performance, a leadership style is needed to adjust to the Crew's needs on board the Ship under ongoing conditions.

Direct Influence of Ship Logistics Management on Ship Operational Performance

The findings of this study show that the high and low operational performance of PT Waruna Nusa Sentana tankers is directly influenced by ship logistics management. The higher the value of Ship Logistics Management, the better it is in establishing a relationship with the participation of the company PT Waruna Nusa Sentana. On the other hand, the lower the value of Ship Logistics Management in the participation on the Ship, the softer and less optimal the operational performance of the PT Waruna Nusa Sentana Tanker. The results of the data analysis show that there is a significant direct influence of Ship Logistics Management on Ship Operational Performance. Partially, Ship Logistics Management has an Influence on Ship Operational Performance. The R Square value shows a value of 0.806 or 80%, meaning that the Ship Operational Performance variable (Y) is influenced by 80% by Ship Logistics Management (X2). In comparison, other variables outside the free variables studied affect the remaining 20%.

The research results support the study of Ristovka et al. (2017), who found that logistics management positively impacted operational performance. Lyu et al. (2019a) concluded that the resources "Logistics infrastructure," "Logistics location," and "Logistics information" have a significant effect on operational performance. Pan et al. (2019) revealed that logistics information system resources positively impact operational performance.

The Direct Effect of Crew's Performance on Ship Operational Performance

Research findings show that the performance of the Crew directly influences the better and optimal operational performance of PT Waruna Nusa Sentana tankers. The higher the performance value of the Crew, the more optimal the Ship's operational performance created on the tanker PT Waruna Nusa Sentana. On the other hand, the lower the performance value of the Waruna Nusa Sentana Tanker Crew, the softer and less optimal the Operational Performance of the PT Waruna Nusa Sentana Tanker. The results of

the data analysis showed that there was a significant direct influence on the performance of the Crew and the operational performance of the Ship. Partially, the Crew's Performance affects the Ship's Operational Performance. The R Square value shows a value of 0.831 or 83.1%, meaning that the Ship Operational Performance variable (Y) is influenced by 83.1% by the Performance of the Crew (X3), while other variables outside the free variable studied influence the remaining 16.9%. The research results are supported by the study of Wahyuni et al. (2022), who found a positive and significant influence on crew performance on increasing ship operational performance.

The Direct Influence of Shipmaster Leadership Style on the Performance of the Crew

The research findings show that a Shipmaster's Leadership Style directly influences the conducive and unconducive situation. The more conducive the Shipmaster Leadership Style will increase the maximum performance of the Tanker Crew of PT Waruna Nusa Sentana. It is explained that the better the Shipmaster's leadership style is, the better the PT Waruna Nusa Sentana Tanker Crew performs. Similarly, the worse the Shipmaster leadership style on the Ship is, the more it will affect the performance of the tanker crew of PT Waruna Nusa Sentana. The data analysis showed a significant direct influence of Shipmaster Leadership Style on the Crew's Performance. Partially, skippers' Leadership Style has an Influence on the Performance of the Crew. The R Square value shows a value of 0.680 or 68%, meaning that the Performance of the Crew is influenced by 68% of the Shipmaster Leadership Style. In comparison, other variables beyond the free variables studied influence the remaining 32%. Sulistiana et al. (2023) also found a strong positive correlation between the transformational leadership of ship captains and crew performance.

The Direct Influence of Ship Logistics Management on the Performance of Crew

The results of the study show that the better and optimal performance of the Tanker Crew of PT Waruna Nusa Sentana is directly influenced by Ship Logistics Management. The higher the value of Ship Logistics Management, the more optimal the Performance of Ship Crews created on the PT Waruna Nusa Sentana Tanker. On the other hand, the lower the value of Waruna Nusa Sentana Tanker Logistics Management, the softer and less optimal the performance of PT Waruna Nusa Sentana Tanker Crews. The results of the data analysis show that there is a significant direct influence of Ship Logistics Management on the Performance of Crews. Partially, Ship Logistics Management influences the Performance of Crews. The R Square value shows a value of 0.654 or 65.4%, meaning that the Operational Performance of the Ship (Y) is influenced by 65.4% by Ship Logistics Management (X2) and Crew Performance (X3). In comparison, other variables outside the free variables studied influence the remaining 34.6%. Empirical findings are supported by the study of Ricardianto et al. (2021), which revealed that ship logistics management significantly influences ship crew performance.

Indirect Influence of Shipmaster Leadership Style on Ship Operational Performance through Crew Performance

The indirect influence concerns two patterns of influence between variables. The Influence of the Shipmaster Leadership Style on the Crew's Performance and the Crew's Influence on the Ship's Operational Performance. From the results of the path analysis, it was found that the Shipmaster's Leadership Style and the Performance of the Crew had a significant direct influence, and the Performance of the Crew and the Operational Performance of the Ship had a direct and significant impact. Thus, findings can also be obtained that there is a significant indirect influence of Shipmaster Leadership Style on Ship Operational Performance through the Performance of Crews on the PT Waruna Nusa Sentana Tanker.

The indirect influence of Shipmaster Leadership Style on Ship Operational Performance through the Performance of Ship Crews on the Tanker PT Waruna Nusa Sentana, the direct impact of the Ship's Leadership Style on the Performance of the Crew is 0.384. The direct effect of the Crew's Performance on the Ship's Operational Performance is 0.435, so the indirect influence of the Shipmaster's Leadership Style and the Crew's Performance on the Ship's Operational Performance is 0.167. The findings of this study show that the higher the Shipmaster's Leadership Style, the better the Crew's Performance and then indirectly improve the Ship's Operational Performance on the PT Waruna Nusa Sentana Tanker.

The findings of the study show that the Shipmaster must pay excellent attention to the Crew, where its responsiveness in dealing with problems that arise on board significantly reduces the frequency of the Crew's workload and, on the contrary, increases the conducive climate on a ship (Lütkenhaus, 2020). The Shipmaster is required to be responsible for all components on board the Ship in the Ship's Operational Performance. It must strive to improve the quality of its services and the quality of the results of its work programs. Shipmaster has autonomy and is responsible for utilizing the resources on board. The critical Role of the Shipmaster is to act out his function as a leader on the Ship. As the sole leader on the Ship, the Shipmaster is responsible for influencing all resources to be involved in onboard activities, from fundamental changes to leadership (Kim & Mallam, 2020).

Indirect Influence of Ship Logistics Management on Ship Operational Performance through Crew Performance

The indirect influence concerns two patterns of influence between variables. The Impact of Ship Logistics Management on the Crew's Performance and the Effect of Crew Performance on Ship Operational Performance. The line analysis results found that Ship Logistics Management and Crew Performance had a significant direct influence, and Crewmembers' Performance on Ship Operational Performance had a direct and significant impact. Thus, findings can also be obtained that Ship Logistics Management significantly indirectly influences Ship Operational Performance through the Performance of Ship Crews on the PT Waruna Nusa Sentana Tanker.

The indirect influence of Ship Logistics Management on Ship Operational Performance through Crew Performance on Tankers PT Waruna Nusa Sentana, that the direct effect of Ship Logistics Management on Crew Performance is 0.390 and the direct influence of Crew's Performance on Ship Operational Performance is 0.760, so that the indirect impact of Ship Logistics Management and Crew Performance to Ship Operational Performance is 0.296. The findings of this study show that when a ship optimizes operational performance, it is necessary to improve the Crew's performance, leadership style, and synergistic ship logistics management. Improving a Ship's Operational Performance is the achievement of targets and programs that have been made for the operation of a ship. Thus, a shipping company has greater independence in setting goals, drawing up plans, implementing plans, and evaluating the operational implementation of vessels.

Managerial Implications

Based on research findings, the synergy of ship logistics management with the captain and Crew will directly impact a ship's operational performance. The better the implementation or synergy between ship logistics management and the Ship's Crew, the higher the Ship's operational performance will be achieved. Logistics management is a system that must continually synergize and collaborate in every program implementation on board the Ship. So, regular evaluation is needed. A captain's leadership style that suits the needs of the Crew and is in line with the situation and programs on board the Ship will have a positive impact on the performance of the captain, the performance of the Crew, the performance of ship management and the operational performance of the Ship. A captain's leadership style that is appropriate and by needs will have an impact on improving the Crew's performance and the Ship's operational performance.

Optimal crew performance will have an impact on the operational performance of the Ship. Increasing the performance of the Ship's Crew will also improve the Ship's operating performance. Remember that the Ship's Crew is a crucial part of the operation on board the Ship. The operation of a ship is greatly influenced by the performance of the Ship's Crew. The impact of ship operations is also greatly influenced by ship logistics management. One of the other impacts that affects the Ship's operational performance is the leadership style of the captain on board the Ship.

CONCLUSION AND RECOMMENDATIONS

Conclusions

Based on empirical findings and in line with the research hypothesis, it can be concluded that ship operational performance is determined directly by the Shipmaster's leadership style, ship logistics management, and ship crews performance. If the three factors of shipmaster leadership style, ship logistics management, and ship crews performance are good, the value of ship operational performance on PT tankers will also increase. Waruna Nusa Sentana. The Ship Master's

Leadership and Logistics Style, which is mediated by the Ship's initial performance, indirectly positively impacts the Ship's Operational Performance.

Recommendations

To improve the operational performance of a tanker, it is recommended that a shipping transportation company consistently evaluate the performance of the Ship's Crew. Regular evaluation is also needed for the logistics management of the Ship and the captain's performance on board. Evaluation must be carried out consistently and thoroughly to ensure consistent and optimal results. To create an ideal leadership style that suits the needs of the Ship's Crew, it is recommended that leadership training be held for the captain before serving on the Ship. The demand for harmonious work and communication relations for all elements on board the Ship requires that the captain, as the person responsible for the Ship, behave flexibly and democratically so that it will be easier to carry out his work on the Ship.

To improve ship logistics management in a corporate institution, especially maritime transportation companies, it is recommended that all institutions or all companies combine and create a quality management system in their direction. The demands for ship logistics management in a shipping or sea transportation company are urgent and essential, considering that logistics management is one of the parties significantly influencing a ship's operations. Logistics management must carry out its duties with quality and professionalism. To create quality ship crew performance, it is recommended to continuously improve the selection and recruitment mechanism for crew members working on the Ship. Apart from that, a company also needs to provide skills support training for ship crew. It is also recommended that shipping educational institutions create quality graduates by implementing a quality management system to the demands and professionalism of the world of work so that they can develop professional graduates in line with the needs of the world of work.

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