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THE EFFECT OF SUPPLY CHAIN MANAGEMENT (SCM) AND DECISION SUPPORT SYSTEM (DSS) WARSHIP SPARE PARTS ON OPERATION READINESS NAVAL FLEET COMMAND II

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ABSTRACT

The importance of maritime defense and State Diplomacy is faced with the problems that exist in Koarmada II, especially related to the maintenance of warship, especially related to the support of On Board Spare (OBS) spare parts. Problem solving solutions are needed, among others, the first is to streamline and streamline the operation degree so that it is right on target against the reemergence of potential threats to maritime defense and security, the second is to evaluate, record, record and record everything related to spare parts needs OBS warship which carries out operational tasks, and improves the professionalism of soldiers based on technology and information, as well as increasing the ability to observe and supervise up to the ability to take action against perpetrators of violations of sovereignty at sea. The research approach used is descriptive quantitative method, which examines how Supply Chain Management (SCM) and Decision Support System (DSS) using the Structural Equation Modeling-Partial Least Square (SEM-PLS) analysis approach which originates from questionnaires. Data analysis was assisted by SmartPLS 2.0 software. The research samples were soldiers who served in Koarmada II based in Surabaya. The results showed that Supply Chain Management had a significant effect on Operational Readiness. These results indicate that Supply Chain Management has a positive and significant direct effect on Operational Readiness. Decision Support System has a significant effect on Operational Readiness. These results indicate that the Decision Support System has a positive and significant direct effect on Koarmada II Operational Readiness. Supply Chain Management and Decision Support System for Warship Spare Parts do not have a positive and significant direct effect on Koarmada II Operation Readiness.

Keywords *: Supply Chain Management (SCM), Decision Support System (DSS), Operational Readiness, Warship Spart Parts, Koarmada II*

I. PLEMINARY

The success of Koarmada II in carrying out sea defense is determined by its ability to build operational readiness for its supporting operations, especially the Sigma class warships, Escorta Ship Unit. Operational readiness includes the readiness of warships, aircraft, training and logistics services as a means, operational effectiveness, command and control as ways, and guaranteed security, handling of violations that occur and deterrence.

The technical conditions of warships assigned to carry out operations need to be improved. The logistics service of Koarmada II, which is the operational control center, also still needs to be improved in the aspect of integration with warships in the o-perational area and integration with monitoring facilities from various other institutions authorized in the maritime sector, so that it can provide a complete picture of the operational area situation to assist Pangkoarmada II in decision making and defense and security.

The problem faced by Koarmada II in carrying out its duties is the problem of limited supply of spare parts for warships so that the operation at sea cannot run optimally. The basic operational activity is calculated in the budget, while for the calculation of logistical support, in this case the availability of spare parts for warships for the implementation of operations. Warship operations at sea can run smoothly when supported by good warship spare parts.

In dealing with these problems, the leadership of the Indonesian Navy, especially those that occurred at Koarmada II, needed to implement an effective and efficient logistics management system and decision-making design, especially in relation to the spare parts of the main weaponry system and its supporting units. Operation Readiness to carry out both military and non military operations cannot be carried out and cannot be carried out quickly and measurably. At the initial stage, identification of the problems faced by Koarmada II will be carried out, especially in terms of operational readiness associated with the SCM and DSS of KRI spare parts. Then the relationship between these variables is arranged in a research model using Structural Equation Modeling (SEM).

II. LITERATURE REVIEW

Logistics Management

Logistics is the process of planning, implementing and controlling the effective and efficient flow and storage of raw materials, in process inventories, and finished goods that are connected with information from point of origin to point of consumption, to meet customer needs (Ballou, 1992:67). Meanwhile, according to Bowersox (1996:45), logistics management is a strategic management process of moving and storing goods, spare parts and finished goods from suppliers, between company facilities and to customers.

Siahaya (2012:121) defines that logistics management is part of Supply Chain Management which plans, implements and controls the flow of goods effectively and efficiently, including transportation, storage, distribution and services as well as related information from the place of origin of goods to the place of consumption to meet customer needs. According to Gitosudarmo (2014:76), logistics management can be realized if there is a system.

Supply Chain Management

Supply Chain Management as a term for supply and buyer chain management, which includes all stages of processing from purchasing raw materials to distributing finished goods to end consumers. Indrajit and Djokopranoto (2005:3) revealed that Supply Chain Management is a system where an organization distributes its production goods and services to its customers. Simichi-Levi, et al (2000:8) stated Supply Chain Management as an approach that is applied to efficiently unify

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suppliers, entrepreneurs, warehouses and other storage places, so that products can be produced and distributed in the right amount, right location, and right time to lower costs and meet customer needs.

Decision Support System

Decision Support System (DSS) is a system that supports leadership decision makers in semi structured decision situations. DSS is what supports users of infor-mation systems to find out the effects of each decision or choice (Satzinger dan Burd, 2012:115). DSS is a tool for decision makers to expand their capabilities, but not to replace their assessments. DSS is intended for decisions that require judgment or decisions that cannot at all be supported by algorithms (Turban, 2005:87). DSS is not intended to automate decision making, but provides interactive tools that allow decision making to carry out various analyzes using available models (Kusrini, 2007:22).

Operation Readiness.

According to Slameto (2010:13), readiness is the whole condition that makes him ready to respond or answer in a certain way to a situation. Junor and Jessica (1996:22) stated that the condition of the equipment is the most important element of readiness. In the perspective of marine defense, combat readiness is a classification of ship readiness if the entire Combat Capability Support System group functions according to the required standard technical conditions.

Research Framework

Hypothesis:

1. Supply Chain Management of KRI spare parts affects the readiness of Koarmada II operations
2. Decision Support System for KRI Spare Parts affects the readiness of Koarmada II operations
3. Supply Chain Management and Decision Support System for KRI Spare Parts simultaneously affect the readiness of Koarmada II operations

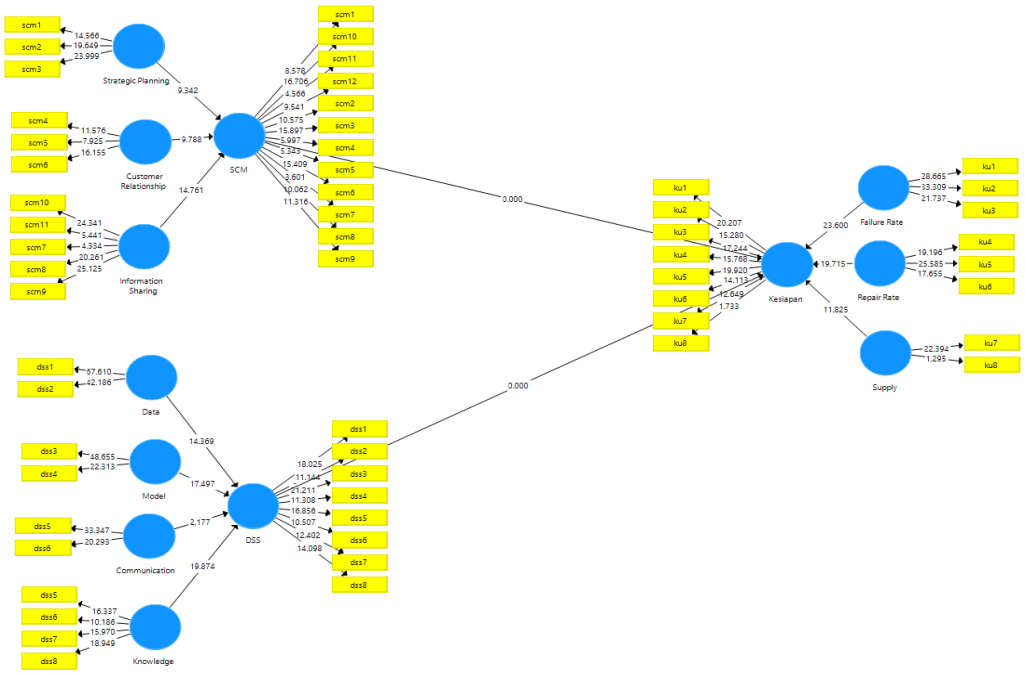

Figure 1. Model of Causal Relationship Between Variables

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III. RESEARCH METHODS

Sugiyono (2008:56) stated that research design is a set of scientific methods that aim to obtain facts and data that are in line with the initial design and are useful for scientific interests. It is declared a scientific activity because it is based on a solid scientific basis, namely rational, which in this context uses descriptive methods through explanatory testing. Based on the Slovin sample tabulation for a population of 241 people, the minimum sample is 86 people. The sample calculation for each unit uses purposive random sampling technique.

RESEARCH RESULT

Developing SEM Model Effect of SCM and DSS of KRI Parts with Operation Readiness

In this step, a SEM model diagram is developed which aims to make it easier to see the causal relationships to be tested. In this diagram, the relationships between the constructs will be represented by arrows. Straight arrows indicate a direct causal relationship between one construct and another.

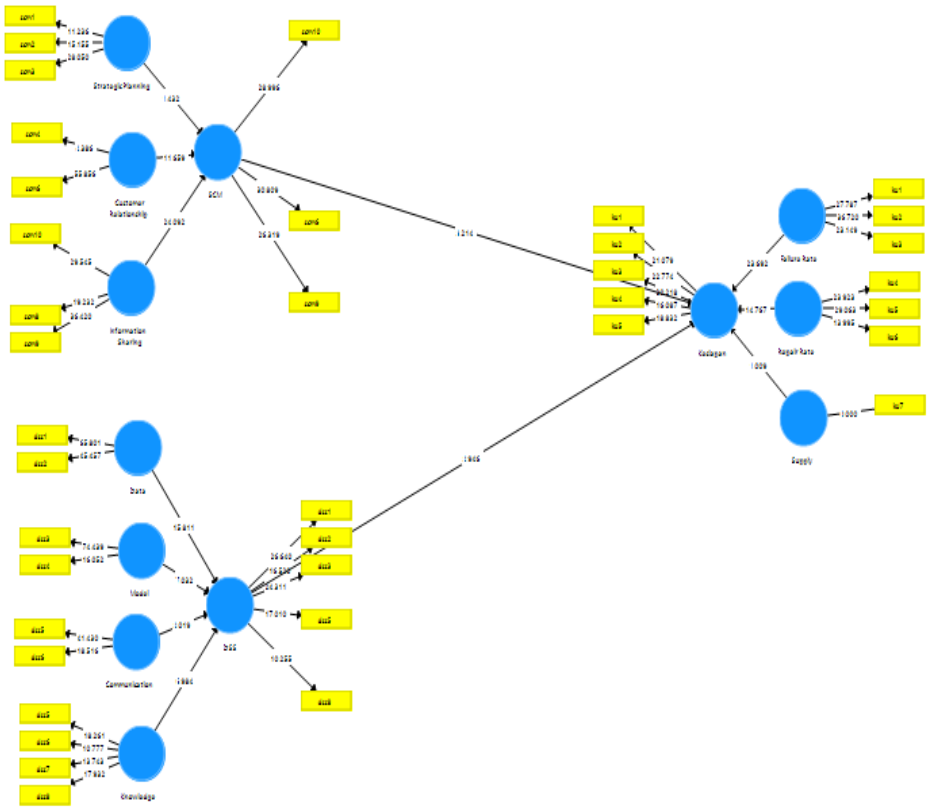

Figure 2. Model After Item Invalid Drop Point

Measurement of Outer Model Effect of SCM and DSS of KRI Spare Parts on Operation Readiness.

Three measurement criteria are used in the data analysis technique using Smart PLS to assess the model. This test includes testing construct validity (convergent validity and discriminant validity) and testing construct reliability. The validity test was conducted to determine the ability of the research instrument to mea-sure what it should be measured. While the re-liability test is used to

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measure the consistency of measuring instruments in measuring a concept. To test the validity and reliability, it can be used by designing a measurement model or an outer model.

The loading factor and t-statistics of the Smart PLS output results in the first bootstrapping, which describe the relationship between Supply Chain Management (X1) and Decision Support System (X2) with Operation Readiness (Y) after eliminating the loading factor of less than 0.7, namely for the Decision Support variable System (X2) can be seen that 3 items of invalid statements, and the Operational Readiness variable (Y) can be seen that there are 3 invalid statement items obtained by model image results after invalid items are dropped:

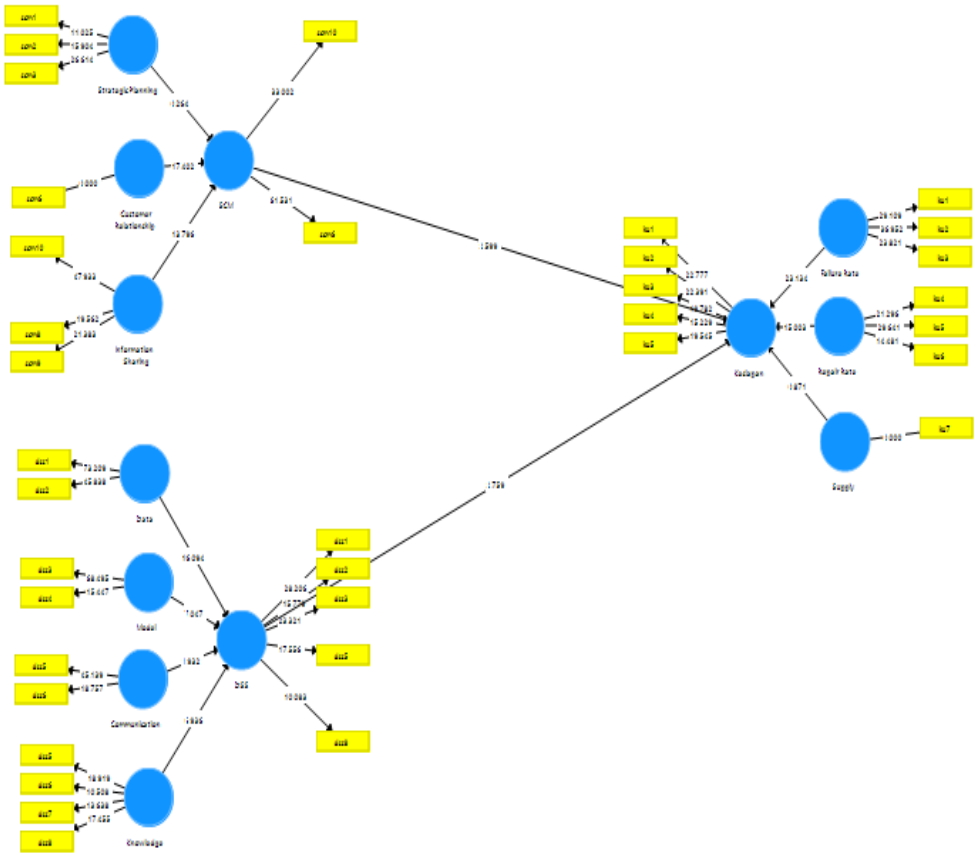

Figure 3. Model After Item Invalid Drop Point

The loading factor and t-statistics of the Smart PLS output results on the second bootstrapping af-ter eliminating the loading factor of less than 0.7, namely for the Decision Sup-port System (X2) variable it can be seen that 1 item of statement is invalid, and the Operational Readiness variable (Y) can be seen that there is 1 invalid sta-tement item is obtained by drawing the model after the invalid item is dropped:

The R-square value of Operation Readiness is 0.987. This means that the variability of the Operational Readiness construct can be explained by the variability of the Supply Chain Management and Decision Support System constructs of 98.7% while the rest is explained by other variables outside the model studied. The greater the R-Square number, the greater the in-dependent variable can explain the dependent variable so that the structural equation will be better. In addition to the R-

Square value, the inner model mea-surement is also measured by evaluating the Goodness of Fit Model using the predictive relevance (Q2) value using the formula:

Q2 = 1 – (1-R2)
= 1 – (1-0,987)
= 1 – 0,013
= 0,987 = 98,7%

The predictive relevance value for the structural model in this study is 98.7%, meaning that the model is able to explain the phenomena related to the variables studied. Therefore the model can be said to be very good or the model has a very good predictive value and can be used for hypothesis testing.

Significance Test of Influence Between Variables

To see the significance of the influence of Supply Chain Management on Operational Readiness and the effect of the Decision Support System, namely by looking at the parameter coefficient value and the T-statistical significance value. The Smart PLS output results using calculate PLS Bootstrapping are as follows:

Table 1. Summary Results T-Statistik and P-Value

Path Coefficients

Mean, STDEV, T-Values, P-Values | Confidence Intervals | Confidence Intervals Bias Corrected | Samples | Copy to Clipboard:

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDE...	P Values
Decision Support System -> Kesiapan Unsur	0.122	0.118	0.073	1.655	0.099
Supply Chain Management -> Kesiapan Unsur	0.778	0.784	0.056	13.805	0.000

Supply Chain Management is a system in which an organization distributes its production goods and services to its customers. Supply Chain Management as an approach that is applied to efficiently unify suppliers, entrepreneurs, warehouses and other storage places, so that products can be produced and distributed in the right amount, right location, and right time to reduce costs and meet the needs of end users in this case the KRI which is under the control of Koarmada II.

Apart from Supply Chain Mana-gement, a factor that influences operational readiness is the Decision Support System (DSS). DSS is more intended to support management decisions in performing analytical work in situations that are less structured and with less clear criteria. A DSS is not intended to automate decision making, but provides an interactive tool that allows decision-makers to carry out various analyzes using available models.

Apart from Supply Chain Management, a factor that influences operational readiness is the Decision Support System (DSS). DSS is more intended to support management de-cisions in performing analytical work in situations that are less structured and with less clear criteria. DSS is

not intended to automate decision making, but provides an interactive tool that allows decision making to perform va-rious analyzes using available models.

The decision-making that applies in Koarmada II is the main function of the leadership. Decision-making activities include identifying problems, searching for alternative solutions to problems, evaluating these alternatives and selecting good decision alternatives.

Supply Chain Management and Decision Support System for KRI spare parts have an effect on increasing the readiness of marine operations in the context of marine defense and security. Second, the sea as a transportation and trade route, which means that the sea is the main connecting operation of trade activities which is part of globalization. Third, the sea as a medium of information and dissemination of ideas. Fourth, the sea as an attribute of power in which the state uses the sea as an instrument in an effort to fulfill their national interests.

IV. CONCLUSION

1. Based on the analysis of the research results and discussion in the previous section, it can be concluded that:
2. Supply Chain Management has a significant effect on Operation Readiness. These results indicate that Supply Chain Management has a positive and significant direct effect on Operational Readiness.
3. Decision Support System has a significant effect on Operational Readiness. These results indicate that the Decision Support System has a positive and significant direct effect on Koarmada II Operational Readiness.
4. Supply Chain Management and Decision Support System for KRI Spare Parts have a significant effect on Operation Readiness. These results indicate that the Supply Chain Management and Decision Support System for KRI spare parts do not have a positive and significant direct effect on Koarmada II Operational Readiness.

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