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Conceptual Model in Improving Internal Performance of a Company

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Abstract. The purpose of this research to analyze the effect of Internal Supply Chain that influences the Company Operational Performance at PT. AST Indonesia Semarang. Quantitative method was use in this study and the instrument were using Structural Equation Model (SEM). The study involved 100 employees as the questionnaire respondents from 600 employee population that related with internal supply chain such as purchasing, production, incoming quality control, and material preparation. Simple random sampling was use at the quantitative research with proportional quantity of respondent that have taken in every department depend on total employee in each department. By using the result of data analysis, the research conclusion will be the basis for making policy suggestions on implications for the company as well as managerial implications although variables or indicators may find a bad or insignificant influence on the performance of PT. AST Indonesia. This study is expected to provide suggestions for improvements to strengthen the variables or indicators that will be important points that must be monitored and controlled by PT. AST Indonesia to achieve good performance.

1. Introduction

Oliver stated in [1] that supply chains is a physical network where companies involved in providing raw materials, goods manufacturing, or shipping, while Supply Chain Management (SCM) is a method, tool, or management approach. In current organization, an effective supply chain process was essential due to function to ensure overall supply chain management is success, to improve company performance and to get competition winning. For the reason to compete successfully, organizations are needed effective combination and coordination of three macro processes in supply chain activities.

SCM is the foundation of company's way ,that it integrates between material and information [2]. SCM consists of several functions that are source, purchase, inventory management, warehouse management, operations supervision for products distribution to customers [3]. SCM manages all internal and external business activities [4]. Internal SCM as the all idea of processes embroiled internally organizations such as plan, organize, control and also coordinate in the logistics, information way and throughout the process stages of business .

As well as PT. AST Indonesia, a Japanese manufacture located in Semarang that produces musical instrument, furniture, woodworking and plastic injection for international buyers such as Roland, Toto lifestyle, Asahi Kasei corporation, Muji Rushi, Kaigo Isu, Kamiya Corporation, Sumitomo Cresto, Gunnersen, etc. This company must implement a good internal supply chain after receive the raw material for external supplier including overseas supplier such as MDF, PVC sheet, paper sheet, veneer, poplar plywood and etc. To monitor and control the flow of internal supply, PT. AST



Indonesia was use an IT software that called “Jawast” system. The main function of this system is used for information sharing since the order from customer inputted by Production control department, or by Technology Department if any new models from customer will produce. The information’s content of this software are model name, part name, lot number, quantity, distribution date, production date, department code, lead time, WIP, material shortage, and material leftover. The department user of this system such as Production Control, Purchasing, Material, Production Technology, Production, QC, Accounting, Material, and Export Import. The operation and maintenance of this system controlled by IT Department. Although PT. AST Indonesia implemented ISCM and used IT Software, sometimes some trouble appears caused by “Jawast” system error, such as input data mistake or human error, quality problem, production failed that make supply problem occurs. This problem influences the operational performance.

Based on PT. AST Indonesia’s operational performance result in 2018, especially in piano production line, it was an evidence that stop line increased 10% at October 2018. This stop line problem caused by supply chain disturbance from wood lamination section. The main cause, of supply chain failed is paper sheet peel off defect. The quality report on November 2018 shown that this symptom is 65% from total defective, it was a highest problem but there is no buffer stock to prevent stop line, related with this phenomenon.

PT. AST Indonesia has the potential to face other supply chain disturbances that will affect the operational performance. The study needed to find out the relation between internal supply chains with operational performance so the company can adjust their strategies to keep the goal achieved. The method used is Structural Equation Modelling (SEM) method, which can show the causal relationship between variables, and the relationship shown represent the hypotheses of this research.

2. Literature Review

2.1. Internal Supply Chain Management

Quantify internal or external SCM resources and the carrying out for SCM’s reflection. Draw support for this decision from the idea [5]. Consider the way of relation from the latent construct to the indicators for all of the constructs. This is specific importance for dependent construct SCM execution, given [6] critique on treating formative construct as dependent ones. Built on earlier implement these range [7]

SCM component separated by three part as follows, Upstream Supply Chain are the company activity that related between suppliers. Second, Internal Supply Chain are all of the process that use by the organization starting from supplier to output since the material enter to the company to the distribution of the product. Third, Downstream Supply Chain, this section covered all process that involved from distribution of the product to the end user [8]

SCM has arranged the whole of business activity internally and externally, second, relating SCM such like effective and efficient logistic management. For this reason, Internal Supply Chain Management (ISCM) cover including of purchasing, produce and distribution flow, and third ISCM according for the company activity management, those are planning, organizing, control and supply chain coordinating. It is important to get the integration and supply chain coordinating.[4]

For this reason, the idea of ISCM including of Purchasing, Production and Distribution flow, as it structured of networks of supply and demand as shown in Figure 1.

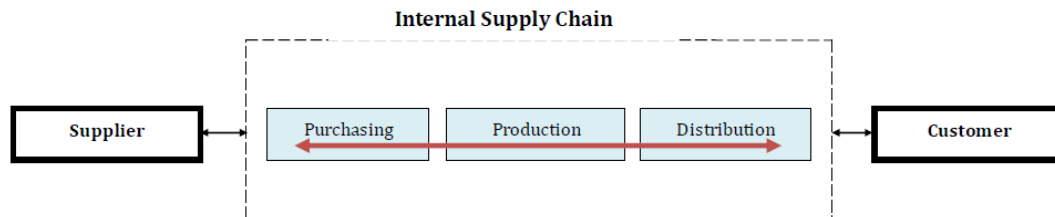


Figure 1 Typical supply chain [4][9]

Scope of this paper limited by researcher for only all off activity that collaborated with *Supply Chain Management (ISC)* such as Purchasing, Production and distribution that achieved the company performance.

2.1.1 Strategic Purchasing

Purchasing considered as a good weapon that focusing on the capability to make collective relation for company profit [10]. The concept of Strategic Purchasing, aggressive, everlasting target, and supplier relation strategic arrangement [10][11]. Suitable with earlier literature, strategic planning as plan action that will guiding of the purchasing activity towards opportunity consistently with company ability to get the long term goals.

2.1.2 Production

Internal supply chain conceptually divided by five dimension, therefore, supply and demand planning could show for example, in operational process where normally the planning will begin from *production order schedule creation*, ordered, for approximate and provide the resources that will be use, then from the scheduling, purchase activity will be held for taking judgement and built the relation for customer keeping, loyalty to give the product value adding [12].

2.1.3 Distribution

Distribution is decide as the movement activity of the product since the end of production or shipment to the consumer or points where demand has been recorded, for reason to satisfy the expectations of the manufacture and the consumer[13]. The real circulation is segment of the supply, and desire to relocation goods or services to the consumers. details desired n the right place and time, in appropriate abundance at the minimum total cost [14]. Distribution activity is very imperative to follow the consumer delivery time request. The method of distribution is depend on the time that will influence by costumer request, delivery progress and the safety of the product also the regulation.

2.2 Operational Performance

The most active relation are where supply chain related partners have been made alive of what performance standards they are being responsible for [15]. Choosing performance action is intended to ensure companies complete the specific (collective) target that they set. The supply chain performance part that an institution sets for itself and others should be specific, measurable and evaluated at regular intervals, and whatever measures are selected should be imposed [16].

The operational performance degree is different between company, its depend on the target that company set, but generally the all of the company have same target, that is profitability.

2.3 Structural Equation Modelling (SEM) method

SEM is an advance of the general linear model (GLM) to test a series of regression equations simultaneously, which can test traditional models, but also allow examination of relationships and more complex models, such as confirmatory factor analysis and time series analysis. SEM analysis can use AMOS (Analysis of Moment Structures) software [17]. Explained that the steps of SEM AMOS analysis are describing by a six-step decision process [18], as follows:

Step 1: Set the Individual constructs.

- Step 2: Built the overall measurement model.
- Step 3: Create design of a study to produce empirical results.
- Step 4: Evaluate the measurement model validity.
- Step 5: Determine the structural model
- Step 6: Evaluate structural model validity

2.4. Previous research

According [4], the existence of internal information exchange, implementation of company strategies and improvement of professional skills in employees are very important, so that they cannot be ignored, whereas according to [19], there is a significant positive relationship between logistics and performance. Then according to [20], there is an analytical correlation revealed that there is a significant and moderate positive correlation between supply chain collaboration and the performance companies. Furthermore, according to [21], internal integration does not always provide integration to the company and the importance of implementing supply chain integration in industry is a source of competitive advantage through improving the company's operational performance.

3. Research Method

3.1. Population and Sample

This research population are employees from several departments related to internal supply chain including Purchasing, Material, Production Control, Production, and Incoming Quality Controller. Sampling method used is simple random sampling with a proportional quantity of responden that have taken in department chosen depend on total employee in each department.

3.2 Data Collecting and Instrument

Data collected by distributing questionnaires to the employees who related internal supply chain. Quantitative analysis questionnaire was taken for 100 responden, according to the minimal sample SEM are 100 [22] which is five observer as a comparison of each estimated parameter. This research were use 20 parameter then the minimal sample are $5 \times 20 = 100$ samples, while the data test such as mean, modus, interval, reliability, validity dan normality use SPSS 16 software. SEM was chosen to be a method for this research because SEM is collected statistic technical, which could test the complex and difficult relation with simulants way. The complex relation could build between one or several dependent variables with one or several independent variables. Each dependent and independent can show as factor or construct that build by several indicators variable [22].

3.3 Proposed Conceptual Model

The hypothesized model connecting the correlation between internal supply chain, and company operational performance collaboration is depicted in Figure 1. The ISCM practices are conceptualized to include Strategic Purchasing, Production, Distribution and Company Operational Performance.

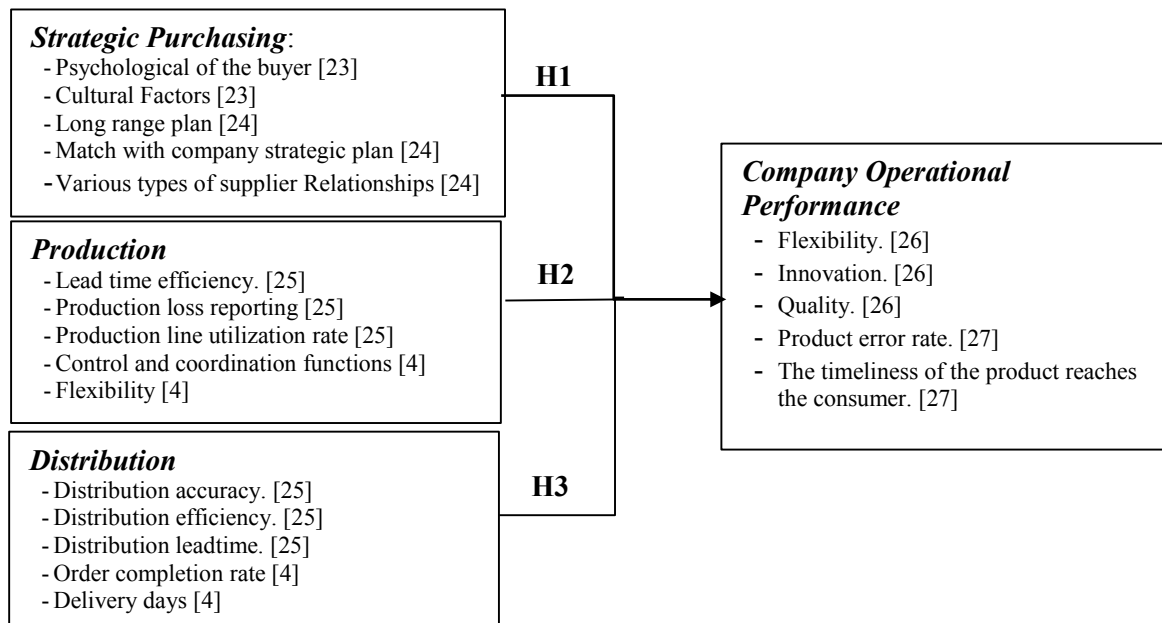


Figure 2 Proposed conceptual model [19][21][28][29]

3.3.1 The Influence of Strategic Purchasing on Organization Performance

The good organizational performance will be achieved if the company has particular competencies that are emulated in the form of target-oriented activities in order to make long term sustain of the company[30]. Critical purchases within the organization will influence organizational performance [31]. The good organizational performance will have achieved at the continuation of critically sense purchasing used [32]. For example, a research has been conducted at a United States aerospace industry debating that strategically purchasing will generate sustainable competitive advantage over close working communication with several suppliers, clear communication between partners, and long-term relationships improvement to obtain common goals, which will improve organizational performance [33]. [34] Argue that the importance of the role of strategic purchasing continues to grow and develop from traditional purchasing to the role of inventory management. This study proposes the importance of strategic purchases to obtain good organizational performance. For the reason above, the appropriate hypothesis is proposed as follows:

H1: Strategic Purchasing practice is positively influences to Company operational performance. [28]

3.3.2 The Influence of Production and Distribution on Organization Performance

There are four latent variables, including internal integration in the Logistics-Production interface and in the Logistics-Marketing interface, external integration, and company performance. Both internal integration and external integration affect company performance. Both variables are considered to be correlated between each other and with external integration.

Based on the description above, the appropriate hypothesis is proposed as follows:

H2: Production practice is positively influences to Company operational performance. [29]

H3: Distribution practice is positively Influences to Company operational performance. [29]

4. Discussion and Conclusion

4.1. Discussion

The expected questionnaires will collect from 100 respondents from several departments including Purchasing, Production control, Material, Incoming QC and Production. The basic question on the questionnaires will built from the experiences of another researcher that found on the several previous

studies. Statistic data will have measured using SPSS 16. To test the hypotheses of H1, H2, H3 will used SEM, which have a single, systematic, and comprehensive analysis through exploring the relationships between multiple independent and dependent constructs at the same time.

4.2. Conclusion

After review the literatures, this paper has prepared a conceptual model in improving internal performance of a company within a real study case on PT. AST Indonesia, and may to strengthen or to weaken the significant or the insignificant of the hypothesis, also possible get new findings regarding the relation of the variable that previous researcher was find below:

1. Critical purchases within the organization will influence organizational performance (ISCM) within the organization [31][32][33][34]
2. There is a significant positive relationship between logistics and company performance [19][34]
3. However, other researcher said that internal integration does not always provide integration to the company and the importance of implementing supply chain integration in industry is a source of competitive advantage through improving the company's operational performance [21].

Conclusion no 1 and 2 are different with no 3, that's why this paper will continuous with a real study case to strengthen or to weaken those findings.

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