

Evaluation of The Implementation Result of SAP-Based Material Management Process At Distributor Companies In Indonesia

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Abstract

Recently, information technology has been rapidly developed and has become a major source of information for companies. Complexity level of company business processes and the need for information that continuously increasing, gave birth to the information system. An integrated information system is called ERP (Enterprise Resource Planning). The advantages of ERP systems lies in how ERP integrates modules between functional or division. This advantage can be considered as weakness if not properly controlled of how each function is connected, but the company ERP system is difficult to control because of their complexity and high cost of ERP systems management. One of applications that support the ERP system is SAP. The purpose of this paper is to evaluate SAP-based material management process at distributor which to determine whether the existing business processes, especially in material management module is still relevant or renewals to get maximum results. The method used in the evaluation is the Fit/Gap Analysis and Risk/Analysis. Fit/Gap Analysis identified a process which goes into a fit condition, gap or partial fit. The results of the Fit / Gap analysis can be concluded that the processes running on the distributor has met the needs of the system because of many processes that have been entered into a fit condition. Risk Analysis was used to identify the activities that go into the gap condition. The evaluation can be a reference for further evaluation in the future.

Key Words: Evaluation, Process, Material Management, SAP

Introduction

Information technology has now developed very rapidly. It can be seen from the information as a source and a major factor which needed in an organization or company. Information technology is used to help process data owned company with

more accurate and help in running business processes or activities that exist in the company. Complexity level of company business processes and the need for information that continuously increasing, gave birth to the information system. Information systems continue to evolve so that it appears an integrated information system from one division to another so that the information obtained in real time. An integrated information system called ERP (Enterprise Resource Planning). strength lies in how the ERP system ERP integrates the functional modules or division. This power can be considered a weakness if not properly controlled how each functional connected, but the company ERP system is difficult to control because of their complexity and high cost of ERP systems management. Based on research that has been done, the results showed that the external and internal ICT capabilities are important drivers for firm performance, while merely having integrated IS do not lead to better firm performance. In addition, a moderating effect of the IS integration in the relationship between ICT capabilities and business performance is found, although this integration contributes to firm performance only when it is directed to connect with suppliers or customers rather than when integrating the whole supply chain (González- Gallego, 2015).

Enterprise Resource Planning (ERP) system, which integrates all of the units within an organization at the information level, plays an important role for a successful enterprise. With the right ERP system, it is easier to provide coordination between the units, eliminate waste and make faster and better decisions. Adopting an ERP system is a significant investment decision for a firm, therefore a great deal of attention should be given to the selection of the right system. Since there are a large number of criteria to consider in selecting an ERP system, the process itself is regarded as a complex multi-criteria decision making problem (Kilic, 2015). From the research in Taiwan, the results showed that an ERP system will exhibit a decreased error rate and improved performance if ERP system vendors and consultants provide good service quality. The results also demonstrated that significant relationships exist among the quality of vendor service, the quality of consultant services and value delivery (Tsai, 2015).

With the help of consultant, distributor company only takes a few months to implement SAP. Material requirements planning (MRP) is a production planning and inventory management system used to manage logistics processes and designed to assist managers in scheduling production and placing orders for items of dependent demand. If it is implemented and used properly, it can be helpful for production managers to plan capacity needs and allocate production time (Fidlerová, 2014). Suitability evaluation between the ERP systems on the company is needed to determine whether the current system has been able to accommodate all the needs of the company. SAP system has been running for 10 years in the distributor, where it is the basis for evaluation to determine whether the existing business processes are still relevant or renewals to get maximum result. Therefore, this study was conducted to evaluate the ERP system Material Management Module with methods fit / gap analysis. The results of this study are expected to be useful for companies to improve performance in order to be more effective and efficient in the use of ERP systems of Materials Management module.

The purpose of this study are:

1. Analyze business processes on the distributor company to assess the optimization function of SAP system that being used.
2. Identify the Gap that will be found in the evaluation process of Materials Management system which is currently running in the distributor company.
3. Aware of the possible risks in the process that being evaluated.

The advantages derived from this thesis are:

1. Understand the performance of SAP system application at the distributor when using the SAP system.
2. Know the interest rate on the information produced by the application of SAP system.
3. Enhance the performance of companies in the distributor company.

Research Method

To analyze problems that exist in the distributor company and to propose appropriate solutions, then the research using several research methods.

1. Fit / Gap Analysis Report

This method is used to identify the need to refer to the functions offered by SAP primarily in purchasing and inventory management systems to support business processes distributor. Once the evaluation is done to determine that functions in SAP has met the needs of the company.

2. Risk Analysis

Risk Analysis method is used to indicate a risk that occurs when the distributor does not implement the suggested recommendations. A collection of these risks are described in the form of a table called Risk Analysis Ranking as well as risk mapping into a matrix called Probability / Impact Matrix.

Result and Discussion

Fit / Gap analysis

Requirement assessment

Business processes at the distributor company is divided into two categories: Planning Process and Materials Purchasing, and also Material Acceptance Process, which in accordance with the module in use, namely SAP Material Management module. Categorized business process is to be determined its priorities for each requirement. Requirements are the specifications of each business process that has been implemented, and an explanation of how the system is run in accordance with the requirements. So, it also with certain parts that exist in the system that can be used as a reference in the process of system development.

With the technique of Failure Mode and Effect Analysis (FMEA) which is used in determining priorities on failure mode (symptom bug) or the quality of the risks that exist in the functions, features, tribut, behavior, components, and interface system. The contents of each column of the assessment requirements are Severity, Priority, and Likelihood that aims to provide an assessment of the requirements in order to indicate the priority of each requirement that has been identified.

Table 1: Requirement Assessment in Planning Process and Material Purchasing

Planning Process and Material Purchasing					
<i>Activities</i>	<i>Requirements</i>	<i>Severity</i>	<i>Priority</i>	<i>Likelihood</i>	<i>RPN</i>
<i>Forecasting</i>	1. Forecasting outside the system	3	2	3	18
	Determination of safety stock value, ROP (Re-order Point), accuracy of max stock level to be accurately.	3	3	2	18
	2. Upload the data into SAP software system.	3	3	4	36
	3. Material planning making	3	3	4	36
<i>Material Planning for Branch</i>	1. Automatic preparation of PR for all branches and checking requirements list.	3	3	3	27
	2. STR converted into STO for each branch.	3	3	4	36
	3. Material planning making by IC if the stock is not sufficient.	4	3	3	36
	4. The allocation of stock to the branch.	4	4	4	64
<i>Material Planning for DC(Distribution Center Center)</i>	1. MRP making for the needs of DC.	3	3	4	36
	2. The changes of purchase requisition	5	4	5	100
	3. System converting PR into PO to the principal, if not there is a change in the MRP.	3	3	4	36
<i>Non Regular Branch Requiremen</i>	1. STO by branch using SAP software.	2	2	2	8
	2. The allocation of inventory stock to branch.	3	3	3	27

<i>t</i>	3. Budget purchase if stock is not available in the other branch.	4	3	4	48
	4. Confirmation branch to make a new reservation.	3	4	4	48
	5. Remove the stock transfer order (STO) on the system.	3	4	4	48
	6. Confirmation of the stock transfer from other branch to branch.	3	3	3	27
<i>Purchasing for Local Trading Stock</i>	1. Addition of other requirements outside the planning.	4	4	4	64
	2. Making of Purchase Order (PO)	1	1	1	1
	3. Delivery PO to principal.	2	2	2	8
	4. Goods receipt from principal based on PO.	2	2	3	12

Requirement assessment on material acceptance process

Table 2: Requirement Assessment on Material Acceptance Process

Material Acceptance Process					
Activities	Requirements	Severity	Priority	Likelihood	RPN
<i>Goods Receipt from Principal (Based On PO : Cross Dockingdan Stock)</i>	1. The signing of the delivery note.	4	4	4	64
	2. MIGO using SAP software.	2	2	3	12
	3. Allocation of material cross docking to branch and putaway if the material is a stock.	3	3	2	18
<i>Goods Receipt from Principal (Based On PO : Direct)</i>	1. The signing of delivery note and official report making, if it is not appropriate.	4	4	4	64
	2. MIGO by using SAP software.	2	2	3	12

	3. Claim expedition against the material that can not be exchanged and the making of sales order to the forwarder.	2	2	2	8
<i>Goods Receipt from Branch</i>	1. Returns of material to DC or refund material sample.	5	4	4	80
	2. Refund items to DC and signing of doc.receiving if there is no difference	5	4	4	80
	3. Putaway material which is not bad stock	3	3	4	36
	4. Claim material with bad stock conditions to the principal.	2	2	3	12
	5. Transfer material to branch if deficit	3	3	3	27
	6. Blocking material if bad stock and claiming to principal.	3	3	3	27
<i>Goods Receipt from DC(Distribution Center)</i>	1. Post good issue and making of good issue for delivery.	2	2	2	8
	2. The signing of DpN (<i>Dispatch Note</i>)	4	4	4	64
	3. Preparation of official letter if the material is not suitable for document.	5	5	5	125
	4. MIGO by using SAP software.	2	2	3	12
	5. Return goods to DC and sales order to forwarder.	2	3	3	18
<i>Goods Receipt from Other Branch</i>	1. Stock transfer material from other branch (sender) to other branch (receiver).	2	2	2	8
	2. The signing of DpN (<i>Dispatch Note</i>).	4	4	4	64

	3. The making of official report if the material is not suitable with the document.	5	5	5	125
	4. Good Receipt by using SAP software.	2	2	3	12
	5. Transfer to sender branch and sales order to forwarder.	2	3	3	18

Based on Table 1 and Table 2 it can be concluded that the presence of the total RPN we can determine whether the requirements have high, medium, or low value.

Fit/Gap Analysis Report from each requirement

Process	Percentage (%) of Degree of Fit					
	Fit (F)		Partial Fit (PF)		Gap (G)	
	Total Requirements	Percent age (%)	Total Requirements	Percent age (%)	Total Requirements	Perce ntage (%)
Planning Process and Material Purchasing.	18	85,71	2	9,53	1	4,76
Material Acceptance Process	22	100	-	-	-	-

After creating a business process list, then made the Risk Ranking Table focused on requirement which have gap condition and partial fit.

No	Requirement	Recommendation	Risk Identification	Probability	Impact
1	Confirmation branch to make a new reservation.	New reservations made by branch, can become the reference for STO that will be updated.	1. The occurrence of missed communication because the new reservation was made by telephone.	L	L
2	Removin stock transfer order (STO) on the system.	When making new reservation, the existed STO does not need to be removed, but just need to update it,	1. At the moment of stock opname there is a gap between material in the system and physical material.	M M	H M

		so the branch has history in the system.	2. It is hard to detect the the flow of material movement, because the history is not recorded.		
3	Confirmation of stock transfer from <i>other branch</i> to <i>branch</i> .	STO which is not removed, IC will give it to another branch (sender) as a document that will trigger the movement of material from another branch to branch (sender).	1. There is a stock movement which not recorded in the system.	L	M

Conclusion and Suggestion

Based on the evaluation and research of the system SAP R /3 on Material Management module in the distributor, it can be concluded as follows:

- From evaluation result that was using the Fit / Gap Analysis obtained a percentage of fit / gap analysis report of the planning process and material purchases by 80.95% in fit condition, 4.76% in partial fit, and 14.29% in the gap condition . Then in the receiving process of material was obtained a percentage of 100% in fit condition and in this process the partial fit and gap conditions is not found. Based on the percentage from the report, it can prove that the business processes are in accordance with predetermined user requirements.
- From the evaluation result carried out by using the method of Risk Analysis, there are three risks which included in Medium High criteria, 2 risks are included in Medium Medium criteria, 1 risk is into the Low Medium criteria, and 3 risks are included in Low Low criteria. Based on these results, it can be seen the priority risk that must be followed up, so the company does not lose or experience undesirable problem because of fast decision-making process from the risks that have been identified.

The advice is suggested as follows:

- The distributor company should do the recommendation that has been proposed, so the user requirements can be fulfill and minimize the risks that could impede the business processes.
- The distributor company should improve the performance of help desk, so that users who experience problem in running the business processes with SAP R/3 system can be helped and the problems can be resolved quickly.

- Conduct periodic system evaluation of the in order to improve the effectiveness of the performance of the system in order to process future business can thrive better and also prevent the risk that can be experienced by the system.

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