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### REORGANIZATION OF SUPPLY CHAIN MANAGEMENT FUNCTION IN PERTAMINA EP BASED ON NEWLY DEVELOPED PERTAMINA EP BUSINESS PROCESS

Dion Yoske Prahara and Prasetyo Budi Saksono  
School of Business and Management  
Institut Teknologi Bandung, Indonesia  
Dion.yoske@sbm-itb.ac.id

*Abstract—Supply Chain Management Organization structure implementation in Pertamina EP is not optimal yet in supporting the Supply Chain function's activities. The existing organization wasn't good enough in supporting Pertamina EP's operational activities and supporting continuous improvement in strategy and operational activities of Supply Chain. Overlapping and unclear the accountability person caused late in decision making and the accuracy of decision. These can caused lost opportunity in operation, employees demotivation, dan overall will effect the company operational activities. For improvements things mentioned above, the first step is to conduct observation and data collection. The data was analyzed and identified what the potential problems. Potential problems are discussed for the problem solving expectations. After knowing the expectations of the solution, then the new organization structure have to be designed. One of alternative concept is based on Supply Chain Management Business process with accoutability mapping according to business process. By applying the new structure, the problems faced can be overcome*

*Keywords: structure reorganization, supply chain management business process, accountability*

#### I. INTRODUCTION

Pertamina EP is one of The Upstream Directorate subsidiary in the oil, gas, and geothermal business of PT Pertamina Persero that engaged in managing the upstream oil and gas production through a more manageable exploration and exploitation activities. The history of Pertamina EP is interconnected with the lengthy history of oil and gas quest around the archipelago which was started in early 19th century.. During the East Asia war, oil production experienced a distortion. During Japan occupation, efforts were limited to rehabilitation of damaged fields and wells as the impact of war. Oil production was discontinued

during the war for independence. When it was over and the nation started to run more organized governance, control over oil business became less clear. To anticipate it, the government established a national oil company on 10 December 1957 namely PT Perusahaan Minyak Nasional, PERMINA. In 1968, PERMINA merged with PERTAMIN and changed its name to PERTAMINA. To strengthen the new company, the government issued Law No. 8 in 1971, that positioned PERTAMINA as state-owned oil and Gas Company. The law obliged all oil companies interested in running their business in Indonesia to cooperate with PERTAMINA. This resulted in PERTAMINA to act as a regulator for partners who were under Cooperation Contract mechanism also acted as operator who managed its own working areas. Parallel to the dynamic shifts of the global and national oil and gas industry, the government issued Oil and Gas Law No. 22 /2001.

Due to the law enactment, PERTAMINA status was changed into a State-Owned Enterprise and renamed as PT Pertamina (Persero). Consequently, the Company's role became an operator under Cooperation Contract with BPMIGAS as the government's representative. The law also urged PT Pertamina (Persero) to establish separate business subsidiaries so that the business of exploration, exploitation and production of oil and gas become more manageable. It was on such ground that Pertamina EP was established on 13 September 2005. Then on 17 September 2005 PT Pertamina (Persero) signed a Production Sharing Contract (PSC) with BPMIGAS. At the same time, Pertamina EP also signed a Production Sharing Contract with BPMIGAS valid since 17 September 2005. Presently, Pertamina EP production level for oil is around 120 thousands

barrel oil per day (BOPD) and around 1,003 million standard cubic feet per day (MMSCFD) for gas. Pertamina EP Working Areas of 140.000 km<sup>2</sup>.

Pertamina EP organization is an asset based Organization. The organization structure is based on asset based for the core function, and the supporting functions become the enabler of the core function to fully support oil and gas exploration and production complication problems.

According to the main business model of upstream oil and gas companies such as Pertamina, proven oil reservoir, can be gained from the business development component, where the process of searching, evaluating, and acquiring new area that predicted has an oil reservoir happening. After that, there is exploration stage, that generally are trying to get information as prove that there's an oil reservoir in a certain area by exploration drilling. The number of oil and gas production, are depending on the planning of surface and subsurface facilities to lift the oil and gas, that represented on the development stages. The lifting processes of oil and gas using the facilities that had been prepared are the next stages which are production stages. After the production stages are not profitable to the company, the stages are moving to abandonment stage.

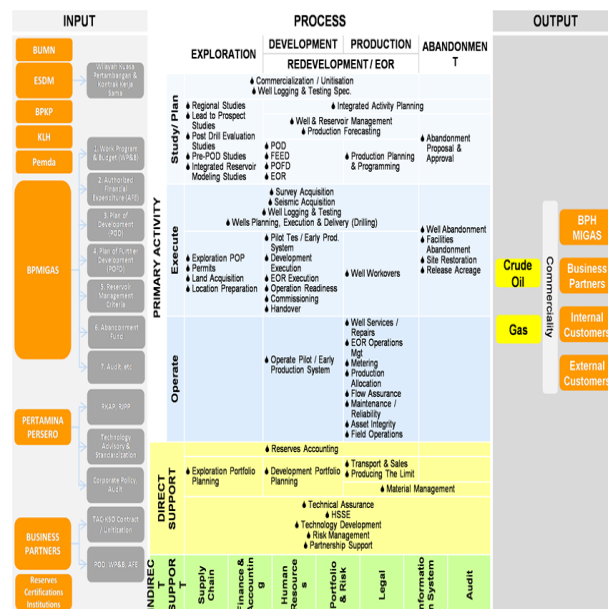
Pertamina EP Supply Chain Management (SCM) division responsibility is to bring the materials and services needed by the entity of the company with the right processes. As a support function that coordinate directly with field operations, SCM faced several problems. Due to the SCM end user's Material & services Work Plans are frequently changed, SCM functions is still sometimes reactive in responding to needs of end users so that the realization of the demand for materials and services from the end user has not fulfilled optimally. Overlapping process between functions internal SCM, and sometimes for some activities, there's no clear person who responsible on that activities. The activities are more focused on the Supply Chain Operations, but other activities regarding to improvement and evaluation in the operation flow process itself is not well defined.

The existing organizational structure at the SCM function is currently one of the causes of SCM's problems on providing support for core functions in Pertamina EP. Therefore, it is needed to make reorganization in order to enhance the functionality of SCM carrying capacity in Pertamina EP operations by increasing synergies within the internal functions of SCM.

Based on the review of existing SCM organization, one way to improve the effectiveness of SCM function is reorganized based on SCM business process so that the function of SCM can be better.

**A. Conceptual Framework**

The process of designing organization in SCM starts from evaluation long term SCM Plan based on Pertamina EP Goals, than making strategies to achieve that base on SCM Pertamina EP general business Process. The output of this process are given by SCM management. The end to end general business process then developed based on how SCM Function manages materials and services demand from end user, how SCM Function procures them, and logistics management to deliver the materials and services to SCM's end users. This process will involving a team of SCM employee, called the SCM business process team. Then evaluating the existing organization structure for each divisions based on current conditions, whether all the activities in each divisions that usually being done have been captured in the organizations. The evaluation will be based from premier datas that gathered from interviews with some SCM employees. After that, the writer is designing the concept of the organization



**Figure 1 Pertamina EP Business Model**

**II. BUSINESS ISSUE EXPLORATION**

Pertamina EP supply chain management functioned to support the whole Pertamina EP operation, from office and field operation.

structures, based on structure evaluation based on the interviews, new end to end SCM general business process, and five basic parts of organization references. The output has to be approved by SCM management team.

The last step that has to be done, is set up the accountability mapping using ARCI matrix as references. This step is done by the SCM business process team, where the writer become part of them.

This research limits its scope only to PT Pertamina EP's SCM organization up to Managers level on SCM Business Process conducted by the SCM department.

### III. BUSINESS SOLUTION

To design there are certain step that can be used. First, Supply Chain Management has to have Vision Mission and business Strategy this will be the basis of what kind of structure that SCM has to be developed so the SCM strategies can be implemented. The vision mission and strategies are the break down of Pertamina EP vision mission and strategies and has been set up by the management. To make sure that all the activities are captured well in the organization, SCM has also has to have end to end SCM business process as the basis to map that all the business process activities have been included in the employee activities. Then to make the organization structure optimum, iteration can be done to sinergize the organization structures.

#### A. Supply Chain Vision, Mission, Values, Objectives and Business Strategy

SCM Vision is becoming World Class Supply Chain Organization, and its mission is to run the supply chain management according to world class oil company standard. SCM Pertamina EP also refer to Pertamina EP excellence values as a guidance to realize Company's vision and mission, comprise Sincere, Strong, Sensible (Triple S).

SCM Pertamina EP have Objectives to achieve the mission which are, managing supply chain on materials and services need, including outsourcing, logistic according world class oil company standard, providing accurate information regarding to Supply Chain Managemet for its stakeholders, and do the SCM business process.

SCM business strategies to achieve their objectives are online and real time data, centralization for planning and decentralization for

the execution, standardization on materials/commodities, centralized procurement for strategic commodities, internal market intelligence to get the material and services on right time and sources, cost effectiveness, business ethics, competent people, full demand management.

#### B. Designing Detailed Integrated SCM Business Process

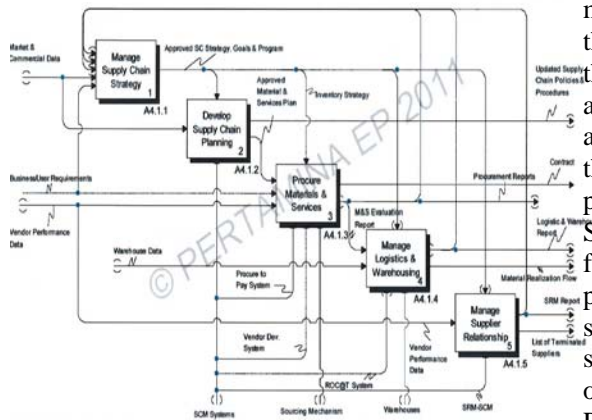
*"Lean enterprise refers to approaches that focus on the elimination of waste in all forms, and smooth, efficient flow of material and information throughout the value chain to obtain faster customer response, higher quality, and lower costs". (Evans, 2007).*

Lean operating systems have four basic principles such as elimination of waste, increased speed and response, improved quality, and reduced cost. A lean organization is necessary for organization survival. To efficiently implement it, Pertamina EP has to have an effective and efficient business process, by eliminate waste process, and make and efficient flow of information throughout the value chain of supply chain management.

Pertamina EP in developing the SCM business process are based on APQC which is a global leader in business best practices and performance benchmarks. With dozens of different ways of referencing the organizational functions and processes, measurement and benchmarking, APQC set out to solve this problem in collaboration with expert and practitioner panels introduced the Process Classification Framework<sup>SM</sup> (PCF) in 1992 as a framework to classified process in industries. To create SCM business process, a team of SCM business process are assigned. They use PCF\_CrossIndustry\_v5.2.0 and Tailored PCF\_CrossIndustry\_v5.0.0 in telecom as a starting point, since those two frame work has most complete SCM business process. Then the team defines the input and output product of each SCM business process. As verification, comparison and evaluation tools for the business process, Government Regulation for Oil and Gas Company operated in Indonesia are used such as PTK 007 BP Migas revision 2 Book 1 and 2 for the material & services procurement process, PTK 007 BP Migas book 3 for logistic, Pertamina Persero Regulation and Existing applicable SCM Process..

Then team sets up the inputs outputs of each process. The next step is defining the logical relation between each process wether it is

sequential nor parallel by making diagrams. After that the next step is defining the control systems of each mechanism such as policy, regulation, measurement and defining the mechanism such as tools or related technology.



**Figure 2. Supply Chain Management Business Process**

After the input, output, logical relation between each process, control and mechanism, then the HRD team as the leader of the all Pertamina EP Business Process, used IDEF0 tools to generate & connect the whole SCM Pertamina EP Business Process. IDEF0 is a function modeling methodology for describing manufacturing functions, which offers a functional modeling language for the analysis, development, reengineering, and integration of business processes

**C. Design New Organization Structure**

The coordinating mechanism for SCM organizations mostly will based on standardization of work process, since the flow of process are regulated well according the business process and all regulation adapted by Pertamina EP , in each subdivision there might be direct supervision or Mutual Adjustment depending on how the coordination are needed to support the business process.

“To design an organization, one must have are the Five basic parts of organization” (Mintzberg, 1993). Based on SCM Business process, : 1) The Operating Core who perform the basic work related directly in SCM core process based from SCM business process is making or provide materials and services that needed by core functions which are “develop supply chain planning”, Procure Material and services”, “Manage Logistic & And warehousing”, “Manage supplier relationship”. Demand management are attached closely with procurement management since in the level of uncertainty of core operation is quite high; 2) The strategic apex is charged to ensure that the organization serve its mission in a

an effective way, and also that serve the needs of those who control or have power over the organization. This will be done by vice president and specialists. They will do most of the “Manage Supply Chain Strategy” business process; 3) The middle line managers connect the strategic apex to the operating core with formal authority will be the middle line manager; 4) The technostructures are outside the operating workflow. They will analyze and evaluate the flow of business process, through systems/technologies that are used, process activities, employee evaluation. Since SCM has very standardize activities (in order to fullfil user requirement, and has accountable process), the technostructure are will the main subdivision in SCM; 5) The support staff are specialized to provide support to the organization outside its operating workflow. This is such as Procurement KSO TAC that job is to give advise regarding to KSO TAC procurement processes. (KSO TAC is Pertamina EP partners and outside its organization). The other activities is liason officer to BPMigas, who handle and follow up every permit to BPMigas.

To design the grouping unit, the basis can follow the core business model in Field level, Region level, and headquarter level. Field level will do most of oil and gas operation directly. They will do activities that will directly effect the company operation. For SCM business process for example in logistic is receiving material for end use or issuing material. The region level will coordinate some field. There might be activities that has to be done in Region level, but not in the field level or vice versa, Such as making rules that can be applied for the region level. The head office level will be the highest level of them all. Basic regulations, policies, and procurement process with big value are approved and process here.

Under VP SCM the organization can be defined based on similarity of the business process. The grouping is based on business process, so the employee in every subdivision can be expert in their division. So, based on the SCM business process, there will be 4 Major Business process which are “develop supply chain planning”, Procure Material and services”, “Manage Logistic & And warehousing”, “Manage supplier relationship”. Based on five basic part of organization, “SCM Internal Support” will be the techo structure of SCM organization, they will the evaluator and facilitators of the implementation of business process, systems/technologies that are used and employee evaluation. Beside that, “SCM external Support” structure are added as the

support staff of SCM organization, one of the duties is giving advice to KSO TAC procurement processes. And the other duty is becoming the liason officer to BPMigas.

All the organizational structure mentioned above are functional organization structure, based on business process. For the “SCM Projects” are using organization matrixs.

Refers to *www.businessdictionary.com* “In Organization matrix, the workers report to and are accountable to their project manager, who in return normally has lone obligation for the progress of their workers and horizontally they support the project managers”

For the regional level, the structure will almost the same but the with a level of assistant managers under regional manager. For the planning and procurement side, the head office level will be those who implement the strategic material and service procurement, while the region and field will do the procurement based on financial authorization. For the logistic side, the head office will be the central of reporting, regulation and policy, while the field level will be the executor level.



**Figure 4. Supply Chain Management Organization Structure Based on Process**

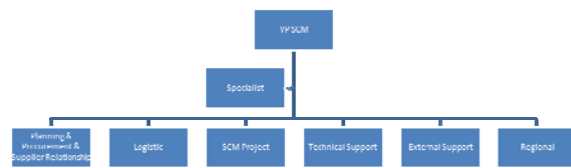
So the alternative organization structure will be like the picture above. This alternative will be able to implemented if the proportion of workload almost the same. Workload can measure based on the number of business process need to be done, and weight or frequency of the job.

The next step is doing iteration based on the type of work of business process regarding on support to operation. Since the level of uncertainty of core process are high, and the delivery time of material and service are spending a lot amount of time, beside that the frequencies of working schedules changing from end users is high. So the SCM planning and procurement process are merged under one manager like the picture above.

The last step is doing iteration based on the number of business process that need to be completed. The Supplier relationship has the most least activities compared to others. The supplier

data and their record also closely attached in systems information which is under coordination of technical support. So the alternative is merging the supplier relationship division with technical support because the supplier activities are exist in almost every unit of organization.

The other alternative which is best is by merging the supplier relationship sub division with with procurement since the business process that involving supplier mostly happen in the procurement process. Since under this manager will be more business process covered by them, the grade level of the planning & procurement & supplier relation will be above the other managers. The picture can be seen below.



**Figure 5. Supply Chain Management Organization Structure Iteration Based on The Number of Process**

**D. Set Up Accountability Mapping**

From the organization structure, to capture all the activities in Supply Chain Management and estimate the working load of each manager, it can be use ARCI matrix concept. This is a matrix that define who is Accountable, Responsible, need to Consult, and Info for every activity in business process. So the nex process is defining which activities will be done by which managers.

<b>A</b> Accountable	<ul style="list-style-type: none"> <li>The individual/department who is ultimately accountable for a decision or action, including Yes/No and power of veto ~</li> <li>Only one accountable person is assigned to a task ~</li> </ul>
<b>R</b> Responsible	<ul style="list-style-type: none"> <li>Individuals who perform a task (the doer responsible for execution/action) ~ /</li> <li>The degree of responsibility is defined by the accountable person ~ (eksekusi) ~</li> <li>Responsibilities can be shared ~</li> </ul>
<b>C</b> Consulted	<ul style="list-style-type: none"> <li>Individuals to be consulted prior to a final decision or action being taken ~</li> <li>Two way communication ~</li> <li>Contributes to add value ~</li> </ul>
<b>I</b> Informed	<ul style="list-style-type: none"> <li>Individuals to be informed</li> </ul>
<b>N</b> None	<ul style="list-style-type: none"> <li>No Contribution On Process</li> </ul>

Figure 3.12. Accountability Matrix

The step on implementing ARCI Matrix is first by defining who responsibility on doing each process or task. The responsibility can be shared based on values, size, regulation or anything depend on agreement between internal organizations. Then

defining the individual to be consulted for the process or task through two way communication in order to get added value to the process. After that the next step is defining the person who ultimately accountable for a decision including power of veto for each process or task. Last step is defining the person that will get the information about the output of each process or activity, since the output of the process will give added value for other process or activities. Since the organization structure are based on similarity of process and the ARCI mapping also define for each process or task, the ARCI mapping can be mapped based on process or task versus the organization division or sub division.

For example is the process "Procure Materials & Services". ARCI Mapping is first by defining who responsibility on doing each process or task. For procuring material and services, the doer will be procurement manager, SCM project manager, and SCM Asset Manager. The responsibility differentiate based on the purpose of the material and services also the scope of procurement. For the materials and services which are needed by the projects, this will be handled by procurement project. If same materials and services are needed by more than one asset then they can be bundled and process the procurement by procurement manager. If the needs are just for one asset, then the SCM Asset Manager can process them. The process also based on financial authorization, the higher the value, the doer also different too. In field the process until USD 50.000 or Rp.500.000.000-, asset and head office will be up from USD 50.000 or Rp.500.000.000-, The individual to be consulted is specialist since their position as the expert of SCM. The person who is ultimately accountable for the decision in Pertamina EP is the Vice President of SCM. But usually VP of SCM delegate the authorization based on values to his managers. Last step is defining the person that will get the information about the procurement process. That will be the Technical Support Manager who gets the procurement information data, since the data can be stored by them, and used for next input in the procurement process.

#### **IV. SUMMARY, RECOMMENDATION AND IMPLEMENTATION PLAN**

To make well organized organization, it is needed to have clear reporting lines, job description and accountabilities among its employees and in supply chain process which all attached in the organization structure. It's needed a clear

bussiness process as a basis of organization activities, then the structure are needed to support the process to make clear organization structure. Developing the business process has to consider best practice, implemented regulation in the business. And to develop organization structure implementation has to be evaluated based on the result and external condition, after the organization structure and accountability matrix developed, it is need to develop detailed Job Description and SOP as a basis for day to day SCM activities. The execution will be the prominent part in every business plan improvement or strategies, the business plan improvement execution will need a very strong support. The supports are not only SCM Department people in implementing the organization but also the other division. Time allocation and strong leadership focus in implementation will be another success key.

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