IMPROVING ORGANIZATIONAL PERFORMANCE THROUGH ORGANIZATIONAL CHANGE

Irfan Agus Setyawan [1+]

[1] School of Business and Management, Bandung Institute of Technology, Indonesia

Abstract. Organizations change to face the dynamics of the world. Organizational change is needed to adapt with the external challenges and internal weaknesses in order to meet the need of stakeholders. Organizational change is not a simple process; it needs certain structures and capabilities. This paper focus on how organizational change has been used to improve organizational performance. Modeling an organizational change since its design phase until its implementation is presented based on the organizational change experience at Electrical Department of PT. X in Indonesia. The department has moved from a traditional organization based on the area to a modern organization based on function. Success factor of the organizational change is measured from organizational performance before and after implementation.

Keywords: organizational change, organizational change modeling, organizational performance improvement.

1. Introduction

PT. X is an oil company in Indonesia that operates in partnership with Indonesia's Special Task Force for Upstream Oil and Gas Business Activities (SKKMIGAS) through production-sharing contracts (PSCs). The PSC between PT. X and Indonesia Government is valid until 2021. PT. X produces oil by operating on shore oil field that located in Riau Province with totalling areas around 8,700 square kilometres. To support its operation in providing electricity power, PT. X has Electrical Department that is responsible for safe and reliable operation of continuous 535 MW electricity power generated from Gas Turbine units at 4 power plants including its distribution throughout Riau Province via 3500 KMs transmission and distribution line with 50 substations and 28,000 power poles at various voltage levels.

Considering the width of area that becomes its responsibility, Electrical Department previously had 5 divisions. They were Power Generation, Transmission Distribution Area 1, Transmission Distribution Area 2, Transmission Distribution Area 3 and Business Engineering. This department was led by General Manager, power generation division was led by Manager and transmission distribution division was led by Team Manager. The difference a division led by Manager or Team Manager was because the difference of employee number under the division. The previous organizational structure of Electrical Department was shown in Fig.1.

The previous organizational structure was based on the area. Power Generation Division was responsible in operating all power plants including performing maintenance programs. While the Transmission Distribution Division was responsible in operating substation, transmission and distribution line including its maintenance programs. Due to the width of the area, there were 3 areas of transmission distribution division as shown in

219

Fig.1. Business Engineering was responsible in providing engineering matter that was needed by either Power Generation or Transmission Distribution Division.

The organizational performance of Electrical Department adopted balanced score card. There are 4 perspectives that are measured; financial, customer, internal process and learning growth metrics. Financial metrics captured the operating cost and investment cost. To meet the customer perspective, it is measured turbine availability, transmission line reliability, distribution line reliability and production loss. In internal process, it is measured key milestone, project close out, and project look back. In learning and growth metrics, it is measured lean sigma saving and number of lean sigma project that already move to control. Beside 4 perspectives above, electrical department also measured the safety, health and environment (HES) metrics that consist of 8 indicators. These additional perspectives are very important for Electrical Department, because most of activities in Electrical Department are facing with the high voltage electricity and high risk. Metrics of organizational performance in Electrical Department are shown in Table
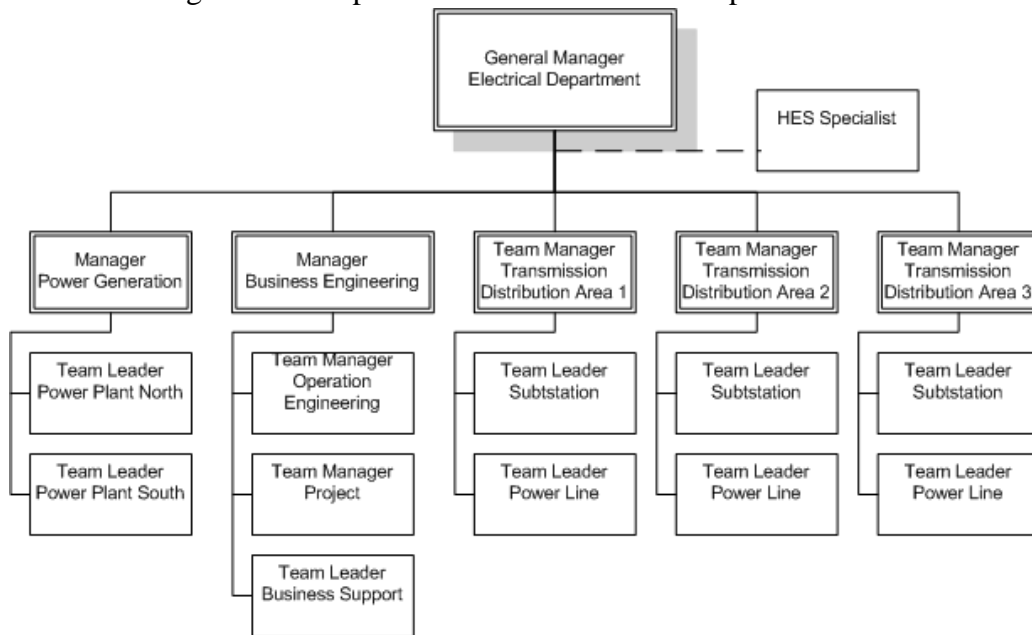
1.

Fig. 1: The Previous Organizational Structure of Electrical Department

Table 1: Metric of Organizational Structure in Electrical Department

Perspective	Metrics	Description
Financial	Operating Cost	Total operating cost
	Capital Cost	Total capital cost
Customer	Production loss	Total production loss opportunity caused by outage
	GT availability	Percentage available of generation unit
	Transmission line reliability	Rate of transmission line outage
	Distribution line reliability	Rate of distribution line outage
Internal Process	Key Milestone	Percent of project milestones completed
	Project Lookback	Number of project lookback conducted
	Project Close Out	Number of project that already complete the close out process
Learning and Growth	Lean Sigma Saving	Total Accrued Financial Benefit calculated from all LS projects
	lean sigma project	Number of LS project move to control
HES	Days Away from Work	Number of Days Away From Work Incident
	Total Recordable Incident	Number of Total Recordable Incident
	Motor Vehicle Crash	Number of Motor Vehicle Crash
	Safety Observation	Number of BBS observation / % quality
	Leadership Visibility	% employee meets 95% of LBM Participation
	Hazard Hunt	Number of huzard hunt submitted by employee
	Break Compliance	% employee meets 95% of break compliance target
	Petroleum Spill	Number of transformer oil spill incident and cumulative volume per year

Previous organization structure as shown in Fig.1 had never been reviewed since 2004; whereas the customer expectation increased to get more reliable power supply moreover the load demand from customer relatively constant and tend to increase. Electrical Department has been experiencing lowering the number of employee naturally due to entering retirement period starting in 2012. Fig. 2 shows the comparison between number of employee and load demand yearly. The challenges of previous organization were as follows:

- Organization is based on area, instead of function.
- Unclear boundary among operation and maintenance function.
- Organization does not effectively support customer requirement.
- Aging of equipment need focus on maintenance program.
- Many senior employees who will retire.

Number of Employee vs Load Demand

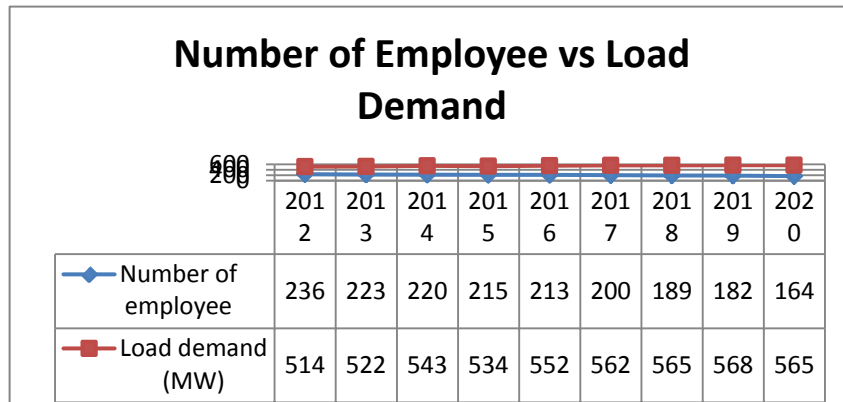|	2012	2013	2014	2015	2016	2017	2018	2019	2020
◆ Number of employee	236	223	220	215	213	200	189	182	164
■ Load demand (MW)	514	522	543	534	552	562	565	568	565

Fig. 2: Comparison Chart between Number of Employee and Load Demand

To answer above challenges, Electrical Department established organizational change by reorganize its structure. This paper would explain the experience of an organizational change in Electrical Department since its design phase until its implementation. That experience then made to a model that could be implemented to other organization that will perform an organizational change. Success factor of the organizational change is measured from organizational performance before and after implementation.

2. Theoretical Framework

Organizations change to face the dynamics of the world. No company today is in a particularly stable environment. Even those with dominant market share must change, sometimes radically (Robbins and Judge, 2013). The basic tension that underlies many discussions of organizational change is that it would not be necessary if people had done their jobs right in the first place (Weick and Quin, 1999). Change within organizations has become part of everyday life, some organizations are even continuously undergoing change. Changing an organization is not a simple process, often difficulties are encountered within such a change process. Research has shown that over 70 percent of the change programs in organizations do not achieve the intended goal (Hoogendoorn,

Jonker and Schut, 2006). However, organizational change is still needed to adapt with the external challenges and internal weaknesses in order to meet the need of stakeholders.

Boonstra (2004) in his book "Dynamics of Organizational Change and Learning" stated that there is three type of organizational change. First, planned organizational change, which addresses questions with respect to problems that require change in technical and instrumental aspects in which the problems and solutions are known. Secondly, organizational development which is said to be suitable when "the changes to be made are far-reaching, the problems not entirely unambiguous but still recognizable, and there is some idea as to the direction in which the solutions must be sought". Third is transformational change, in which the change processes include "renewal processes involving actors from various organizations". Transformational change is said to be the emergence of a totally new state of being out of the remains of the old state.

Kurt Lewin (1951) argued that successful change in organizations should follow three steps: unfreezing the status quo, movement to a desired end state, and refreezing the new change to make it permanent (see Fig. 3). Robbins and Judge (2013) explain Lewin's Three Step Change Model in their book "Organizational Behavior" stated that the status quo is an equilibrium state. To move from equilibrium—to overcome the pressures of both individual resistance and group conformity— unfreezing must happen in one of three ways (see Fig. 4). The driving forces, which direct behavior away from the status quo, can be increased. The restraining forces, which hinder movement away from equilibrium, can be decreased. A third alternative is to combine the first two approaches. Companies that have been successful in the past are likely to encounter restraining forces because people question the need for change. Similarly, research shows that companies with strong cultures excel at incremental change but are overcome by restraining forces against radical change.
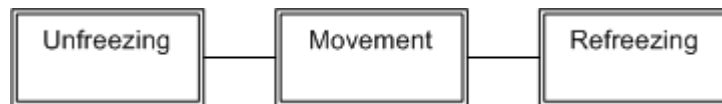
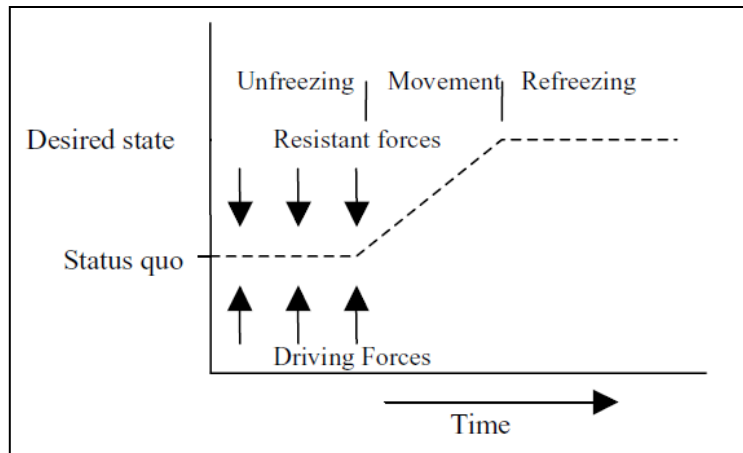| Unfreezing	Movement	Refreezing

Fig. 3: Lewin's Three Step Change Model

Fig. 4: Unfreezing the Status Quo

John Kotter of the Harvard Business School built on Lewin's three-step model to create a more detailed approach for implementing change. Kotter began by listing common mistakes managers make when trying to initiate change. They may fail to create a sense of urgency about the need for change, to create a coalition for managing the change process, to have a vision for change and effectively communicate it, to remove obstacles that could impede the vision's achievement, to provide short-term and achievable goals, and to anchor the changes into the organization's culture. They may also declare victory too soon. Kotter (1995) in his book "Leading Change" then established eight sequential steps to overcome these problems. They are listed as follows.

2.1. Establish Urgency
Establish a sense of urgency by creating a compelling reason for why change is needed. For change to happen, it helps if the whole company really wants it. Develop a sense of urgency around the need for change. This may help the company spark the initial motivation to get things moving. This isn't simply a matter of showing people poor sales statistics or talking about increased competition. Open an honest and convincing dialogue about what's happening in the marketplace and with your competition. If many people start talking about the change you propose, the urgency can build and feed on itself.

2.2. Form a Powerful Coalition
Convince people that change is necessary. This often takes strong leadership and visible support from key people within the organization. Managing change isn't enough; leaders of organization have to lead it. We have to find effective change leaders throughout the organization – they don't necessarily follow the traditional company hierarchy. To lead change, an organization need to bring together a coalition, or team, of influential people whose power comes from a variety of sources, including job title, status, expertise, and political importance. Once formed, "the change coalition" needs to work as a team, continuing to build urgency and momentum around the need for change.

2.3. Create a Vision for Change
When start thinking about change, there will probably be many great ideas and solutions floating around. Link these concepts to an overall vision that people can grasp easily and remember. A clear vision can help everyone understand why asking them to do something. When people see for themselves what you're trying to achieve, then the directives they're given tend to make more sense.

2.4. Communicate the Vision
What the organizations do with their vision after they create it will determine their success. The organization's message will probably have strong competition from other day-to-day communications within the company, so the organizations need to communicate it frequently and powerfully, and embed it within everything that they do. Don't just call special meetings to communicate the vision. Instead, talk about it every chance you get. Use the vision daily to make decisions and solve problems. When they keep it fresh on everyone's minds, they'll remember it and respond to it.

2.5. Remove Obstacles
Empower others to act on the vision by removing barriers to change and encouraging risk taking and creative problem solving. Many times the internal structures of companies are at odds

with the change vision. An organization that claims to want to be customer focused finds its structures fragment resources and responsibilities for products and services. Companies that claim to want to create more local responsiveness have layers of management that second guess and criticize regional decisions. Companies that claim to want to increase productivity and become a low-cost producer have huge staff groups that constantly initiate costly procedures and programs. The list is endless.

Many times, these are the most difficult barriers to get past because they are part of the internal structure of the company. Realigning incentives and performance appraisals to reflect the change vision can have a profound effect on the ability to accomplish the change vision. Management information systems can also have a big impact on the successful implementation of a change vision. Up-to-date competitive information and market analysis, and the ability to communicate powerfully and effectively throughout the company in a cost effective way can speed up feedback loops and provide information necessary for people to do their jobs more efficiently.

2.6. Create Short Term Wins

To ensure success, short term wins must be both visible and unambiguous. The wins must also be clearly related to the change effort. Such wins provide evidence that the sacrifices that people are making are paying off. This increases the sense of urgency and the optimism of those who are making the effort to change. These wins also serve to reward the change agents by providing positive feedback that boosts morale and motivation. The wins also serve the practical purpose of helping to fine tune the vision and the strategies. The guiding coalition gets important information that allows them to course-correct.

Short-term wins also tend to undermine the credibility of cynics and self-serving resistors. Clear improvements in performance make it difficult for people to block the needed change. Likewise, these wins will garner critical support from those higher than the folks leading the change (bosses, board, and shareholders). Finally, short-term wins have a way of building momentum that turns neutral people into supporters, and reluctant supporters into active helpers.

2.7. Build on the Change

Resistance is always waiting in the wings to re-assert itself. Even if you are successful in the early stages, you may just drive resistors underground where they wait for an opportunity to emerge when you least expect it. They may celebrate with you and then suggest taking a break to savor the victory. The consequences of letting up can be very dangerous. Whenever you let up before the job is done, critical momentum can be lost and regression may soon follow. The new behaviors and practices must be driven into the culture to ensure long-term success. Once regression begins, rebuilding momentum is a daunting task.

2.8. Anchor the Changes in Corporate Culture

Reinforce the changes by demonstrating the relationship between new behaviors and organizational success. To make any change stick, it should become part of the core of organization. Corporate culture often determines what gets done, so the values behind the vision must show in day-to-day work. Make continuous efforts to ensure that the change is seen in every aspect of organization. This will help give that change a solid place in your organization's culture.
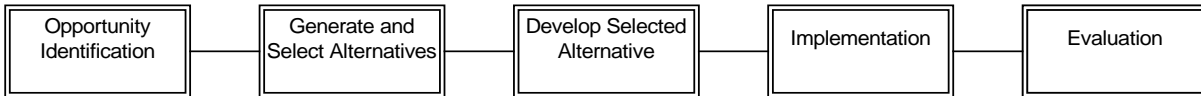
Notice how Kotter's first four steps essentially extrapolate Lewin's "unfreezing" stage. Steps 5, 6 and 7 represent "movement," and the final step works on "refreezing" (see Fig. 5). So Kotter's contribution lies in providing managers and change agents with a more detailed guide for successfully implementing change (Robbins and Judge, 2013).

Lewin Change Model	Kotter Change Model
Unfreezing	Establish urgency
	Form a powerful coalition
	Create a vision for change
	Communicate the vision
Movement	Remove obstacles
	Create short term wins
	Build on the change
Refreezing	Anchor the changes in corporate culture

Fig. 5: Lewin's Change Model vs Kotter's Change Model

3. Proposed New Approach for Organizational Change Model

This section presents proposed new approach for organizational change model. This new model is proposed based on the organizational change experience at Electrical Department.

Opportunity Identification	Generate and Select Alternatives	Develop Selected Alternative	Implementation	Evaluation

Organizational change in Electrical Department was performed using project approach. PT. X has already a guideline in running a project. This guideline is used in implementing organizational change in Electrical Department. There are 5 stages used in this approach of organizational change model. The first is opportunities identification stage, second is generate and select the alternatives, third is develop selected alternative, fourth is implementation stage and the last is evaluation stage (see Fig. 6).

Fig. 6: Proposed Organizational Change Model

3.1. Opportunity Identification Stage

Organizational change in Electrical Department was initiated by the leadership of this department. Considering the previous organization structure that had never been reviewed for almost 10 years, the General Manager of Electrical Department formed a team to review the Electrical Department Organization Structure. This project team consisted of representatives from multi team in Electrical Department. After project team formed, they started to review the current organization structure. They assessed the current organization using plus delta to identify the opportunity of organizational change as shown in Fig 7. Other activities that are conducted on this stage are as follows:

- Define scoping (in scope and out scope)
- Define stakeholders
- Define opportunity statement and value drivers
- Define success vision
- Define milestone

Plus (to be continued)	Delta	To be Addressed in new Organization
Highly committed people, sense of ownership	Not fully support reliability process	Clear boundary among operation and maintenance team
Close coordination among Electrical Department to serve customer	Lack of focus and quality of work completed	Having dedicated maintenance team
Scarce Talent: hot line work, relay protection	Less priority to support customer support	Having dedicated operation to support customer directly
	Unclear assest ownership	Having dedicated operation team to own assets

Fig. 7: Plus Delta to Identify the Opportunity

3.2. Generate and Select Alternatives

After getting the opportunity by assessing current organization, the project team started to generate the alternative to answer the delta that occurred on previous organization. There were 3 alternatives generated by the project team. Alternatives was developed by various type and combination of function that consist of operation and maintenance, area that consist of North and South, and facility that consist of power generation and transmission distribution.

- Alternative 1
  In this alternative, the organization was grouped by function then by facility and area. All maintenance activities are put in Reliability and Maintenance (REM) team. This alternative will generate strong reliability program and focus on customer as shown in Fig. 8.
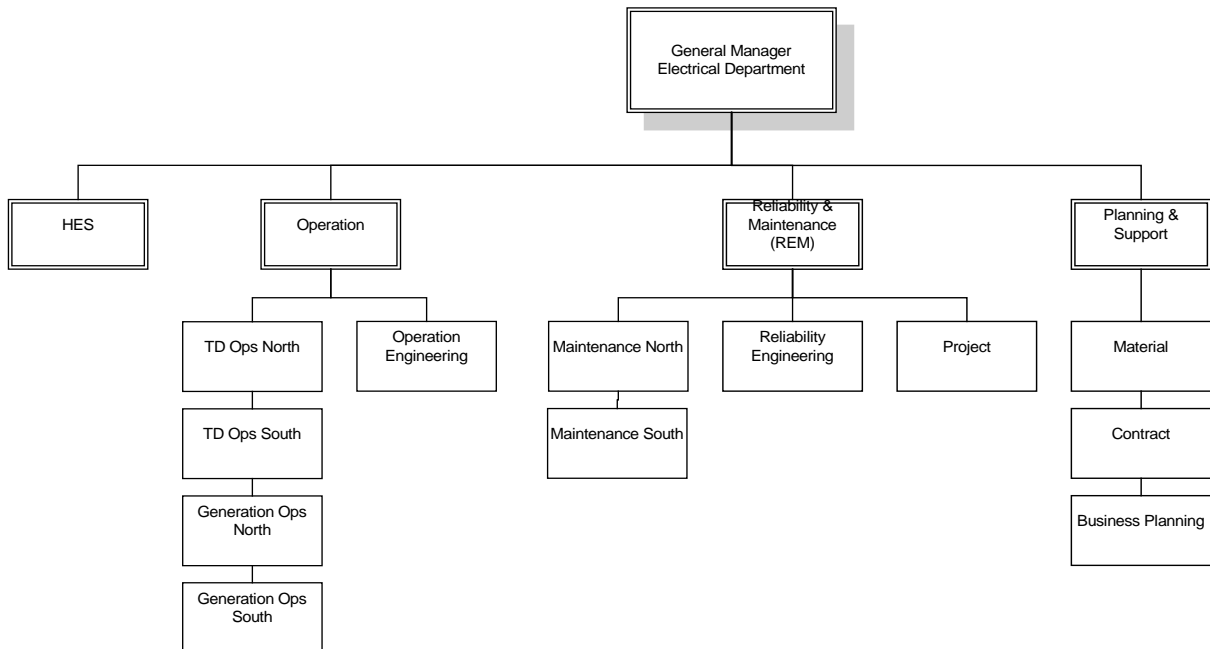

Fig. 8: Alternative 1 (Function – Facility – Area)

- Alternative 2

In alternative 2, organization was grouped by area then by facility and function. And also maintenance activities are scattered in every facility operations and engineering group. This alternative will generate strong customer focus in location and clear roles and responsibilities but the organization structure is sensitive to production decrease/ increase in each location and less leaner compare than other alternatives (see Fig. 9).
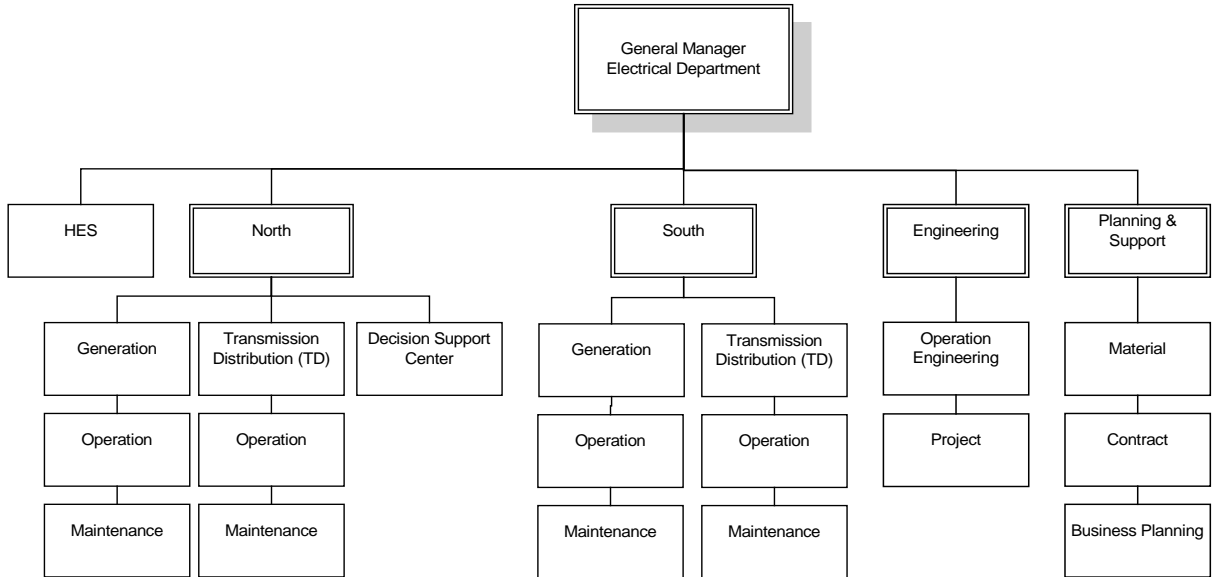

Fig. 9: Alternative 2 (Area – Facility – Function)

- Alternative 3

  In alternative 3, organization was grouped by facility, function and area. This alternative will generate strong customer focus in facility but lack of standardization because each facility has their own operation and maintenance.
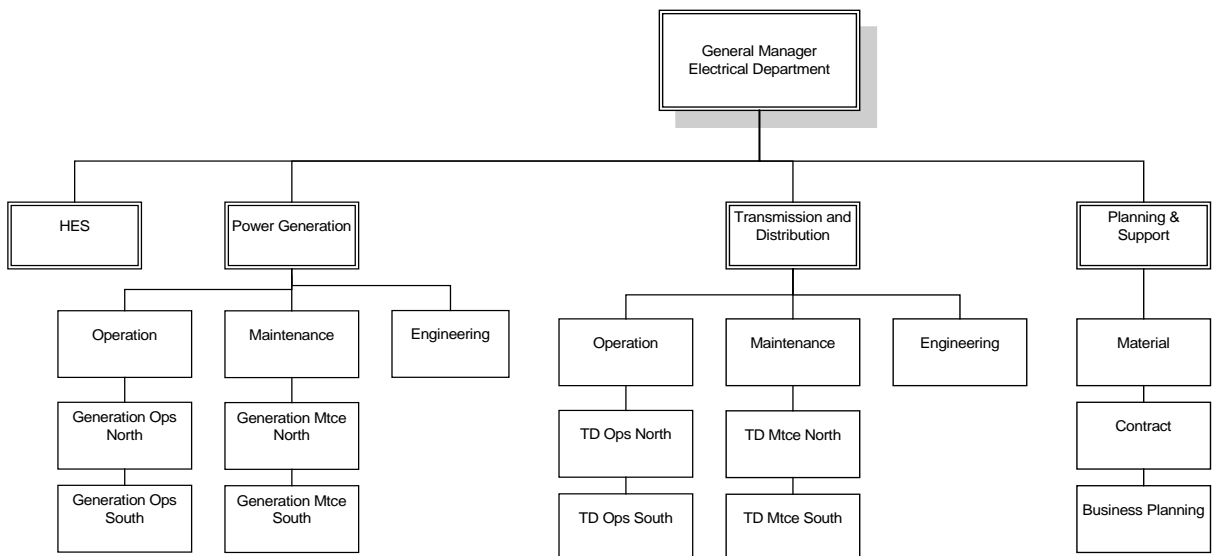

Fig. 10: Alternative 3 (Facility – Function – Area)

After generated the alternatives, Electrical Department used decision criteria as a criteria to select organization structure alternatives. The decision criteria were selected used focus group discussion. There were also weighting score factor to compare between one alternative with another alternative. To define the weight also used group discussion. It was resulted that Alternative 1 has the highest score, it means that the new organization structure will be used was alternative 1.

3.3. Develop Selected Alternative

In this stage, selected alternative was available. The activities conducted in this stage were developing detail structure of the selected alternative. Position and title of each structure were also developed. Number of employee in each team was defined by measuring number and duration of the job in each team. After detail structure, position, title and number of employee defined, the next step was filling each position. To fill the position in each team, current competency of each employee became main consideration. The last activity performed in this stage was preparing transition plan before current organization transform or change to new structure.

3.4. Implementation

Implementation stage was the important stage in organizational change. In this stage, the new organization structure was announced and established. To keep the transition period running smoothly, the organizational change started from upper level or leadership level. Position under general manager became the first position that was changed. Organizational change that started from upper level and continued with lower level were important to keep serenity of employees.

3.5. Evaluation

After new organization structure implemented, evaluation stage was needed to capture the new organization success or not. The performance of the organization is compared between before and after organizational change. In Electrical Department case, the organization performance after organizational change is better than before as shown in Fig. 11.

Perspective	Metrics	Before	After
Financial	Operating Cost	23.13	24.13
	Capital Cost	8.29	9.29
Customer	Production loss	220.0	210
	GT availability	90%	91%
	Transmission line reliability	4.60 / 37	4.81 / 16
	Distribution line reliability	35.0 / 774	30.05 / 268
Internal Process	Key Milestone	91%	97%
	Project Lookback	12	12
	Project Close Out	100%	100%
Learning and Growth	Lean Sigma Saving	50.5	50.50
	Lean sigma project	12	12
HES	Days Away from Work	0	0
	Total Recordable Incident	1	0
	Motor Vehicle Crash	2	0
	Safety Observation	`	100%
	Leadership Visibility	100%	100%
	Hazard Hunt	203	214
	Break Compliance	100%	100.0%
	Petroleum Spill	24 / 63.1	4 / 6.95

Fig. 11: Organizational Performance before and after Organizational Change

Evaluation performed at least a year after organizational change conducted. Because in implementing organization change needs about 6 months for transition period and 6 months later is achievable to compare the performance before and after. In evaluation stage is also written the lessons learned captured during and after organizational change performed. This is important to be used on the next organizational change.

4. Conclusion

Organizational change is needed to adapt with the external challenges and internal weaknesses in order to meet the need of stakeholders. There are some approaches in organizational change. Lewin use 3 steps in organizational change; unfreezing, movement and refreezing. Kotter use 8 steps in organizational change; establish urgency, form a coalition, create vision, communicate vision, remove obstacles, create short term wins, build the change and anchor the change in corporate culture. Proposed new approach use 5 steps; opportunity identification, generate and select the alternatives, developed selected alternatives, implementation and evaluation.

5. References

[1]   Boonstra, J.J. (2004), "Dynamics of Organizational Change and Learning, Wiley.

[2]   Hoogendoorn, M., Jonker, C. M., Schut, M. C., Treur, J. (2006), "Modeling Centralized Organization of Organizational Change", *Springer Science*.

[3]   Kotter, J. P. (1999), "Leading Change", *Harvard Business School Press*, Boston.

[4]   Lewin, K. (1951), "Field Theory in Social Science", Harper & Row, New York.

[5]   Robbins, S. P., & Judge, T. A. (2013), "Organizational Behavior", Prentice Hall, New Jersey.

[6]   Weick, K. E., Quinn, R. E. (1999), "Organizational Change and Development".