Project management improvement with proposed project management office: case in palm oil industries and machinery

Benyamin Tangihon Hutapea[1][*], Harmein Nasution[2], Juliza Hidayati[3]

[1,2,3] Department of Industrial Engineering, Universitas Sumatra Utara, Medan, North Sumatra Province

* Corresponding author: beben.hutapea@gmail.com

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ABSTRACT

Multi-project management is a huge challenge in organizations' project management. To improve the success of the multi-project practice, organizations have begun to consider implementing a Project Management Office (PMO) inside their organization structure as a single structure focuses on managing the project portfolio inside the organization. PMO is a type of business-oriented organizational structure that supports the enterprise's business strategy and development and describes the rationale of a project portfolio management organization. The major challenge in this qualitative research is identifying which variables the proposed PMO department has to take concern of and formalize a relevant PMO model, scope, and project management process for its organization. Literature reviews prove that the ideal PMO should be able to integrate an organization's project portfolio, standardize project management methods, provide tools, manage continuous improvement, and design an effective communication system. As a result, the proposed PMO department will be adopting a controlling model, and have strategic, tactical, and operation scope with their maturity level based on the PMO maturity cube and a new proposed project management process, involving entire stakeholders within the project environment.

1. Introduction

Many project-based organizations are striving to implement new management tools and concepts to streamline their project execution and implementation (Kutsch et al., 2015). Especially in multi-project, as the number and complexity of projects in the business world has increased, the need for centralized project coordination functions has grown (Monteiro et al., 2016). Managing multiple sets of projects simultaneously is a challenge organizations have to master today in order to achieve their strategic objectives (Unger et al., 2012). Therefore, project management were proposed to help organization to fulfill their strategic target with implementing a well-documented, standardized practice with various methods (Ferreira et al., 2013). Even so, there are many organizations implement project that are not managed according to a formal project management methodology and instead apply ad-hoc processes with weak outcomes (Monteiro et al., 2016). At the same time, the need to meet stakeholders expectations and gain their trust during the execution of these projects has become increasingly important (Sandhu et al., 2019).

Such problems bring urgency to organizations to appoint a specialized organizational unit to create and deliver the solutions mentioned above. These units are referred to the Project Management Office (PMO). The work of PMO should be considered from the methodical, organizational and instrumental

2

point of view (Mariusz, 2014). In recent years, PMO systems have implemented by many organizations as part of project management organization that could integrate organizations operational and strategic role (Aubry et al., 2010). According to Project Management Institute (2013), PMO is a management structure that standardizes the project-related governance processed and facilitates the sharing of resources, methodologies and its improvement, tools and techniques (Project Management Institution, 2013). PMO may be the decade's most important initiative for improving project management in organizations (Kerzner, 2016).

Generally, PMO is a type of business-oriented organizational structure that supports the enterprises business strategy, development and describes the rationale of how a project-portfolio management organization, project-program management organization or project management organization should be (Monteiro et al., 2016). PMO department have a role in improving and maintain several project managements scope such as cross-project resources integration, business alignment, technical supports and manage organizations infrastructure (Hubbard & Bolles, 2015).

In recent years, PMO system attributing in strategic, tactical, and operation inside an organizations. At a strategic level, PMO department managed to align organizations operation and tactics to their strategic goals (Oliveira et al., 2017; Phan, 2015). At a tactical level, PMO department propose a new standard and methods to ensure every project member already have their tools to handle

their operation problems (Spalek, 2012). In operation level, a PMO provides basic support to individual project and ensures professionalism and excellence in applying widely accepted method and principles (Pinto et al., 2010).

Researches needs to understand that PMO doesn't have any standards for its implementation, each organization have their own standards in PMO's models, scope and maturity according to organizations context (Fernandes et al., 2020). When a PMO is implemented, it is essential to adapt its functions to the organizational and strategic context, in order to increase project performance and meet different expectations (Cunha & Moura, 2014).

Pinto designed a matrix to measure PMO maturities with PMO Maturity Cube – it will evaluate organizations PMO from three matrix which is approach(strategic, tactical and operation), scope (enterprise, departmental and program-project) and its maturity (basic, intermediate and advanced) as seen as Fig. 1 (Pinto et al., 2010).
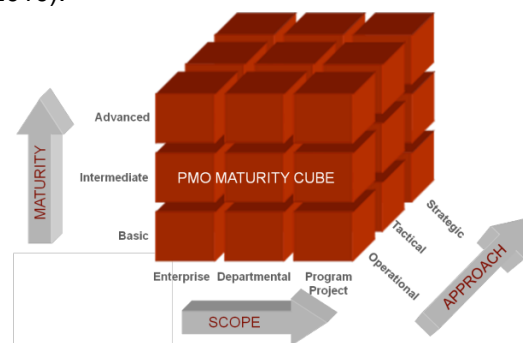

Fig. 1 The three dimension of PMO maturity cube.

There are three models of PMO scope and each of these models were have their own frameworks:
- Enterprise PMO or Corporate PMO scopes are covering the whole organization, designing organization plan on strategic, tactical and operational.
- Departmental PMO covers the entire department in their tactical and operation.
- Program-project PMO covers project operations.
  In PMO's approach, there are three roles in PMO:
- Strategic PMO supports organizations project management portfolio.
- Tactical PMO supports the way organizations operating their daily activity by proposing best method and practice.
- Operational PMO supports are ensuring each staffs inside project managements environment were practically using their best method.

PT ABC is a private organization, role as general contractors in palm oil industries and machineries based at Medan, North Sumatra, Indonesia. PT ABC project management systems were facing a various problem on it practice that leads to project delay, thus bring PT ABC to face profit loss problems. Project delays have been perceived as a global challenge that hinders the time delivery, budget and quality of projects (Fashina et al., 2021). PT ABC project delays have caused profit loss to PT ABC as describe at Table 1, there are IDR. 505.376.860,- profit loss caused by project delay. Project management process, cross-department integrity and project organization structures were identified as root-cause to project delay problem. Based on identified issues, this research will propose a framework for PMO implementation to PT ABC.

This qualitative research aims to describe a suitable PMO model and maturity in context of PT ABC organization structure and its issues. Although PT ABC might be already implemented informal PMO systems, this research will give an enrichment and propose of a PMO department frameworks so there will be a clear communication management and authorization for whom to analyze and manage project management standards in PT ABC. Data collection will be conducted with interview session to several stakeholders inside PT ABC organization to identify critical variables to establish and propose a PMO department. Those will be appointed in PMO department and their own roles.

Table 1 PT ABC profit loss per September 2023

No	Client	Project Name	Value Loss (IDR)
1	LSI	BoilerMech 30 TPH Repair - Retubing	210.000.000
2	LSI	Advance Boiler 30 TPH Repair - Superheater Replacement	24.000.000
3	AA	Takuma Boiler N1000 Repair - Retubing	141.044.620
4	AA	Takuma Boiler N1000 Repair - Retubing	130.332.240
		Total	505.376.860

2. Methods

The data utilized in this study includes primary data, secondary data and a qualitative descriptive method. Primary data collected with direct interview to several stakeholders, which will have a role in the proposed PMO department. The interviews will identify which variables that needs to have researchers and executive concerns to plan any relevant improvement with PMO department. Secondary data were collected from various sources, includes relevant published journals an guide books.

This research begins with identifying current organization structure, project management process and involved stakeholders. PT ABC current organization structure needs to remodeled as they have a repetitive issues on how some projects were delayed because of current project management practice – it takes time to deliver orders from project member level to department manager level. Respondents and their credentials are listed in Table 2.

The proposed PMO roles are using Pinto's Maturity Cube – a combination between three roles which is strategic, tactic and operation. Each roles have their own level and combined together with PMO's scope will form a PMO Maturity Cube matrix (Pinto et al., 2010). PMO strategic, tactic and operation role were assess as Table 3, Table 4 and Table 5.

Table 2 Respondent list

No	Name	Level	Working Area	Credentials
1	Ignatius	Executive	General Manager	20 year of working experience as Boiler Department Manager and General Manager in PT ABC
2	Lilik Suheri	Manager	Boiler Department	25 year of working experience mostly as Engineering Department focused on Boiler Projects
3	Siau Mei	Manager	Finance Department	13 year of working experience as Finance Manager in PT ABC
4	Elina Tan	Manager	Procurement Department	11 year of working experience as Procurement Manager in PT ABC

4

No	Name	Level	Working Area	Credentials
5	Yatno Santoso	Manager	Boiler Department	20 year of working experience as Boiler Department Manager in PT ABC
6	Suleman Lubis	Middle Manager	Boiler Department	34 year of working experience as Engineering Department, mostly for Boiler RnD
7	Bambang Heriawan	Staff	Boiler Department	12 year of working experience as Project Supervisor in PT ABC
8	Robert Simarmata	Staff	Boiler Department	14 year of working experience as Project Supervisor in PT ABC
9	Henry Siregar	Staff	Boiler Department	10 year of working experience as Project Supervisor in PT ABC

Table 3 PMO strategic assessment

No	PMO Strategic Assessment	Levels
1	PMO provide advice to management	Level 0 - The PMO does not perform this function. Level 1 - The PMO is asked by top management to give its position on issues relating to making strategic decision once in a while. Level 2 - The PMO is frequently asked by top management to give its position on issues relating to making strategic decision, however, its involvement is not formally established. Level 3 - The PMO is frequently asked by top management to give its position on issues relating to making strategic decision and its involvement is formally established.
2	PMO coordinate and integrate entire organization portfolio	Level 0 - The PMO does not perform this function. Level 1 - The PMO identifies interdependencies between the projects and programs, but it does not keep track of the changes in interdependencies. Level 2 - The PMO identifies and tracks interdependencies between the projects and programs, informing and triggering the managers of projects/programs and stakeholders in case of need, rebalancing, and other changes. Level 3 - The PMO identifies and tracks interdependencies between the projects and programs, acting proactively to ensure the realization of the portfolio and providing preventive and corrective actions as required.
3	PMO develop and maintain a strategic framework of project	Level 0 - The PMO does not perform this function. Level 1 - The PMO provides information on projects and programs but these are limited to a view on each individual project, with no analysis of the results expected of business and dependencies between projects and programs, risk, and deadlines of the portfolio. Level 2 - The PMO provides information on projects and programs (with analysis of the results expected of business and dependencies between projects and programs, risk and maturity of the portfolio) in a scoreboard, but this is not often used by senior management to support decision making. Level 3 - The PMO provides information on projects and programs (with analysis of the results expected of business and dependencies between projects and programs, risk and maturity of the portfolio) in a scoreboard, but this is regularly used by senior management to support decision making
4	PMO promote project management awareness	Level 0 - The PMO does not perform this function. Level 1 - The PMO raises awareness of project management to the intermediate level including mid-level managers. Level 2 - The PMO takes actions to raise awareness of project management at all levels, including senior management. The PMO develops and publishes policies and guidelines for the management of projects in the department. Level 3 - The PMO establishes and implements a structured plan to promote project management at all levels. The PMO reviews and improves policies and guidelines for project management in the department
5	PMO monitors their	Level 0 - The PMO does not perform this function. Level 1 - The PMO informally asks its customers to feedback on its performance.

No	PMO Strategic Assessment	Levels
	own performance	Level 2 - The PMO formally ask its customers for feedback on its performance.
		Level 3 - The PMO formally asks its customers to gain feedback on its performance and to obtain performance indicators for the processes under its responsibility, continually demonstrating its performance to its customers.
		Level 4 - The PMO formally ask its customers to gain feedback on its performance and to obtain performance indicators for the processes under its responsibility, continually demonstrating its performance to its customers. In addition, the PMO shares goals with its customers and structures itself to promote continuous improvement and increases in its maturity, assessing the need for removal, maintenance, or creation of new services.
6	PMO participates in strategic planning	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO informally and occasionally participates in the strategic planning process
		Level 2 - The PMO informally and regularly participates in the strategic planning process
		Level 3 - The PMO formally and regularly participates in the strategic planning process
7	PMO manage one or more project portfolio	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO maintains a list of active projects
		Level 2 - The PMO maintains a list of active projects and programs and establishes their prioritization but does not follow a structured portfolio management process.
		Level 3 - The PMO maintains a list of active projects and portfolios, prioritizes them and establishes formal processes, acting as facilitator in the definition (identification, categorization, evaluation, selection), development (prioritize, balance, and commitment) and implementation (monitoring, review, and change management) of the portfolio.
		Level 4 - The PMO maintains a list of active projects and portfolios, prioritizes them and establishes formal processes, acting as facilitator in the definition (identification, categorization, evaluation, selection), development (prioritize, balance and commitment) and implementation (monitoring, review and change management) of the portfolio. The PMO uses an integrated system to automate the department's portfolio management process.
8	PMO identify, select and prioritize new projects	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO identifies, selects, and prioritizes new projects and programs without defined criteria and without a relationship between strategic goals and the existing portfolio.
		Level 2 - The PMO identifies, selects and prioritizes new projects and programs based on criteria, but without a clear and precise relationship between the strategic goals and the existing portfolio.
		Level 3 - The PMO provides formal process of identification, selection and prioritization of new projects and programs based on categories and pre-established criteria.
9	PMO manage projects profit	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO monitors the achievement of expected benefits for each project/program only during its execution, evaluating the results comparing them with the original strategic goals of the project/program.
		Level 2 - The PMO monitors the achievement of expected benefits for each project/program during its execution and after closure evaluating the results and comparing them with the original strategic goals of the project/program.
10	PMO analyze the relationship and environment of	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO identifies the stakeholders of the organization's portfolio and takes actions to develop a strategy for stakeholder management.

6

No	PMO Strategic Assessment	Levels
	project in and out of the organization	Level 2 - The PMO identifies the stakeholders of the organization's portfolio, analyses their expectations, establishes a strategy to manage relationships and proactively works to implement it. Besides, the PMO looks for bench-marking in project management with other organization

Table 4 PMO tactical assessment

No	PMO Tactical Assessment	Levels
1	PMO develop and implement project management methods	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO has developed a basic methodology, but it is not used consistently on all projects.
		Level 2 - The PMO has developed a standard methodology, aligning possible existing methodologies in different areas, and the methodology used in most projects
		Level 3 - The PMO has developed a standard methodology, and it is used by all projects as it is mandatory unless a specific waiver is requested and approved.
		Level 4 - The PMO has developed and improved the standard methodology, focusing on best practices and continuous improvement.
2	PMO develop project management practice	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO responds reactively to the organization's project management training needs.
		Level 2 - The PMO proposes project management training for the organization
		Level 3 - The PMO establishes a plan for developing skills in project management including training, certification, and graduate courses.
		Level 4 - The PMO establishes a specific career path in project management for the organization, supported by a plan for corporate development of project management knowledge, skills, and competencies, which includes training, certification and graduate courses.
3	PMO implement and manage project management information system	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO provides a project management information system for use, focusing on monitoring and control, which is used by managers of project/programs and stakeholders in most projects/programs of the department, but this system does not use an integrated database.
		Level 2 - The PMO provides a project management information system for use, focusing on monitoring and control, which is used by managers of projects/programs and stakeholders in most projects/programs of the department with an integrated database.
		Level 3 - The PMO provides a project management information system for use, focusing on monitoring and control, which is effectively used by managers of projects/programs and stakeholders in all projects/programs of the department with an integrated database.
4	PMO manage relationship with clients	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO monitors the progress of projects and programs but is not involved with customer relationship management.
		Level 2 - The PMO evaluates customer satisfaction, but does not directly interface with the customers in projects and programs.
		Level 3 - The PMO is responsible for customer relationship management of all projects and programs.
5	PMO provide project management tools	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO provides tools for use but they are not standardized and integrated.
		Level 2 - The PMO provides tools that are standardized and integrated to existing processes and methodologies, but the tools are not used in most cases to their fullest extent.

No	PMO Tactical Assessment	Levels
		Level 3 - The PMO provides tools that are standardized and integrated to existing processes and methodologies, and the tools are fully used on most projects and programs.
6	PMO manage resources management between projects	Level 0 - The PMO does not perform this function.
		Level 1 - PMO operates in a reactive form in allocating and sharing resources between projects
		Level 2 - The PMO recognizes the importance of a resource pool, but lacks authority to allocate or share resources between projects
		Level 3 - The PMO has established a resource pool and has the authority to allocate and share resources between projects
7	PMO implement and manage evaluation data	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO stores the lessons learned from projects but does so in an unstructured way.
		Level 2 - The PMO consolidates the lessons learned from projects and has set up a database for them.
		Level 3 - In addition, the PMO implements and disseminates a system with a single point of entry to retrieve lessons learned from projects
8	PMO implement and manage risk	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO has set up a risk database.
		Level 2 - The PMO uses a risk breakdown structure and consolidates the risks managed in each project using a risk database.
		Level 3 - In addition, the PMO is able to use the lessons learned database to access risks from other projects
9	PMO select, manage and evaluate project managers.	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO recruits, selects, evaluates, and determines salaries of project managers as requested.
		Level 2 - The PMO establishes criteria for use in the department for recruiting, selecting, and evaluating project managers.
		Level 3 - In addition, the PMO establishes a career path for project managers and determines the salary structure at each level.

Table 5 PMO operational assessment

No	PMO Tactical Assessment	Levels
1	PMO provide specialized service to project managers	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO provides the project managers with basic project management support such as: preparing documentation, preparing of schedules, and facilitating meetings.
		Level 2 - The PMO provides project managers advanced services and support such as: risk analysis, development and management of contracts, and project recovery.
2	PMO provide information about active projects to management	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO collects status information, prepares reports and distributes them to senior management / sponsors but is not responsible for analysis nor does it take corrective action based on data in the reports.
		Level 2 - The PMO receives status information, analyzes it and provides reports to senior management / sponsors and informs them if there are specific problems in which their assistance is needed.
		Level 3 - The PMO receives status information, analyzes it, and provides reports to senior management / sponsors and informs them if there are problems and assists them in resolving problems as requested.

No	PMO Tactical Assessment	Levels
3	PMO monitor and control project performance	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO monitors and controls the project/program performance considering time, cost, quality and customer satisfaction, and provides follow-up reports without analysis upon request.
		Level 2 - The PMO monitors and controls the performance of projects/programs considering time, cost, quality, and customer satisfaction and analyzes the available data.
		Level 3 - The PMO monitors and controls the performance of projects/programs considering time, cost, quality and customer satisfaction, analyzes data, and takes preventive and corrective actions working proactively with project/program managers and senior management.
4	PMO provide trainings to project members	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO provides mentoring when requested. The mentoring involves supporting project planning and control and transferring technical knowledge to the project manager or to his or her team.
		Level 2 - The PMO identifies needs and proactively provides mentoring. The mentoring involves supporting project planning and control, to transfer technical knowledge to the project manager or to his or her team.
		Level 3 - The PMO identifies needs and proactively provides mentoring. The mentoring involves supporting project planning and control, transferring technical knowledge to the project manager or his or her team, and assisting them with the development or enhancement of interpersonal skills.
5	PMO manage and collect data and project documents	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO captures and stores documents for projects, without specific analysis and information retrieval; few people use available data.
		Level 2 - The PMO captures and stores documents for projects, without specific analysis and information retrieval but provides guidance to individuals who wish to use these documents.
		Level 3 - The PMO has a structured process with the goal of capturing and storing documents for projects, analyzing the quality of documentation and providing mechanisms for users to locate needed information.
6	PMO manage one or more project	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO assists managers on occasion but does not have a methodology in place or tools to use.
		Level 2 - The PMO provides assistance to project/program managers whenever requested but does not have a methodology in place or tools to use.
		Level 3 - The PMO provides assistance to project/program managers with a standard methodology and tools for their use.
7	PMO conduct project audit	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO performs audits upon request or if there is a major problem identified by senior managers who requests feedback.
		Level 2 - The PMO acts proactively, following established audit procedures for projects. In addition, the audit results are used to provide feedback. The PMO realizes there is significant resistance from PM when an audit is under way.
		Level 3 - The PMO acts proactively, following established audit procedures for projects. In addition, the audit results are used to provide feedback. There is some resistance, but most people recognize the value of the audit work.
8	PMO conduct post-review of project management	Level 0 - The PMO does not perform this function.
		Level 1 - The PMO facilitates the process of capturing lessons learned, as it is directly involved in project meetings and events.
		Level 2 - The PMO facilitates the process, consolidates and submits proposals for continuous improvement on projects.
		Level 3 - In addition, the PMO provides a process to reuse the lessons learned in future projects across the department

PMO Maturity Cube matrix approach will combine the nine quadrants type of PMO that relevant for each organizations in Fig. 1. It describes how a PMO with specifics scope and approach are able to perform its function.

The literature review will determine which PMO models and scope of area that could be applied and relevant to PT ABC. The results of this research will be verified by HR Department and ISO Department whether PT ABC needs a PMO department.

3. Results and Discussion

3.1 PMO Model

According to PMBoK (2013) each organizations have their own approach for proposing a PMO system in their system (Project Management Institution, 2013). In PT ABC issues, project management system and organizations context, this environment lead us to PMO Controlling model. Controlling PMO have degree of control that PMO could propose standards and methods and ensure those standards and methods implemented by project members.

Table 6 Relevancy of PT ABC issues to PMO models

Issue	*Support*	*Controlling*	*Directive*
Project Management System		√	
Supports	√	√	√
Organizations Structure	√	√	√
Continuous Improvement		√	√

Initial proposed standards by PMO department in PT ABC will be standardize activity logs by project member. Activity logs by project member will help PMO department to manage project portfolio for each project, which will be a fundamentals for PMO department to arrange projects priority. Thus, executives will have a whole data and analyze which solution and business decision to applied. Those activity log standards will be Daily Log, Weekly Report and Monthly Report in S-Curve.

3.2 PMO Maturity

Collected from internal stakeholders, there are various variables that identified by interview session that divided to strategy, tactic and operation. Stakeholders have concerns on how PT ABC needs an improvement on their project management system especially on how their cross department integration needs to rearrange (mentioned 17 times), methods and standards improvement plan (mentioned 14 times) and portfolio management (mentioned 8 times) as seen as in Table 7.

Table 7 Interview results

	Variables	Total
Strategy	Portfolio Management	8
	Project Priorities	5
	Understanding of Projects Objectives and its Impact	3
	Cross-department involvement in project planning's	3
Tactic	Method and Standard improvement	14
	Vendor Management	2
Operational	Bottleneck	2
	Cross-department Integration	17
	Project Status Report	6
	Lack of Leadership	2
	Communication Management	3

Based on interview results, researchers and PT ABC stakeholders are proposing realistic PMO maturity level for first and second year to ensure PMO department deliver their systems to PT ABC. Within the first year, strategic level will be 14 out of 31 points, tactic level will be 11 out of 28 points, operation level will be 13 out of 23 points to the second year of implementations, strategic level will be 23 out of 31 points (Table 8), tactic will be 18 out of 28 points (Table 9), and operation level will be 19 out of 23 points (Table 10).

Table 8 Proposed strategic role maturity

No	Functions	Maturity Level Y-1	Maturity Level Y-2	Scale
1	PMO provide advice to management	2	3	3
2	PMO coordinate and integrate entire organization portfolio	2	3	3
3	PMO develop and maintain a strategic framework of project	1	2	3
4	PMO promote project management awareness	1	2	3
5	PMO monitors their own performance	2	3	4
6	PMO participates in strategic planning	1	1	3
7	PMO manage one or more project portfolio	2	4	4
8	PMO identify, select and prioritize new projects	1	2	3
9	PMO manage projects profit	1	2	2
10	PMO analyze the relationship and environment of project in and out of the organization	1	1	2

In strategic role, PMO department will introduce portfolio management to PT ABC. PMO department will promote project member awareness on how their daily operation report could help top management to arrange and prioritize ongoing projects to anticipate a missed business decisions. PMO also will integrate whole department that involved in project management so there will be a lean communication line – any inquiries from project members to management will take a short time to procure.

Method and standard improvement are the essence of continuous improvement. PMO department will ensure there will be periodic audits to identify what issues and its solution for each projects to help continuous improvement performance inside organization. Beside audits and evaluation initiative, PMO department also will propose and conduct regular training for project members to improve their project management skills. PMO department are expected to improve project management method and standards inside PT ABC with promoting various project management tools literacies.

Operation role are one of main concerns in proposed PMO department. PMO will ensure every project member trained and aware on how their operation, especially in project reports could help PMO department to arrange organization project portfolios.

Table 9 Proposed tactic role maturity

No	Functions	Maturity Level Y-1	Maturity Level Y-2	Scale
1	PMO develop and implement project management methods	2	4	4
2	PMO develop project management practice	2	3	4
3	PMO implement and manage project management information system	1	2	3
4	PMO manage relationship with clients	0	1	3
5	PMO provide project management tools	1	3	3
6	PMO manage resources management between projects	1	1	3
7	PMO implement and manage evaluation data	2	2	3
8	PMO implement and manage risk	0	0	3
9	PMO select, manage and evaluate project managers.	2	2	3

Table 10 Proposed operation role maturity

No	Functions	Maturity Level Y-1	Maturity Level Y-2	Scale
1	PMO provide specialized service to project managers	1	2	3
2	PMO provide information about active projects to management	2	3	3
3	PMO monitor and control project performance	2	3	3
4	PMO provide trainings to project members	2	2	3
5	PMO manage and collect data and project documents	2	3	3
6	PMO manage one or more project	1	1	3
7	PMO conduct project audit	2	3	3
8	PMO conduct post-review of project management	1	2	3

3.3 Proposed Project Management Map & Organization Structure

Existing PT ABC project management map needs improvement on how every stakeholders in project management environment have to be more involved on project execution. Currently, every phase from initiation to closing are conducted by Boiler department manager, thus could bring project management system have a bottlenecks on it practice - they were involved from initiation phase to closing phase. This condition brings boiler department in overtask condition that could take management some times to analyze project prioritization. Cross-department integration also in our concern as Finance and SCO Department are not involved in project system, project management systems takes a lot of time and authorization from several stakeholders to procure any inquiries from project member with such conditions.

With proposed PMO department (see Fig. 3), PMO will take role in project planning and control – PMO will gather information from each project managers on their project performance to arrange organizations project portfolios. PMO also will plan any continuous improvement from each closed project for lesson learned and this session will be formally recorded and documented for future training and evaluation. Boiler department tasks will be reduced to proposing project budget and scope, maintaining resource and appoint project member for each project.
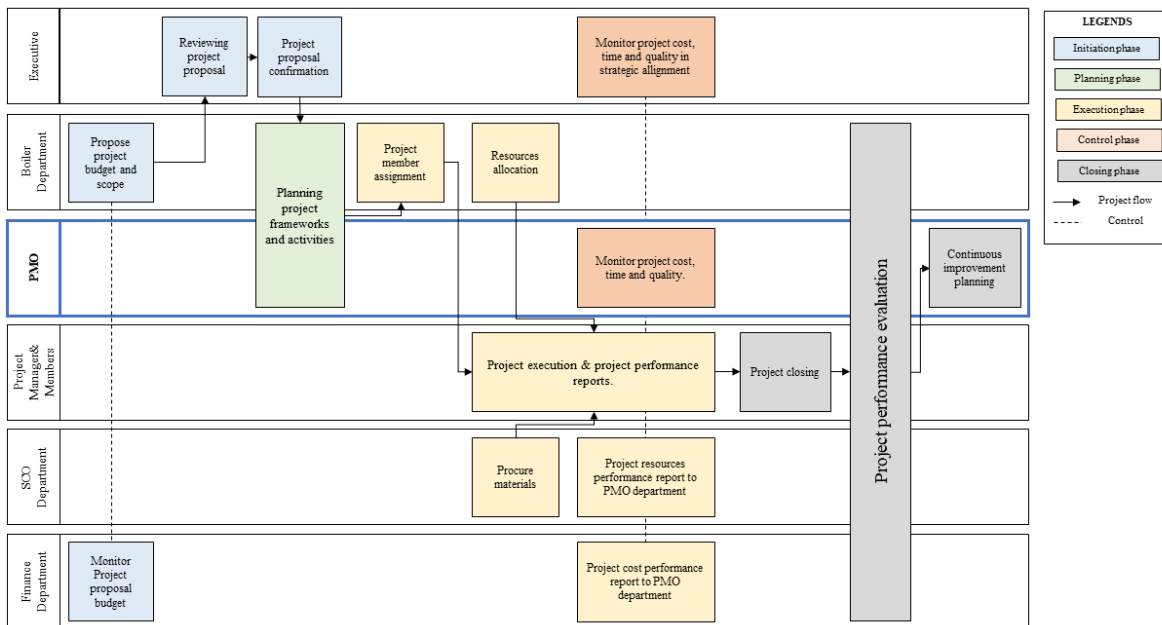

Fig. 3 Proposed project management map with PMO Department.

Proposed project management map from PMO department now will involve Sales & Center Operation (Procurement) department and Finance department to monitor and report project performance in execution by resources and budget as seen as Fig. 4. Finance and procurement involvement is one of important aspect in project systems as the system doesn't take a long time to conduct a procurement as finance and procurement department are also involved inside the project environment.
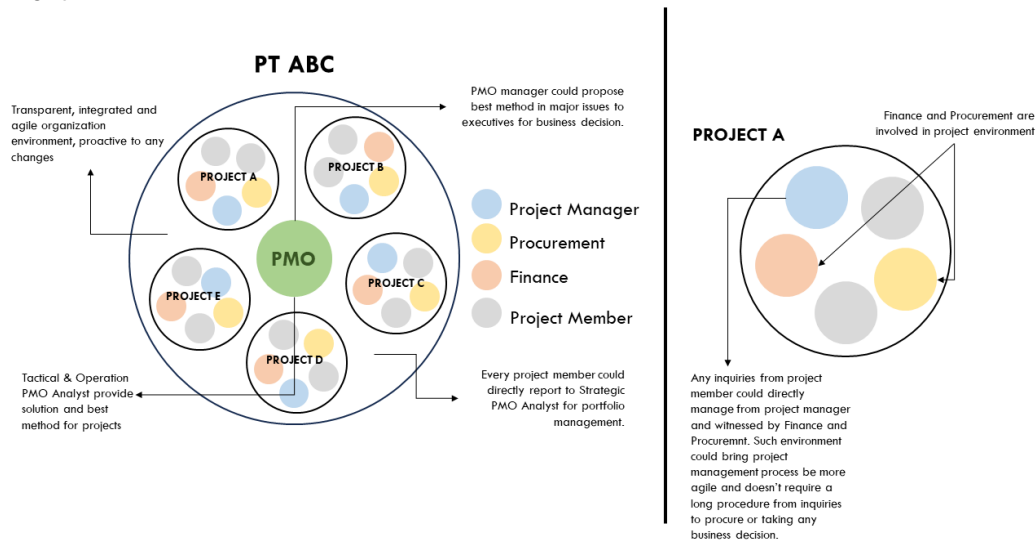

Fig. 4 Proposed project organization structure with PMO Department.

Tactical & Operation PMO Analyst will propose implementation of agile organization project structure. Adopting from McKinsey (2018), proposed project organization structure will directly involve Procurement and Finance department inside project organization (De Smet, 2018). This environment led any request for procurement or decision making takes a short time to execute. Proposed organization structure are expected could overcome communication and information flow inside project.

4. Conclusion

Based on the research conducted, the proposed PMO departmental system in the organization needs to adopt a controlling model, and needs to have a level of control so that the PMO can propose standards and methods and ensure those standards and methods are implemented by project members. The PMO needs to place greater emphasis on its role strategically, tactically and operationally, which means the PMO needs to assess PT ABC's project management practices, defining any issues such as bottlenecks, communication lines, document control, and improvement planning. The implementation of PMO is projected to help PT ABC's project management practices become more effective, lean, and always improving. For this reason, PMO department are planned to implemented for PT ABC in order to able to perform multi-project practice, fulfilling client needs. The result of this research can be used as future reference to evaluate PMO implementation impact on PT ABC project management performance.

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