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Validating Scope Design in Project STTF Case Study PT.XYZ

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ABSTRACT

PT.XYZ is a company in the Telecommunication Industry. Due to increase the product sales, PT.XYZ performed an annual project to build network infrastructure to the uncovered network areas, called the STTF project. As a project owner, conducting a high performance of scope validation is very crucial to make sure the quality of the result meets requirements. However, the previous project result has shown to the unsatisfactory result, i.e. titled pole resulting in high cable attenuation and over budget. To see the extent of the performance and effectiveness of the validation process, an evaluation of the current validate scope process is necessary. One of the methods is by comparing the operational implementation in the current STTF project against the project management standard to ensure the process performed effectively. Data collected using a questionnaire based on PMBOK 6th ed. standard processes using a self-assessment survey, and two project locations are chosen as a comparative sample. The verified questionnaires then distributed purposively to validate the scope team. In the end, the result of the research shows the implementation of validate scope activity is not comply with the standard process in PT.XYZ and there are gaps against standard practices in PMBOK.

1. Introduction

The scope management is a critical function in project management process hence, scope constrained in projects are bounded by the performance criteria of the deliverables. So, any changes in scope shall directly reflects change in cost, time and quality of project[1]. The change in cost, time, scope, and quality is called triple constraint[2]. Many projects start with terrific ideas, large investments and strong efforts, however most of them do not reach much success. A common contribution to unsuccessful projects is the lack of understanding in defining project and product scope at the start of the project [3]. According to Pulse of Profession Global Survey [4] there are 12 major problems in the project and the three main factors caused the project failure closely related to the scope of project, especially inaccurate requirements gathering. Requirement is critical to the project success since missed requirement could mean significant changes and conflict throughout the reminder of a project and even project failure [5].

The lack of managing scope management contributes to increase probability of constraints in project, further investigation shows 49% projects all over the world experienced in scope creep or uncontrolled changes to the project scope when it is completed [4]. In order to put back the projects onto the track and to overcome the project failure scope management must have considered to get attention[1]. The ultimate phase of implementing scope management is to get formal acceptance of deliverables based on required requirement through validate scope process. Validate scope process help to manage only work required is completed align with it is objective and rise the change of final product, services or result [6]. On the other words, validate scope process determine whether development of product meet requirement of a given activity and whether the product satisfied user needs [7]. Furthermore, validate scope is critical, since it ensure the project team delivers exactly what the customer requested and minimize scope changes[8].

Infrastructure is one of the most important project in Indonesia since it is development has contribution to the economic growth [9]. One of the infrastructures, that support the economic growth is telecommunication infrastructure, and of the company major field in telecommunication service provider is PT.XYZ. One of the biggest infrastructure projects performed in PT.XYZ is project Shift to The Front (STTF). Project STTF is an annually project perform to build network infrastructure to the uncovered network area to increase sales revenue. However, the previous project result has showed to the unsatisfactory result. From 30 project locations, 43% experienced in over budget and 7% project has been dropped because experience in scope creep due to lack of planning preparation and out of budget.

STATUS OF PREVIOUS PROJECT STTF
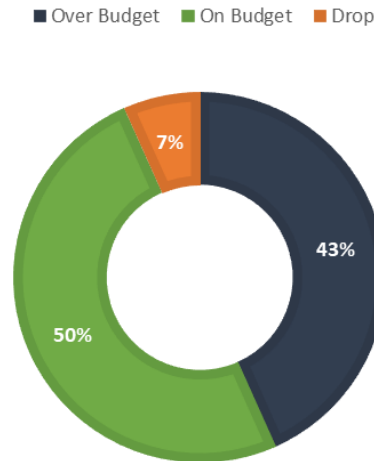
■ Over Budget ■ On Budget ■ Drop

Figure 1 - Project STTF-4th 2019 Status

In addition, the level of product occupancy within this project only 34% out of 40% as target determined by the sales management due to product quality issue, i.e. titled pole resulting in high of cable attenuation. In respond to the issue, the project performance and result are not in accordance with the expectations of the management in PT. PXYZ. This is detrimental to the company, because the results in not achieving the expected profit targets in each project. Management hopes that the next projects that are carried out able to be completed suit to the standard requirement and in accordance with the planned budget. Based on these conditions it is concluded that there is a gap between management's expectations and the actual circumstances.

The root of the problem which being the basis of this research is PT. XYZ has not implemented comprehensive project management best-practices. Because PT.XYZ has not perform an evaluation focuses on scope validation yet. Scope validation has strong correlation with the scope, requirements, and performance established to assuring the quality standard of final product (Aleem et al., 2003). In Opposite, lack of performing scope validation increase the non-conformity of final product because the standardization is directly reflect against the result of the project which able to increase public confidence as well as market opportunities (Gawlik et al., 2007). The issue from previous project indicated validate scope is crucial activity for PT.XYZ.

In respond to the issue, the study aimed to evaluate the operational implementation of project STTF-1st 2020 to see how effective the existing process standard being implemented in this project in order to ensure the process is qualify to the standard in project management practice. To achieve the objective, this research evaluates the process using comparative analysis using qualitative approach. As for, Project Management Body of Knowledge 6th Editions is set to be a parameter to be compared with existing validation standard process in STTF project. Since PMBOK is the most applicable guideline in all types of organizations [12] and the most detailed project management guide with the suggestion of project management tools and techniques [13]. On the other hand, two project locations are chosen as the sample for the comparison to find out whether the operational activity comply to the standard in PT.XYZ or not. Hopefully, this research able to identify the gaps and the findings shall proposed as recommendation for improvement in future similar project.

The remainder of this paper is organized as follows. Section 2 reviews the theoretical framework. Section 3 described the proposed methodology. Section 4 discuss regarding the results and discussion and the last is section 5 concludes with a discussion of further research direction.

2. Theoretical Framework

The project management body of knowledge is the knowledge reference for project management profession. PMBOK is published and enlarged by Project Management Institute (PMI). As for, the scope of detail subject discusses in this book divided into two major cross-linked tiers as project management framework and project management knowledge areas. Furthermore, recent work [14] after comparing most famous PM-guide conclude the content of PMBOK consist of traditional and innovative practice that are widely applied that is why the knowledge and practices are applicable to most management activities. Furthermore, PMBOK Guide is process based because it traces work to complete by process and it describes the process in terms of input, tools and technique, and output [12]. Next [1] summarized project scope management process viewed from different methods perspective like PMBOK, PRINCE2, IPMA, ICB, P2M, and SCRUM methodology and the result shows scope management is one of the most important aspect in project management and PMBOK fully described the project scope management in detail.

According to Mulchy [5], scope management is the process of explaining work required and ensuring only work required is completed means scope addresses the requirements and work of the project. The PMBOK 6th editions confirmed there are six main steps in scope management process namely; plan the scope, collect the requirements, define the scope, create work breakdown structure (WBS), validate scope and control the scope. Each step within this knowledge area is integrated to support the other knowledge area throughout project lifecycles. In PMBOK, validate scope falls under the knowledge areas of project scope management in monitor and control process which specifically described the standard process of how scope is being validated.

Validated scope is the process of checked and tested the required project output based on defined and planed requirement [6]. This process focusses on customer acceptance and confirmed through formal acceptance of all project deliverables. Validate scope process in PMBOK consist of inputs, tools and technique, and outputs and it is fall onto monitor and control project phase. There are previous papers that were discussed about validate scope, Aleem et al. [10] develop validation process to increase product quality attributes. Furthermore Misra et al.[15] evaluate and develop validate scope framework and do comparative study to identify gaps of existing framework with proposed framework using matrix. In addition, in terms of method, Mahindra et al., [16] do comparative analysis using qualitative approach to obtain best project management practices from available frameworks, assess their applicability to enrich existing framework in the organization.

This study set out to critically examine the ways in developing and comparing validate scope process with standard practice in PMBOK 6th Editions. The significant finding from previous researches is developing and comparing scope validation with another standard framework mostly just an overview and literature review. Therefore, this research develops validate scope standard by evaluating existing standard process in project STTF as case study. This study has objective to identify gaps of implementation to propose an improvement recommendation for future similar project.

3. Methodology

This section discusses the steps on taking the research in a systematical and organized way to figure out the solution towards the issue that followed regarding to validate scope process. Develop research model is the initial phase in designing the self-assessment survey whereby the questionnaire is using checklist method. The questionnaire form used contains a list of statements about what procedures must be carried out and what data should be documented during validate scope process. As for the basic standard question use in designing the questionnaire is based on standard process in PMBOK 6th Editions. Next to increase research credibility, the questionnaire being checked using expert judgement technique by Project Management Institute Indonesia Branch (PMIIC) representative as the organization who publish PMBOK. Next, the verified questionnaire then filled by respondents in PT.XYZ using self-assessment survey [17] produce information which represent the actual standard process of validation. Furthermore, data processing is done through checking evidence by comparing the answer with the availability of data evidence in order to identify gaps of implementation. In order to increase the credibility of data, the questionnaire distributed using purposive sampling to the qualified respondents with more than 5 years experiences in dealing with project [18].

4. Result and Discussion

PT. XYZ is an Indonesian multinational telecommunication conglomerate which engaged in information and communication technology (ICT) services and telecommunications networks in Indonesia. PT.XYZ established in 6 July 1965 with it is commitment to provide good quality of internet network connectivity to all Indonesian areas in order to increase the human resource quality to be compete in world level. In the area of project, PT.XYZ has organization structure consist of Project owner, OSM planning, Board of managers, Site Coordination, and Field Supervisor. The identification against the project roles perform using expert judgment technique by interviewing the manager in PT.XYZ. After identifying the stakeholders, it able to be seen the number of stakeholders who play an important role in the project STTF during validate scope process. Job description of each position is listed as follows:

Table 1 – Stakeholders description and Classification

Position	Roles and Responsibility	Classification
Project Owner	Perform high level of decision making and has fully responsibility	Internal
OSM Planning	Supervised the project activity, the role of OSM is as decision maker under the project owner	Internal
Project Manager	Supervised the project with it is responsibility as decision maker against project requirements approval	Internal
Site Manager	Supervise the project with it is responsible to get project report from vendor and site manager, perform to make technical decision and supervised directly in the field of project if necessary.	Internal
Coordinator Site/ Field Supervisor	Supervise the project work directly in the project location, report the project progress to site manager, perform commissioning test, and scope validation and report any issue, or project constraints	Internal

4.1 Self-Assessment Survey

The questionnaire form is purposive sampling because the use of this questionnaire form only able to be filled by people who really understand about project management especially validate scope process. The experts who fill out the form divided into external and internal parties. External party is PMIIC representative and the internal parties are site managers appointed as validate scope team from different project locations located in Kampung Logi and Babakan sari who responsible to control and monitor the inspection test. The profiles of the three experts are listed as follows:

Table 2 - Respondent Profile

Respondents Profile	Respondent -PMI Member	Respondent B	Respondent C
Position	Vice president PMIIC Branch	Site Manager	Site Manager
Experience	10 year	26 years	5 years
Project ever done	IT, Construction project	Telecommunication project	Telecommunication project

4.2 Gap Analysis of Data and Information Throughout Validate Scope Process

Figure 2 shows the result of self-assessment survey. In the input data or information, gap is found in Requirement Trace Ability Matrix (RTM). Since both project locations do not used RTM. Even though, RTM is powerful tools because it greatly helps in improving the project quality and reliability of final product, minimizing costs and rework [6] since the matrix help to track all requirements whether they are being met by the current process and design or not and also manage change against project or product scope. RTM is a document that links requirement throughout the validation process, the purpose is to ensure that all requirements defined for the project result are tested in the test protocols. In other word, the existence of RTM helps the validation team to increase the inspection performance since it ensures that requirements are not lost during the project validation.
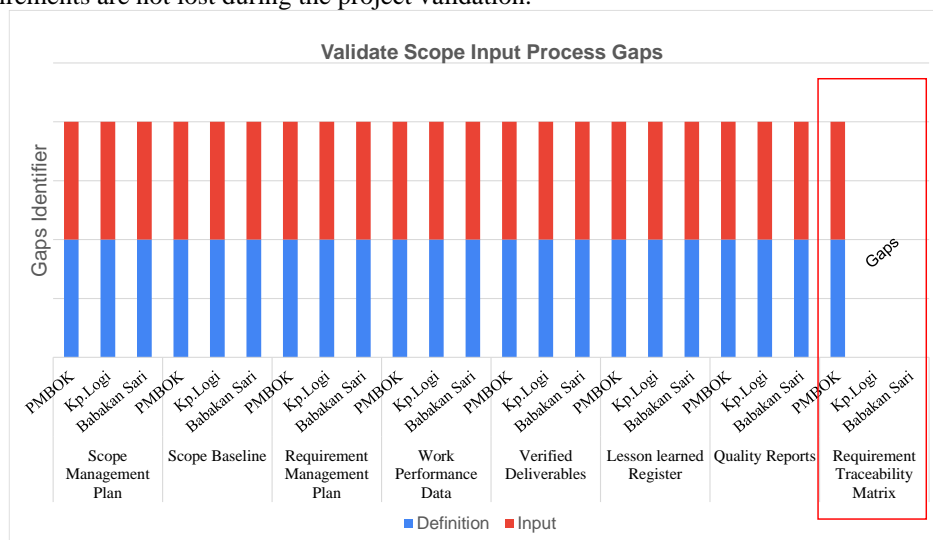

Figure 2- Input Validate Scope Data Recapitulation

Figure 3 shows the result of self-assessment, according to the result there is no gap identified for tools and technique against PMBOK because the project STTF has performed inspection which divided into two activity which is field inspection and document check both process represent the activity to check, physic material, Performance of installation, and functional test using Optical Power Meter (OPM). Furthermore, the next process is deciding whether the product accepted or not by the Unit of OSM Planning.
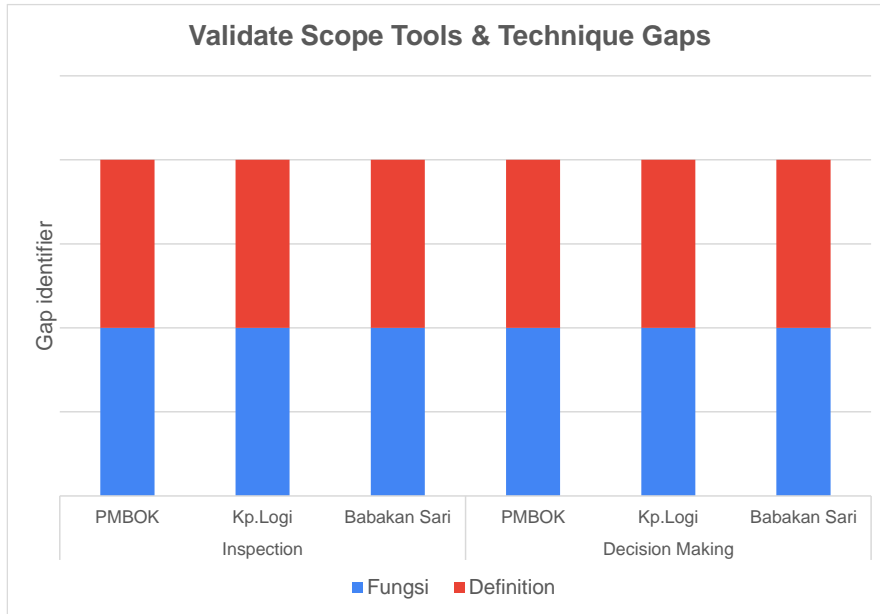

Figure 3 - Tools and Technique Validate Scope Data Recapitulation

Figure 4 shows the output data or information represent the result of validate scope process. From the result of self-assessment there are gaps found in Lessons learned Register (LLR) and Requirement Trace Ability Matrix (RTM). So, in existing process in project STTF the result from validate scope process is not update in RTM. Even though, the existence of RTM helps to track information regarding the result of scope validations along with techniques used to support the process [6]. In this case, since project STTF 1st is annually projects performed 4 times a year, implement Lessons Learned Register (LLR) is important. Because LLR help to increase validate scope performance for future project STTF since challenges, problems, realized risks, opportunities, and other findings are recorded in lessons learned repository. So, in this case similar problems, challenges, and constraints able to be avoided and new knowledge able to be gained by the project stakeholders for Project STTF in PT.XYZ.
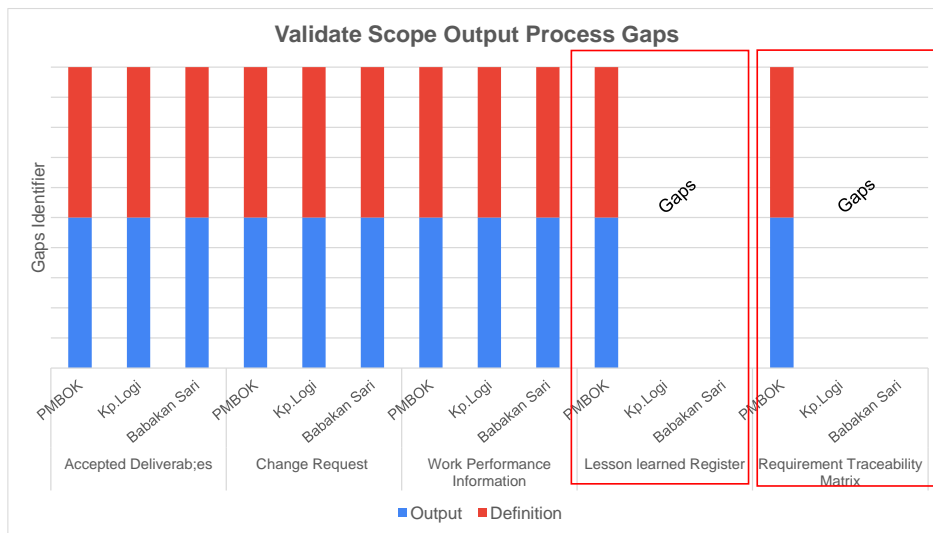

Figure 4 - Output Validate Scope Data Recapitulation

4.2 Validate Scope Business Process Gap Analysis

PMBOK explain validate scope process perform during monitor and control process, so this process has interrelationship to the other process correspond to the flow of data and information. The result from self-assessment survey depicted the scope validation business process as follows:
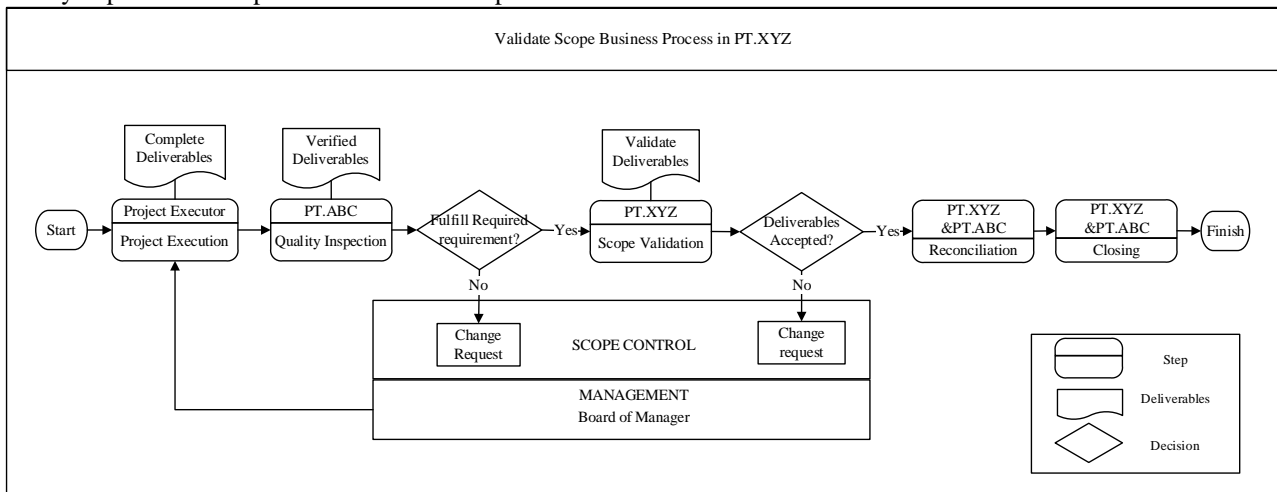

Figure 5 - Existing Validate Scope Business Process

The existing standard process for project STTF in PT.XYZ has no gaps compared to the standard process in PMBOK. The scope validation has interrelationship to the other process of project execution, quality control, and change control. After the deliverables 100% finished, the deliverables move to quality inspection done by Field supervisor. This process requires the quality reports, and evidence including verified deliverables to be checked. Quality inspection is mandatory activity before deliverables is being checked in scope validation. In STTF project the standard protocols of validate scope has been determined in the planning process through meeting attended by both PT.XYZ and PT.ABC. As for, the acceptance test consists of inspection document, physic of material, Performance of installation, and functional test using Optical Power Meter (OPM). In this case, the inspection divided into two activity which is field inspection and document check. In the early step, PT.ABC give the commissioning test documents to PT.XYZ to be reviewed followed by field inspection to check the material, installation performance and quality of cable attenuation in transferring the network signal. The output of this process is either accept deliverables or make change requests to repair the defect, or adding scope. The Accepted deliverables shall move to the reconciliation phase while the un-accepted deliverables shall inform to the Manager Access New FTTH and Modernization to be decided either need to be updated, corrected, or repaired. If a change does not affect the project management plan, baseline, procedures, contracts, and statement of work, project manager may allow to approved the change. However, if a change impact those key elements then it is need to get customer approval [5] in this case to get approval from unit of OSM planning.

Nonetheless, during the implementation the approved change request is not accompanied with creating new contract of addendum and this procedure disobey the government rules in UU no. 54 year2010, clausal 87, verse 1 about contract implementation and changes. This procedure is not appropriate since change certainly must be addressed technically and administratively because without a complete document these changes would certainly not be valid. The contract addendum is one of the legal proofs of a change, because the addendum is physically separated from the main agreement but legally the addendum remains attached to the main agreement itself [19]. This condition is risk to the project in terms of law and contract because it increase probability of conflict during the reconciliation or payment process between PT.XYZ with vendors.

4.2 Scope Validation Roles and Responsibility Gap Analysis

Table 1 shows the roles and responsibility within project organization structure. In accordance to the standard roles and responsibility, the one who responsible to perform scope validation is project supervisor. However, during the practice there are gaps that cause field obstacles. After conducting further interviews with the assistant manager of unit construction, the major obstacles during the acceptance test process is the lack of human resource to perform the inspection. PT.XYZ does not have field supervisor. Whereas the STTF project is a large project spread across 30 different locations throughout the Sukabumi area which has an area of 4,162 km^2. This problem leads the manager to use other resources mostly from site manager consist of three people under unit access optima to perform the scope validation. Due to lack of personnel team, the inspection only reaches 10% of acceptance test sample of total project locations. On the other hand, the *nota dinas* that was given as an assignment letter by the unit of OSM Planning to perform scope validation is not specifically explain the roles and responsibility of each personnel to assign the task.

This situation causes both technical and non-technical obstacles that hampered the inspection process i.e. forget to retrieve the ODP key stored in the STO and delays in the inspection process due to other work assessment. In this case, the lack of technical preparation causes the consumption of time for the acceptance test process which make project delay for all locations up to one week. In contrast, the completion of the STTF-1st project is demanded to be finished faster so that the product able to go live quickly to accelerate sales.

4.3 Recommendation

There are three findings that becomes gap between PMBOK 6th Editions and implementation. First gaps located in flow of data information throughout validate scope process. Second is Change management and the third is Resource Availability. In order to increase the performance of validate scope process, improvement recommendation is required. In this paper, the recommendation is to be put into similar future projects. Below is the list of recommendation for future project STTF:

A. First recommendation is to use Requirement Traceability Matrix (RTM) and Lessons Learned Register (LLR) as a tool in project STFF. RTM is powerful tools because it helps develop the project quality and reliability of final product, minimizing costs and rework since the matrix help to track all requirements whether they are being met by the current process and design or not, and also manage change against project or product scope [6].The RTM for project STTF able to be developed in the planning process concurrence with initial list of requirements, the ideal RTM traced to the specific test step in the validate scope protocols in which they are tested. The existence of RTM helps the validation team to increase the inspection performance since it ensures that requirements are not lost during the project validation increase the quality of product to increase public confidence and market opportunities. Other Recommendations is to use LLR throughout validate scope process and registered periodically suit to the situation. In this case, since project STTF is annually projects, performed 4 times a year so LLR is important to be implement throughout validate scope process, because LLR help to increase validate scope performance for future project STTF since challenges, problems, realized risks, opportunities, and other findings recorded in lessons learned repository [6]. So, in this case similar problems, challenges, and constraints able to be avoided and new knowledge able to be obtained by the project stakeholders. To obtain optimum result, the lessons learned should covers three questions include: what went right, what went wrong, and what needs to be improved. The LLR able to be created and maintained in an automated tool like application, spreadsheet, and other relevant sources [20].

B. According to [6] there are some source of risk related law and contract including Unclear, uncompleted and different interpretation of clausal, change order management, claim, and payment method, issue of warranty and guaranty assurance, license and patent, and force majeure. To minimize the risk, it is necessary to implement an addendum for scope change during project execution.

C. Stakeholder as a group within organization which give impact or impacted by the decision of certain activity or project [6]. So, the organization or project owner should increase the quality of the inspection and reduce a delay of inspection duration by it is resource available. One of the tools helps to manage the stakeholder in accordance to roles and responsibility to develop the validation process effectivity is RACI Matrix. RAM consist of four elements such as Responsibility, Assignment, Consult, and Informed. This chart able to give highly impact for the project team suit to organization context. For example if the work environment easily to change and stakeholders engage in the project is moving in and out, RACI is good for assessment. On the other hand, if the stakeholders engage in the project is stable, RACI is suitable to be used [21].

5.   Conclusion

This study evaluates the validate scope process in PT.XYZ using project management standard practice in PMBOK 6th Editions. The objective is to identify the gaps of implementation that hampered the performance of scope validation. This method incorporates best practice, expert judgement, and self-assessment survey. Firstly, best practice is performed to develop understanding for both theoretical and practical topic to construct the questionnaire. Then, expert judgement is performed to verify the questionnaire before it distributed to respondents in PT.XYZ. At the end, self-assessment survey is performed by interviewing respondents to identify the gaps of implementation.

The result shows there are three findings that becomes gap between PMBOK and implementation. First these projects did not use requirement traceability matrix as a tool to help the project team track all required requirement to maintain project and product quality. These project also did not use lessons learned register to share knowledge experience like identified problems, risk, issue, even opportunity. Furthermore, PT.XYZ has lack of resource availability and the responsibility of validation team is not clear and not well defined. On the other hand, the change control is not managed well since the approval of change is not accompanied with the creating of new addendum contarct.

In general, the findings have advantages to evaluate scope validation. Hereinafter, the proposed improvement helps to increase the validate scope performance for future similar project for PT.XYZ. This research has opportunity to be developed by considering design of validate scope application to give more comprehensive result.

Appendix A: A Questionnaire items

Table 3 - Questionnaire Design of Validate Scope Input

Variable	Dimension	Code	Questionnaire Statement	Source
Scope Management Plan	Definition	SMP1	Scope Management Plan explain about how scope is defined, develop, monitor and control to be validated later on	Adopted [6]
	Input	SMP2	Scope management Plan has function to determine how completed project deliverables shall be formally accept based on required requirement from customer in validate scope	Adopted [6]
Scope Baseline	Definition	SB1	Scope baseline is an approved version of project plan consist of Work Breakdown Structure (WBS), WBS Dictionary, and Project scope statement.	Adopted [6]
	Input	SB2	Scope baseline has function to compare planned deliverables with actual to determine whether change, and reparation need to be performed	Adopted [6]
Project Scope Statement	Definition	PSS1	Project scope statement is part of scope baseline which described project scope, major deliverables, assumption, and constraints	Adopted [6]
	Input	PSS2	Project scope statement as scope validation input functioned to evaluate against scope change, deliverables, and ensures acceptance criteria is fulfilled	Adopted [6]
Work Breakdown Structure	Definition	WBS1	Work Breakdown Structure (WBS) described overall project scope perform by project in the form of hierarchical decomposition	Adopted [6]
	Input	WBS2	WBS for scope validation aim to compare actual result against project plan to determine either preventive, corrective, and change is necessary to be performed	Adopted [6]
WBS Dictionary	Definition	WBSD1	WBS Dictionary described project activity, deliverables as well as each definition, and time for every component in WBS in detail	Adopted [6]
	Input	WBSD2	WBS for scope validation aim to compare actual result against project plan to determine either preventive, corrective, and change is necessary to be performed	Adopted [6]
Requirement Management Plan	Definition	RMP1	Requirement Management Plan described how project and product requirement shall be managed, analyzed, and documented	Adopted [6]
	Input	RMP2	Requirement Management Plan as input for validate scope functioned to describe how project and product deliverables shall be validated	Adopted [6]
Verified Deliverables	Definition	VD1	Verified Deliverables is output from quality inspection after the deliverables is being checked, and confirmed suit to the required requirement	Adopted [6]
	Input	VD2	Verified Deliverables as input for validate scope functioned to ensure deliverables is completed and suit to the required requirement determined by the customer	Adopted [6]

Table 4 - Validate Scope Input questionnaire (Continued)

Variable	Dimension	Code	Questionnaire Statement	Source
Work Performance Data	Definition	WPD1	Work performance data is part of measurement, and observation identified during execution process as the input data to be manage during monitor and control process in the form of information i.e. Schedule, progress status, KPI, Performance measurement, Number of defect & change request	Adopted [6]
	Input	WPD2	Work performance data for validate scope functioned to give data from execution process regarding number of defect both project and product (scope, quality, time), and number of validations in period of time	Adopted [6]
Lesson Learned Register	Definition	LLR1	Lessons learned register is template or instrument to record problems, challenges, risks, opportunity and other correspond information	Adopted [6]
	Input	LLR2	Lessons learned register as input for validate scope performed before doing the validate scope and functioned to give lessons and improvement to perform scope validation	Adopted [6]
Requirement Documentation	Definition	RD1	Requirement documentation functioned to documenting collected and final requirements including the acceptance criteria. As for the requirement should be able to be measured, testable, tracked, finished, consistent, and accepted by the key stakeholders	Adopted [6]
	Input	RD2	Requirement documentation as input for validate scope functioned to compare the approved requirement with the actual result in order to manage defect, and to prepare for the corrective action	Adopted [6]
Requirement Traceability Matrix	Definition	RTM1	Requirement Traceability Matrix (RTM) is part of project document. RTM is a matrix in the form of table that links requirements against deliverables. RTM functioned as instrument to ensure requirements, scope, deliverables meet customer expectation suit to project goals.	Adopted [6]
	Input	RTM2	RTM as input for validate scope functioned to describe how requirement of project and product shall be validated	Adopted [6]

Table 5 - Validate Scope Tools & Technique questionnaire

Variable	Dimension	Code	Questionnaire Statement	Source
Decision Making	Definition	DMI	Decision making is technique to determine result of expected process, and procedure which shall be impact in the future.	Adopted [6]
	Function	DM2	In scope validation, decision making is performed against inspected items whether it is accepted or not.	Adopted [6]
Inspection	Definition	INS1	Inspection is an activity to measure, check, and validate in order to decide whether the result is accepted or not	Adopted [6]
	Function	INS2	In scope validation, inspection is performed to check both project and product scope, requirements, product quality by comparing project plan with actual result	Adopted [6]

Table 6 - Validate Scope output questionnaire

Variable	Dimension	Code	Questionnaire Statement	Source
Accepted Deliverables	Definition	AD1	Accepted deliverable is an output from validate scope process whereby the inspected deliverables are formally accepted suit to the requirements determined by the customer	Adopted [6]
	Output	AD3	Accepted deliverables is documented then move to the close project phase	Adopted [6]
Change Request	Definition	CR1	Change request functioned to modify document, deliverables, and baseline formally with the objective to avoid future project risk by preventing, correcting, and repairing if defect occur	Adopted [6]
	Output	CR3	Change request as output from validate scope functioned to documenting and reporting un-accepted completed deliverables in formal way along with the reason in order to be repair or change	Adopted [6]
Work Performance Information	Definition	WPI1	Work Performance Information is the result from work performance data whereby the data is managed and provide in the form of information. i.e. deliverables status, change request status, and work to completed forecast	Adopted [6]
	Output	WPI3	Work Performance Information as an output from scope validation functioned to give documented information against accepted and un-accepted deliverables progress along with the reason.	Adopted [6]
Lessons Learned Register	Output	LLR3	Lessons Learned Register as an output from scope validation functioned to update information during validate scope process regarding found and faced of challenge along with the effective and adaptive solution how to deal with it	Adopted [6]
Requirement Documentation	Output		Requirement documentation as an output from scope validation functioned to update information from validate scope process whether the deliverables meet the requirements or not	Adopted [6]
Requirement Traceability Matrix	Output		Requirement traceability matrix as an output from scope validation functioned to give updated information regarding the result from validate scope process including the technique that is used.	Adopted [6]

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