

A Preliminary Survey on Project Management Practice in Higher Learning Institute

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Abstract—Project Management is management processes that cover all the activities within a project. Its effectiveness is known throughout the information technology industry. However, the implementation of project management standards is still rarely seen, especially in higher learning institute. We intend to identify the application of project management standards leads to software project success in the higher learning institute. We conducted a survey questionnaire to collect our data. The respondents are from higher learning institute who involved in information technology field. As a conclusion, although part of the respondents does not use any standards, majority of the respondents agreed that activities within project management contribute to project success.

Index Terms—Higher Learning Institute, PMBOK, Process Groups, Project Management

I. INTRODUCTION

A project is a set of clearly defined activities that aim to create a result with defined starting and ending date [11]. A project is said to be unique, and it concerns about development of something different, while there might be partially similar projects, the end products need to be different [14]. Project management has proved to be a critical element in determining the project success in all sectors. However, there is still lack of focus in higher learning institute although project management seems to be prevalent in many other sectors [12]. Higher learning institute is said to be more focus towards theory and education instead of the implementation and project management. Project Management may be viewed as “too

corporate” of a way to make decisions which is not suitable for education purpose. Formal project planning should be integrated into higher learning institute in managing the academic projects to further improve the institute. To further understand the current project management practices of the workers in higher learning institute, a preliminary survey is conducted on the institute workers that actively involved in the software development project.

II. RELATED WORKS

This section presents some of the related work, in particular highlighting the principal contributions associated to the context of this document.

Five (5) important phases are project initiation, project planning, project execution, project monitoring, and project closure [3]. These five phases have direct impact on project success or failure. An empirical research was conducted to indicate the relationship between project management performance and project success and there are positive about the effect of project management on project success [5]. PM KPIs is the top of the contributing factor, followed by PM staff, PM leadership, PM Lifecycle management processes, and PM partnership & resources. While [9] had discovered that several management issues had caused project cancellation. It is also highlighted by [15] that project management as crucial success factor in their empirical study.

A survey was performed to identify the key factors that lead to project success in construction and software development projects [6]. For software development projects, the result shows that the ranking of priority are as following: Project planning, well defined objectives and requirements, customer involvement, throughout the process, project manager efficiency, top management’s involvement, communication, efficiency, involvement of the team in achieving the objectives, project monitoring, way of solving conflict, frequent control checkpoints, cost control, project strategy.

The impactful factors are all project management issues. Where [1] had ranked the project management process based on the ISO 21500:2012 and PMBoK 5 standards. Out of the ten knowledge area, scope management, cost management, and time management are most often implemented in the related area. Besides that, the author also identified that some knowledge area, for instance risk and quality management are often relegated which are causing havoc in the project. Similarly, [4] had identified several problems might arise with project scope, which are ambiguity in definition of scope, incomplete scope, unresolved scope

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document, and not sharing scope statement. Improper scoping of project introduces scope problems that lead to project failures.

The identified failure factors can be overcome by implementing proper project management. A great example can be seen in [10]. The authors found out that there are a lot of failures of software project in Indonesia, especially in government agencies. Hence, Arman has proposed a framework that having correlation between software engineering, project management and government agencies using PMBOK and SWEBOK. In addition to these, [8] have been conducting an empirical research in eastern United States to determine whether adopting project management standard increase project success rate or not. It turned out that there is a positive relation between project management and project success. The survey by [2] conclude that the most essential factor for the project management success in the literature as well as the real world-practice are communication skills, organization structure and the project manager skills. Other study was conducted by [13] in their work, relates risk management to project success.

III. METHODOLOGY

This study is conducted using qualitative survey method which uses questionnaire to gather a large scale of respondents. The questionnaire is designed based on the five main processes in the PMBOK, which includes Project Initiation, Project Planning, Project Execution, Project Control and Monitoring and Project Completion. The questionnaire consists of 3 closed-ended questions in each process respectively with a total of 15 questions. Each of the questions consists of five scale level; from strongly disagree to strongly agree. The questionnaire is then pilot tested with three experts. After the pilot test, the questionnaire is then amended into version 2 based on the comments and feedbacks from the experts. The version 2 questionnaire is then parrot back to avoid grammar or spelling mistakes that may cause any misleading to the respondents. Hence, a finalized version 3 questionnaire is finalized and ready for the sampling.

The questionnaire is then distributed to 30 workers in a higher learning institute. All of these respondents are having IT background and they must answer all these 15 questions based on their experiences and knowledges. The data collected is then inserted into Google Forms to generate the statistical chart for the collected data. Based on the charts, statistical analysis is performed to identify the usual practices of the higher learning institute workers in project management.

IV. ANALYSIS RESULTS

The surveys are answered by 30 respondents from higher education institutes. The survey had been analyzed using basic statistics such as frequency and distribution.

A. Respondent Background

We first identified the background of our respondents. Generally, as shown in Fig. 1, our respondents are

experienced workers with 93.3% (28 persons) of the total worked at their current organization for 10 years and above. While the rest 6.7% or 2 persons are between 3 to 10 years.

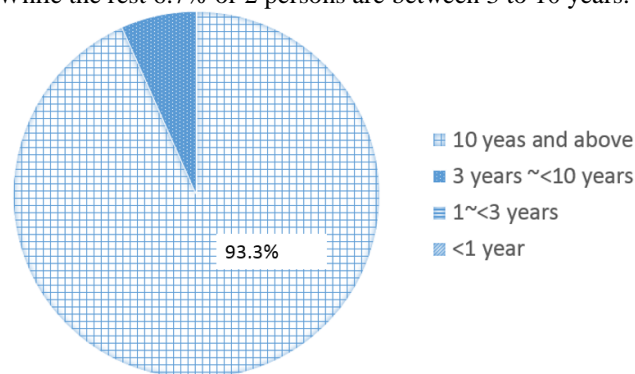


Fig. 1. Duration (in years) in current organization

Their experience in software development is the crucial part of the whole survey. Since overall experience does help in our analysis, we collected not only their current position but also past position in current organization. The result, as shown in Table I, shows that most of our respondents have experience as system analyst (19 persons as in 63.3%) and project manager (16 persons as in 53.3%).

TABLE I
POSITION (CURRENT AND PAST) IN CURRENT ORGANIZATION

Position	Frequency	Percentage
System Analyst, Database Analyst, any other analyst	19	63.3
Project Manager	16	53.3
Tester (All sort of tester)	7	23.3
System Designer	6	20
Developer (Back-end and front-end)	5	16.7
Database Administrator	1	3.5
Other	4	13.3

The composition for the respondents' software development-related experience consists of: 30% 10 years and above, 33.3% 3 to 10 years, 20% 1 to 3 years, and 16.7% less than 1 year. It seems that majority of the respondents have a certain amount of experience in software development industry. This could improve the accuracy of the survey.

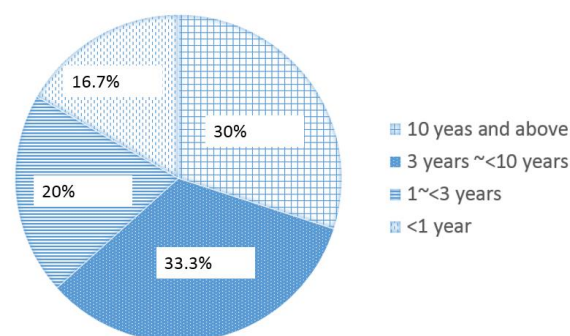


Fig. 2. Duration (in years) in software development-related position

B. Organization profile

Next, we looked at the organization profile. In this case, we were interested in the size of the organization's software department (Figure 3), developer team (Figure 4) and average project duration (Figure 5).

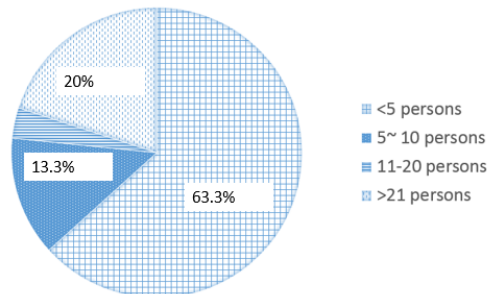


Fig. 3. Number of people in software development

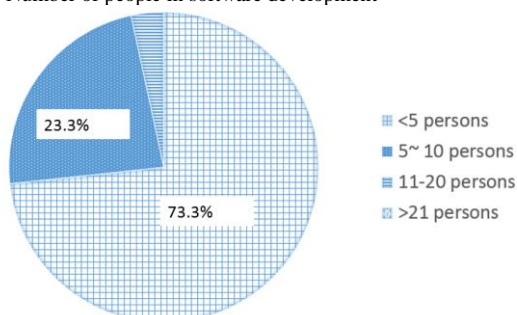


Fig. 4. Common team size for a project

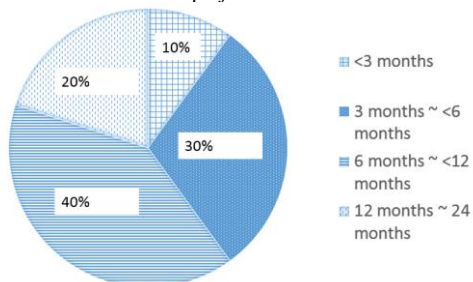


Fig. 5. Duration for a project to complete (From planning till deployment)

Besides these, we concerned about their practice in term of standard application. The composition of the chart is: 60% ISO 9000, 3.3% PMBOK, 3.3% IEEE, 6.7% other, and 26.7% use none.

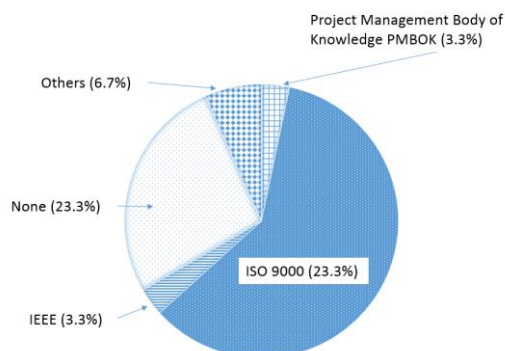


Fig. 6. Standards used in organization

C. Project Management

We separated project management into 5 phases, which are project initiation, project planning, project execution,

project monitoring and control, and project completion [3]. Each phase consists of 3 questions regarding the activities carried out during the phase.

Project Initiation

Beginning of project, three activities were being questioned. First is the scope definition, next is feasibility analysis, and definition of activity and tasks. From the table, it clearly shows that majority of the respondents agree that the scope of project should be defined, feasibility of project should be assessed, and project activities and tasks are listed out clearly. While there are a small group of respondents who are neither agree or disagree, there are none who disagree.

TABLE II
PROJECT INITIATION PHASE

Project Initiation Activities	SD	D	U	A	SA
Scope of project work was defined	-	-	1	14	15
Feasibility of the project was evaluated	-	-	3	14	13
Project activities and tasks were defined	-	-	4	13	13

Project Planning

In our survey, planning phase consists of resource planning, stakeholder involvement, and formation of project plan. Similar to initiation phase, majority agree with the necessity of these three activities, while minority remains undecided. Table III summarizes the findings.

TABLE III
PROJECT PLANNING PHASE

Project Planning Activities	SD	D	U	A	SA
Project resources were planned	-	-	1	14	15
Stakeholder involvement was planned	-	-	4	14	12
Project plan were established	-	-	3	15	12

Project Execution

Project executions, as the next phase, are about requirements agreement, project plan implementation and tracking request changes. The results are skewed towards agreement with the rest remained undecided, that are 1 for mutual agreement on requirements, 3 for project plan implementation, and 4 for tracking request changes.

TABLE IV
PROJECT EXECUTION PHASE

Project Execution Activities	SD	D	U	A	SA

Requirements were agreed on	-	-	1	14	15
Project plan were implemented	-	-	3	15	12
Status of change request was tracked	-	-	4	16	10

Project Monitoring and Control

Majority of the respondents agree or strongly agree with the 3 activities which are monitoring project risks, monitoring project progress, and analyze issues in the project. Table V displayed the result.

TABLE V
PROJECT MONITORING AND CONTROL PHASE

Project Monitoring and Control Activities	SD	D	U	A	SA
Project risks were monitored	-	-	5	16	9
Project progress were monitored	-	-	1	16	13
Issues in the project were analyzed	-	-	2	16	12

Project Completion

Project completion being the last phase had a slightly odd outcome. Although overall result still skewed to positive side, there is one respondent who strongly disagree with the compilation of lesson learned.

TABLE VI
PROJECT COMPLETION PHASE

Project Completion	SD	D	U	A	SA
Information to formalize the project completion was gathered and disseminated	-	-	3	16	11
Project was evaluated after closing	-	-	3	16	11
Lesson learned were compiled for the future projects	1	-	3	16	10

V. DISCUSSION AND CONCLUSION

According to the PMBOK guide, formal project management involves five process groups, initiation, planning, execution, monitoring and control, and closing. Based on the data collected, it has clearly shown that most of the respondents have agreed that these process groups are important in managing their project. Referring to the respondent background, there are 53.3% of respondents are having the experience as a project manager. The project

manager plays an important role in determining the project success as well as in education industry. As most of the results have skewed to the agree site, this shows that most of the project managers in this sector have followed the formal management phases in handling their project. Although the figure 6 has shown only 3.3% of workers have prioritized PMBOK as their primary standard appliance, the result from Table II to table VI indicate that they have not neglected these activities in their project management.

In conclusion, project management is important and applied in all sectors as well as education industry. A questionnaire is distributed among the IT workers in the higher learning institute and from the result gathered, it has clearly shown that these workers have followed and applied the PMBOK process groups when managing their software projects. However, our works are still immature enough. As what [7] had identified, that project success is different for client side and supplier side. This could be a direction to further down our works.

APPENDIX

SA: Strongly Agree
A: Agree
U: Undecided
D: Disagree
SD: Strongly Disagree

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