

## Improving project management competency by using an OPM3 approach

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**Abstract**—the major purpose of this paper is to present a case study in implementing an improvement project for improving project management methodology in a project-based company. The approach applied in this improvement project is the most important model in project management maturity. The key points of the project are highlighted in this paper in addition to a brief review of the literature in the context of maturity models, importance of maturity models and organizational project management maturity model (OPM3) which the latter is the base framework for the approach applied in this improvement project. The five steps presented by OPM3 have been taken in this project. For the maturity level assessment, a program was developed in Microsoft Office Excel.

**Keywords**-maturity model; OPM3; assessment; improvement

### I. INTRODUCTION

The work of Ibbs, Kwak, and Reginato [1] [2] [3] [4] over the last decade focused on recognizing the benefits of investment in project management competency through measures of maturity in an organization's practice of project management. Higher maturity scores are hypothesized to correlate with higher levels of predicted project performance. The theory was that investment in project management increases an organization's project management maturity standing and this improvement results in enhanced project performance that should translate into cost saving and other benefits.

The result of these researches and the need to improve project management competency and avoiding causal approach used by different project managers made Mapna Special Projects Construction & Development Co (MD-3) to initiate an improvement project for improving the project management methodology. MD-3, affiliated to the Mapna Group, is a project-oriented company operating mostly in gas, utility, co-generation, and thermal power plant construction industries. The approach of Organizational Project Management Maturity Model (OPM3) was applied in this improvement project. In this paper we present how MD-3 applied a project maturity model in order to improve performance of project management processes.

The paper is organized as it follows. First, maturity models, essence of implementing these models and OPM3 are briefly summarized. Second in implementation section, the five steps of OPM3 approach are presented. Finally in conclusion, the paper concludes with a brief summary of the paper and some recommendations for future studies.

### II. MATURITY MODELS

To achieve dramatic performance gains, companies find that they must rethink, or transform, the way they manage their projects or programs. The maturity models provide an assessment framework that enables an organization to compare its project delivery with best practice criterion or allows it to gauge its value against competitors, ultimately defining a structured route to improvement.

The literature has paid a considerable amount of attention to the concept of maturity models [5] [6] [7] [8] [9]. This is because a maturity model allows an organization to assess and compare its own practices against best practices or those employed by competitors, with the intention to map out a structured path to improvement [6]. Basically, a maturity model is a framework describing the idea progression toward desired improvement using several successive stages or levels.

Over the past decade Project Management Maturity Models have become effective tools for benchmarking and driving improvements in organizational performance. Building on what was explained about maturity models earlier, maturity models for project management (PM) are used to measure the degree to which an organization is executing PM by comparing its PM practices against practices in general or 'best practices'. These models describe how 'mature' or professionalized organizations are in conducting PM and what they could do to improve their way of working. According to [10], there is no generally agreed definition of what a mature project based organization looks like. In spite of this, the current number of maturity models for PM is estimated at 30 [6].

Various claims have been made about the benefits that organizations have obtained from using particular maturity models [11]. The implications are that mature organizations are able to manage all the projects undertaken by an organization effectively [12]; improve continually the performance of all projects undertaken by an organization; and improve dialogue between the project management community and an organization's top management [11].

### III. THE ESSENCE OF MATURITY MODELS

In general, there are two reasons why it is beneficial for organizations to adopt a maturity model for project-based management, which includes the management of projects, programs and portfolios. Ever since organizations began to adopt the project based way of conducting business, they

have strived to deliver projects successfully. To do this, organizations require the necessary infrastructure, which includes processes (methods and techniques), governance structures, and competences of people and tools [13]. Developing such an infrastructure may take several years, and because of this, more advanced organizations may start to wonder after a while where they exactly stand in the whole process and whether they are going the right way. This is when the adoption of a maturity model proves useful. The second benefit for adopting a maturity model becomes apparent when an organization has finished assessing its current practices and aims for advancements to a desired level of maturity [5]. By comparing the results of a maturity assessment with the descriptions in a maturity model, an organization gains insight into their strengths and weaknesses and is able to prioritize its actions to make improvements.

In addition to the above arguments, the execution of a maturity assessment in itself raises the awareness about what can be improved within an organization. In other words, members of an organization will focus more on the inefficiencies of their ways of working simply because they know they are being assessed. Ibbs and Kwak [14], in a study of 38 international companies, showed that there is a positive correlation between project management ability and business performance. They also showed that companies that have good project management capabilities and competences yield better results on their projects.

According to Levin and Skulmoski [15] the maturity models provide a framework to help enable organizations to increase their capability to deliver projects on schedule, within budget and according to the desired technical performance. Maturity models provide a progressive standard to help organizations continue to improve their project management processes. An assessment of project management maturity collects evidence by evaluating an organization's performance against requirements (as set forth in the maturity model) and then making a judgment of whether a certain level of maturity has been achieved. By using a project management maturity model, you can "take the temperature" of your organization's project management efforts.

Levin and Skulmoski [15] hold the view that a project management maturity assessment provides the basis for a larger, more significant initiative. It serves as the basis for guiding a subsequent project management improvement effort. The assessment provides a useful "road map" direction or "guide book" about what improvements should be tackled first.

#### IV. ORGANIZATIONAL PROJECT MANAGEMENT MATURITY MODELS (OPM3)

According to Cooke-Davies [10] no discussion of organizational project management maturity would be complete without the mention of OPM3, PMI's organizational project management maturity model

OPM3 is an acronym for Organizational Project Management Maturity Model. It is a standard developed under the stewardship of and introduced in December 2003

by the Project Management Institute (PMI). The development of this standard was inspired by the increasing interest in a maturity model that shows a step-by-step method of improving and maintaining an organization's ability to translate organizational strategy into the successful and consistent delivery of projects. Over 800 professionals from over 34 countries contributed to its development. With the avid volunteer support of senior project management professionals, the creation of OPM3 became a multi-year virtual project [16]. The OPM3 project team reviewed twenty-seven such models, many with specific areas of focus such as information technology and quality improvement. None of them adequately addressed project management. The research team concluded that a new model was needed if project management was to enjoy the clarity of purpose and standards that other models created in other focus areas of the enterprise [16].

The purpose of OPM3 is not to prescribe what kind of improvements users should make or how they should make them. Rather, by providing a broad-based set of organizational project management (OPM) best practices, this standard allows an organization to use it as a basis for study and self-examination, and consequently to make its own informed decision regarding potential initiatives for changes [16]. The OPM3 model was designed to achieve the following:

- To help organizations assess and improve their project management capabilities as well as the capabilities necessary to achieve organizational strategies through projects;
- To set the standard for excellence in project, program, and portfolio management best practices; and
- To explain the capabilities necessary to achieve those best practices

The standard comprises three interrelated elements: 1) Knowledge: In this element, the user can become proficient with OPM3, be comfortable with the body of best practices knowledge it contains, with the idea of OPM and OPM maturity, and with the concepts and methodology of OPM3. 2) Assessment: The organization is compared to OPM3 in this element to determine its current location on a continuum of OPM maturity. 3) Improvement: Here, organizations can decide to move ahead with change initiatives leading to increased maturity using the results of the assessment as a basis for planning. These concepts and the 5 steps of the OPM3 approach are shown in Figure 1.

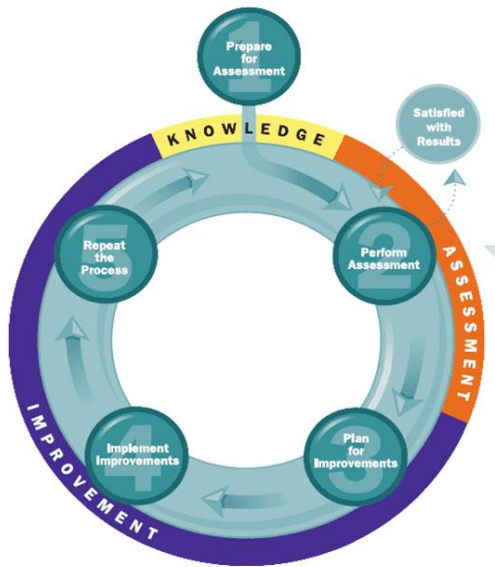


Figure 1: Implementing OPM3 within an organization

This model is closely aligned to the PMBOK [11], which is a well-accepted standard approach for project management.

## V. IMPLEMENTATION

A core team established in the Planning & Informatics Deputy and took the responsibility of the implementation. OPM3 five-step approach was employed in our implementation: 1) prepare for assessment, 2) assessment, 3) plan for improvements, 4) implement improvements, and 5) repeat the process. The core team just used the OPM3 conceptual framework and developed the improvement plan by its own. Major activities which have been done in these steps are as they follow:

### A. Step 1: Prepare for Assessment

At first the scope of assessment should be determined. As MD-3 does not have any program and portfolio, we just considered project management processes and some related organizational enablers which are required for improving project management competency.

We planned to assess the project management maturity of the MD-3 in a two-day workshop which was held out of the company's office. The participants were collected from the middle and top managers of the company and they were divided into 5 groups of 6 or 7 people.

Then a facilitator, who was a project management professional (PMP), certified by project management institute (PMI) was assigned for each group. Meanwhile these facilitators already became familiar with the conceptual framework of the OPM3 in order to help the participants in scoring process. A percent scale was used for scoring system as it starts at 0 increments by 5. We categorized the range of score by very low (0 to 20), low (25 to 40), medium (45 to 60), high (65 to 80), and very high (85 to 100).

Relevant forms for project management and organizational enabler best practices were designed. As a mean for the cross check, we designed a fact sheet form to

derive what the real problems of the project management processes are from the management level of the organization.

### B. Step 2: Perform Assessment

The first day of the two-day workshop was allocated to the presentation of the general concepts of A Guide to the Project Management Body of Knowledge (PMBOK) to the participants. In addition they were familiar with how to score best practices. The next day was allocated for the assessment. We considered two kinds of best practices: 1) 42 processes as the project management best practices which were derived from PMBOK, 2008 edition, and 2) a number of organizational enablers (OEs), as the OE best practices which are required for improving the performance of the project management processes of the organization in areas such as sponsorship, benchmarking, organizational structure, competency management, etc. Project management best practices were evaluated in four sections: standardize, measure, control, and improve (SMCI). The organizational enabler best practices were evaluated as per some capabilities. Each group tried to score some project management and organizational enabler best practices which were somehow related to their organizational duties as a process owner or as a process customer. All best practices were divided into the 5 parts and each part was allocated for each among for the assessment. Facilitators did not interfere in scoring process. The steps taken for the finalizing the scores are as they follow:

- A member of the group was selected as the group's moderator.
- Group members scored their own form individually.
- If the range of score within the group was more than 25% it was discussed around the relevant best practice by coordination of the group's moderator.
- Then the average score for each best practice was considered as the group-agreed score.
- One representative of each group presented the group-agreed score of the best practices.
- If any other group's member had any objection, the representative should defend his/her group-agreed score.
- If the representative could not persuade others, the representative of each group announced a new score for the discussed best practices and the average score considered as the final score.
- If there was no objection or the representative could persuade others, the group-agreed scores were considered as the final scores.

For calculation purposes of the maturity level, a program was developed in Microsoft Office Excel by the core team to provide different reports for the assessment. SMCI report, as a sample, is shown in Figure 2.

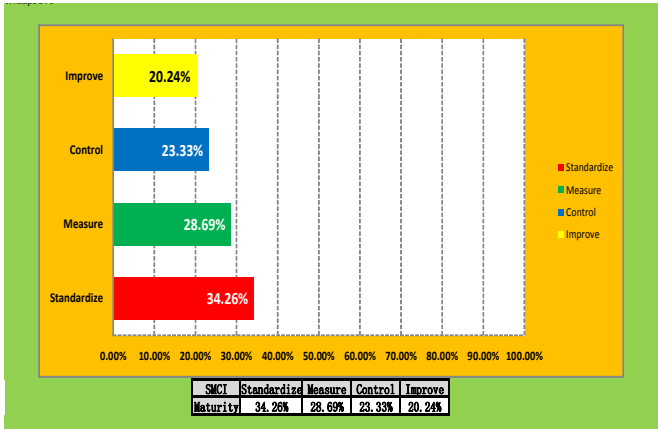


Figure 2: A sample of SMCI Report

The other reports produced by the program were maturity level report in nine knowledge areas and in organizational enablers. Finally the overall maturity level of the organization was obtained.

As we wanted to focus on the real problems of our project management processes and not to put the organizational energy on something which is not our first priority, we developed a fact sheet form in order to cross check the output of assessment with the current issues of the project management methodology. Construction project life cycle was applied in designing the fact sheet form. The fact sheet form was distributed to all group members and asked them to write down any problem and issue in performing project management processes in different phases of the project such as initiation, engineering, procurement, execution and closing. After collecting the completed fact sheet form, the core team analyzed and categorized the issues mentioned by the participants. We found that the most of project management problems came from the knowledge areas which had lower maturity level resulted from the assessment. This assured us that we do not take the wrong steps. The result of this double check presented for the all participants in order to buy their commitment.

### C. Step 3: Plan for Improvements

According to Levin and Skulmoski [15] the results of a project management maturity assessment provide the opportunity to continually improve and develop an organization's competitive position and promote its business by projects. Project management improvement, though, does not happen overnight, and it cannot be implemented on a "fad of the week" basis. If it is, it is doomed to fail. Considering these facts we defined our improvement plan in two 14-month phases. As per the result of the assessment and the completed fact sheet forms it was decided to improve the maturity of project management process in four knowledge areas: 1) project integration management, 2) project scope management, 3) project risk management, and 4) project procurement management in the first phase. A degree of consolidation was obtained for the targets. The current status of these knowledge areas (KMs) and the target established for them (at the end of first phase) is shown in Figure 3.

Based on the target improvement in selected knowledge areas and organizational enablers, the overall maturity in project management is determined.

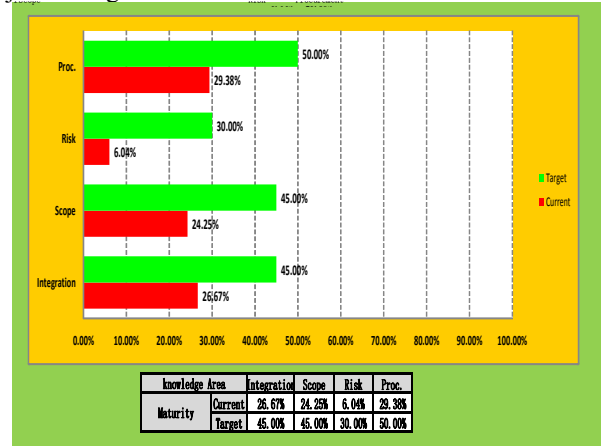


Figure 3: Current and target status of 4 KMs selected for maturity improvement in the first phase

The same approach was applied for selecting organizational enablers. Four OEs such as competency management and knowledge management were selected to be improved in the first phase. Furthermore, in the first phase of the improvement plan, different approaches have been developed to improve project management organizational culture. These are but not limited to establishing different levels of project management training for the people who are directly or indirectly involved in the projects, allocating a virtual space for the project management in MD-3 intranet, implementing a system to gather, analyze, and distribute lessons learned by the project team in central office and in the project sites, and participating of project management team member in project management conferences, seminars, communities, etc.

### D. Step 4: Implement Improvements

For implementing the improvement plan for the first phase we needed a pilot project. MD-3 General Manager agreed to select one of the recently initiated combined cycle project as the pilot project. The strategy defined for implementation was to improve or modify organizational process assets in project management, relevant to the scope of first phase, and develop new procedures for areas that the organization does not have a systematic approach. Each modified or new developed procedure, after the approval of relevant stakeholders, was applied in the pilot project. Figure 4 shows the sequence of implementation.

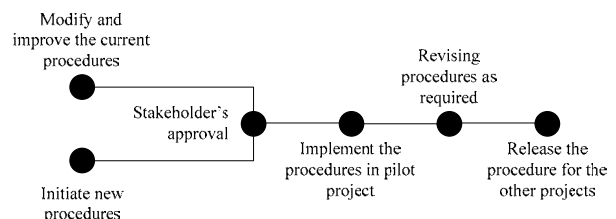


Figure 4: Sequence of implementation for the Step 4

There were some project management processes such as close procurement and close project required to be implemented in the projects which were in the closing stage. In this regard another project which was in the closing stage was determined as a pilot project for these processes. At the early stage of implementing process, the core team members cooperated with the project team members who were responsible to implement new procedures in order to gain their commitment and confidence.

#### E. Step 5: Repeat the Process

After the completion of the first phase, the process from step 2 will be repeated in the second phase. Implementation process will be evaluated and the strength and weakness points will be highlighted. Considering the lessons learned from implementing the first phase, one of the most important objectives in repeating the process would be reducing the impact of weakness points and reinforcing the impact of strength point

## VI. CONCLUSION

If the project-based organization desire improvement on the effectiveness of their projects they should improve their project management competences. To improve, organizations need to first assess their current ability to deliver projects and then create a strategic path that clearly outlines the steps required for advancement on the road to excellence.

In this paper, improving a project management competency in Mapna Special Projects Construction & Development Co was studied. The OPM3 framework was applied in this improvement project. The core team of the project initiated their own plan in performing the 5 steps required by the model. Approximately one cycle of the OPM3 approach has been done in this project and it is planned to be repeated in the second phase. Project Management Body of Knowledge was considered as a baseline for improving the project management processes. The approach applied in this project can be used as a guideline in initiating similar projects in project-based organizations as we highlighted the key points of what we have done in this paper. Further research could be conducted in implementing the similar improvement project in project-based organization using other maturity models.

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