Organizing Project Management Maturity in a System Integrating Company

Roque Rabechini Jr.

R. França Pinto 820 apto 94 CEO 04016-003, São Paulo - SP - Brazil, roquejr@usp.br

Rogério Pelloso Gelamo

Cobra Technologia, Av. Paulista, 450 - CEP 01310-904 - São Paulo - SP - Brazil, rpgelamo@yahoo.com.br

Marly Monteiro de Carvalho

Prod. Eng. Dept of USP's Polytechnic Eng. School, Av. Prof. Almeida Prado, 138 Tr.2 Biênio 2º, São Paulo - SP - Brazil, marlymc@usp.br

ABSTRACT

This paper describes the steps towards the institutionalization of a project management program in an integrating company with Information Technology infrastructure. The program structuring started from mapping out the company lacks in project management as to support planning and priority of actions.

INTRODUCTION

There is a general consensus about the importance of the use of project management best practices in the IT companies, Nevertheless, the high failure level verified in project management has been portrayed in a research carried out by Standish Group (1999), a North-American information technology (IT) market research company. The research involved about 8300 projects, from 365 companies. Its outcome reveals that from this group 31% of projects have been canceled before its completion, causing US$ 81 billion loss. Besides 53% of project presented some kind of problem (189% higher cost than predicted, for instance), bringing losses of about US$ 59 billion. Only 16% of projects were considered to be successful (ending on predicted time and with predicted cost). An important point of the research was to evidence the failure and success causes referred to by the interviewed. The main causes mentioned for IT projects were related to user's commitment, manager support and require definition - there would be success when the level of the factors above is high and failure when it is low.

It is also important to highlight that in a new edition of this research Standish Group (2001) the scenery change and the degree of success project increase to 28%. In the same period the project management practices became more popular among IT companies.

The examples show the importance of developing project management in companies. Successful administration does not mean only adopting reference bibliography however. It is necessary planning and a view of the whole aspects related to the company so that the intelligent activities (that is, of project) are directed towards the company objectives achievement.

In order to better understand the best practices related to project management this paper shows the results of a research done into project technicians and project managers of a system integrating and developing company involving high technology. The analysis focused on aspects related to the project management maturity reaching by companies.

In order to deal with the subject of project management maturity, this paper initially delineates a theory background about the importance of these approaches to the companies. Secondly, it presents an overview of project management maturity. To finish, it brings the outcome and conclusions of the research that has been taken according to case study methodology.

THEORY FRAMEWORK

According to Carvalho et al (2003), in spite of different approaches regarding the best practices in the IT area, there is a general consensus about the importance of three, widely used efficiency models: Capability Maturity Model - CMM (Humphrey, 1989; Paulk et al, 1995), Project Management Maturity Model – PMMM (Kerzner, 2000 and 2001); and, more recently, the Organizational Project Management Maturity Model – OPM3 (PMI, 2003).

Difficulties in establishing a theory background that considers concrete and pragmatic treating of the project management questions in companies can be found in the maturity diagnosis models of available literature.

In this background, an example of distinction are the maturity models developed from the theory principles of Capability Maturity Model, CMM, conceived by Software Engineering Institute – SEI (1997), largely used by software development industry. In that sense, similar levels of CMM maturity have been adopted as reference when concerning project management.

In general, an informal process characterizes the first level -the start - where projects normally go over initial deadline and cost. In second level - repetition - the plans developed are based on already existent projects, being therefore more realistic. The third level - definition - is remarked by the existence of well-defined processes, that way improving the performance of projects. In forth level - management - the processes and products are quantitatively controlled. At last, the fifth level - optimization - is defined by institutionalization of maturity model, so that the company is able to create a continuous improvement process.

According to Carvalho et al (2003), in order to extend the capability maturity model (CMM) to project management, Kerzner (2000) and (2001) proposes a Project Management Maturity Model (PMMM). These authors argue that "PMMM differs in many aspects from the CMM, but this framework also introduces benchmarking instruments for measuring an organization's progress along the maturity model, detailing five levels of development for achieving maturity: level 1 - common language, level 2 - common processes, level 3 - singular methodology, level 4 - benchmarking, and level 5 - continuous improvement." Finally, it is important to notice that the maturity is reached at 3rd level – singular methodology, the others two level reach the excellence in project management.

Kerzner (2000) identifies a life cycle in PMMM level 2, common processes, which could be broken into five phases: embryonic; executive

management acceptance; line management acceptance; growth and maturity (Carvalho et al, 2003).

Recent issues (Foti, 2002) present studies of consultation companies and some authors who generate new models from CMM references. Besides Kerzner (2000) other important models are the ones by Center for Business Practices, ESI International Project Framework and Berkeley.

METHODOLOGY

In order to deal with the role of project management maturity in IT companies, this paper used the case study methodology as suggested by Yin (1999). The field research was developed in a small Brazilian Software Integrating IT company.

Analysis through the PMMM life cycle analysis requirements, 2nd maturity level, was carried out using the questionnaire proposed by Kerzner (2001). This instrument use the score "–2" (totally disagree) to "2" (totally agree).

The structuring of the program has been based on PMMM. Afterwards, data about the involvement of the company in project management have been raised, such as:

- Company acceptance of the importance of project management;
- Top management acceptance of the importance of project management;
- Commitment of managers, concerning explicit support for project management;
- Methodology and processes used for project management.

The questionnaire has been applied through interviews with people directly related to projects in the company, as management processes were being mapped out, under the view of the five processes groups defined by PMBoK Guide (PMI, 2000): initiating, planning, executing, controlling and implementing projects.

In practice, the process and project analysis aimed to help the comprehension of: scope structuring, interested identification (stakeholders), project management strategy, and others, so that the diagnosis could be built with as highest aggregate value as possible.

To design the diagnosis' main elements a work team has been composed. The team worked in order to analyze the organized information supporting the establishing of a project management action plan. The methodology approach adopted in this paper is shown in Figure 1.

RESULTS

The researched company in this case acts in system integration and information technology. It has approximately 500 employees, being 30% located in distant geographical points. The company works with infrastructure projects and system development in different market segments, distributed like this: telecommunication (30%), manufacture (20%), retail (25%), finance and government (25%).
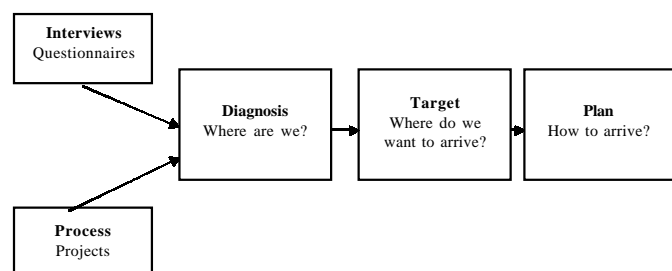
After compiling raised data, the average present maturity level of the company was considered to point to scenery of potential improvement in project management.

The quantitatively examination of data identify the most critical aspects to be attacked by an action plan in order to rise the company maturity level. That way the components below were established to the maturity program plan constitution:

- Strategy – focus on the establishment of a PMO (*Project Management Office*) and on adequacy of the company's organizational structure;
- Processes and methodology – whose aim was to consolidate the minimum processes of the company's project management;
- Qualify people – aiming the improvement of internal competence for a more effective management;
- Culture and organizational change – in order to spread knowledge and bring closer all the involved in aspects of project management;

Most important success factors noticed:

- Creation of a section in Technical Direction that treats generated products and services as projects;
- Structuring of this section, considering:
  - Creation of proposal evaluation process;
  - Creation of project charter generation process;
  - Creation of Project Manager position;
- Creation of a consultant work team directed to understanding project management problems in the company and imbued with the diagnosis and action plan development;
- Advances in fundamental knowledge of project management discipline, both in its concepts and in its practical aspects. Implementation of the course Project Management Basis for 20 people;
- Creation of initial management process;
- Project charter expansion, aiming the utilization of specific forms related to project management.

The data rising evaluation pointed to some lacks in maturity levels. Figure 2 represents the perception in project management considering the three first levels of maturity model.

In order to detail each phase analysis, four parameters was chosen. The performance diagnosis of each variable is shown in Figure 3.

Embryonic Phase

The embryonic phase has been estimated considering company's interest in adopting project management as a way of business administration. Therefore the four proposed variables for evaluation were: a) recognizing company's needs in project management; b) benefits of project management; c) orientation to project management and, d) understanding the completeness in project management.

Figure 2. Maturity Evaluation

Maturity Evaluation

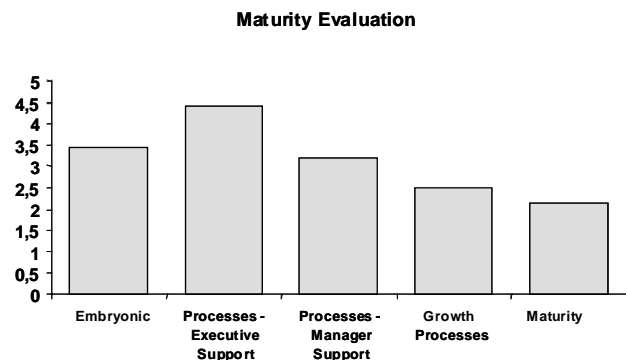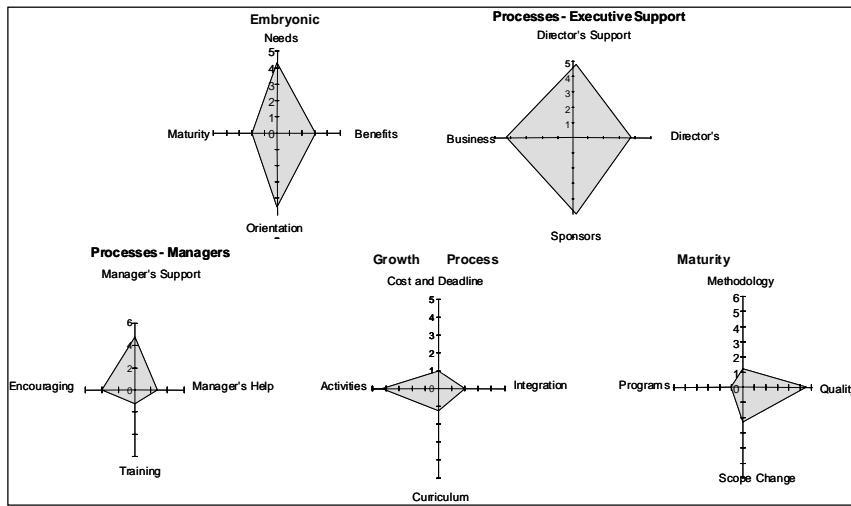*Figure 1. View of Project Management Planning*

Figure 3. Detailed Evaluation of Project Management Life Cycle

It is clear that at this phase the company understands the necessity of working with project management (score 4.25) and that company's top management has been trying to guide the managers into this direction (score 4.5). The benefits of the efforts however are not noticed both in project management of the company (score 3) and in the comprehension of project management maturity (score 2).

Actions originated by this scene must be planned to increase the company competence related to this phase. An example would be an event showing to the several levels of the company the benefits that project management may bring, and also the competences to be developed at each stage of PMMM.

Growth Phase and Managers Commitment Analysis
The second phase - Growth - has been examined taking three aspects into account: executive support, manager support and the existence of common processes.

The focus on executive support has been measured considering: a) top management support for project management; b) its competence in project management principles; c) its sponsoring projects capacity; d) its inclination to support company's business with project management.

It is easy to observe in Figure 3 that company's directors recognize project management as an administration tool for its business.

The focus on Manager's Support has been checked according to: functional manager's support for project management; b) its resources help in managing company's projects; c) employees' training level in project management; d) functional managers encouraging for promoting employees training in project management.

It is noticeable that regarding manager's support, although managers support the discipline of company's project management (score 4.75) this support cannot be verified in form of effective help (score 2.75). It is also clear that perception regarding incentive to project management training (score 4) is higher than the training itself (score 1.25).

This way it is necessary for example the elaboration of a wider training program in project management basis.

The focus on common processes establishment has been measured considering: a) knowledge and use of project management methodology; b) commitment with quality programs in the company; c) support of directors to minimize scope changes; d) selection and use of project management programs.

It is clear that the company is committed with quality management (score 5.5), yet it does not use project management methodology

systematically (score 1.25), makes bare efforts into reducing scope changes of projects (score 2.25) and does not select programs for project management (score 1).

The possible recommendations for this phase are several, but a more detailed investigation is necessary.

Maturity Phase
Maturity phase has been measured considering: a) the existence of a cost and deadline control system; b) the integration of cost and deadline control; c) elaboration of a *curriculum* for project management qualification and d) recognition of project management activities.

CONCLUSION
On the whole, the following conclusions can be made when observing the outcomes of this paper:

• Top management does recognizes the necessity of products/ services management through project management;
• At the present time there is not a clear project management in the company;
• There is, in Technical Direction, the existence of an incipient organization through projects;
• There is the necessity of generating minimum processes in order to constitute a methodology whose goal is to improve project cost and deadline control;
• There is, even if not fully, the use of a common language in project management;
• A lack of scope structuring can be noticed in the projects developed by the company;
• There is not a clear definition of project portfolio management. It is necessary to well identify the project and activities set concepts in order to manage them in a distinctive way.

It can be seen that the company is far from being mature in project management, so a second stage in Project Management Qualification Program is going to be planned.

The presented data demonstrate the necessity of a systematic work aiming to improve the maturity level of the company. The absence of a higher maturity level makes the company vulnerable to great risks in the project development, as long as occurred problems have many times to be solved by individual initiatives, isolated from the company as a whole.

The necessity of focusing on problems solving, many times elapsing from bad estimates of cost and deadline, unbalances the project manager's activities and, consequently, the project itself. An example is the solution of conflicts raised from expectancies generated in customer or sponsor, renegotiation of cost and deadline, and redoubled care in elaboration of attendance reports.

The reduced score of skilled people in project management techniques and tools observed in Figure 3 - Manager's Level, regarding training, when related to quality indexes (see Figure 3 - Growth) indicate that production and consequently the effectiveness are injured. In a wider analysis, this makes us believe that the company would have difficulties in coordinating a bigger quantity of projects without quality loss. Many times, the bad use or no use of project management techniques and tools cause re-work and necessity of unexpected re-location of workers to make an important project available before deadline, despite the course of other projects. In this view, we can conclude that fewer projects should be managed so that the quality is not affected.

The previous analysis confirms the low score of the index "Programs" (see Figure 3 - Growth). The location of human resources available in the company without considering the program ambit reflects the

constant location and re-location of company's projects. With this, it is not possible to acquire uniformity in the performance of projects, according to PMO (Program Manager Office). The lack of defined variables to set the priority of projects, regarding project portfolio, lead to a frequent oscillation of performance indexes, making it difficult the work of the responsible for making human and material resources available, when it happen to all the projects to have the same priority level.

The absence of a systematic for some basic processes in project management, as it can be noticed in the low score of "Cost and Deadline" (see Figure 3 - Company's Maturity) causes project sponsors' decision making to be difficult because the indexes are estimated in different ways. The implementation of the better practices for cost and deadline, like EVMS – Earned Value Management System (Fleming, 2000), is not observed. This system makes possible the providing of ascertained and supportable information about the actual health of projects, once applied and correctly integrated to existent planning processes,.

In the course of data raising stage some needs were detected in the maturity model employed. Firstly, the questionnaire used proved itself to be restrict since it does not deal with the nine knowledge areas of PMBoK guide. Information arose from spontaneous testimonies about situations faced by people over the development of projects. Those situations would difficultly be mapped out only with the responses of the questionnaire.

Secondly, the phase structure for 2nd maturity levels of the PMMM suggests that project management maturity occurs in series, as maximum levels of each phase are reached. The phase's diagnosis shows that the four parameters are unbalanced, showing increasing gaps in the last phases.

 These conclusions reinforce the necessity of an action plan in order to raise the company to a higher level in project management maturity. If on the one hand some gaps have been found in the diagnosis analysis, on the other hand, these imperfections shows the drivers of the action plan in order to acquire competences in projects management field.

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