COMPETENCY EVALUATION OF PROJECT MANAGERS IN IT INDUSTRY : USING SIMULATION GAMING

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How to identify a good project manager? This is a million dollar question faced by many of the IT services company in India today. Experience gained over a period of time and demonstrated performance is the best indicator. But, in the ever shortening cycles of development and competitive pressures, companies are facing this question prominently today. How do we measure competency of the project managers?

Role of a Project Manager in IT industry :

On the surface, the role of a project manager should be easy to describe. But the challenge to understanding roles and responsibilities is that they are different from company to company.

In general, the project manager is responsible for the overall success of the project.

Process Responsibilities :

The project manager normally is responsible for defining and planning the project. This results in the completion of a Project Definition and a project work plan. Once the project starts, the project manager must successfully manage and control the work, including:

- Identifying, tracking managing and resolving project issues
- Proactively disseminating project information to all stakeholders
- Identifying, managing and mitigating project risk
- Ensuring that the solution is of acceptable quality
- Proactively managing scope to ensure that only what was agreed to is delivered, unless changes are approved through scope management
- Defining and collecting metrics to give a sense for how the project is progressing and whether the deliverables produced are acceptable
- Managing the overall work plan to ensure work is assigned and completed on time and within budget

People Responsibilities :

In addition to process skills, a project manager must have good people management skills. This includes:

- Having the discipline and general management skills to make sure that people follow the standard processes and procedures
- Establishing leadership skills to get the team to willingly follow your direction. Leadership is about communicating a vision and getting the team to accept it and strive to get there with you.
- Setting reasonable, challenging and clear expectations for people, and holding them accountable for meeting the expectations. This includes providing good performance feedback to team members

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- Team building skills so that the people work together well, and feel motivated to work hard for the sake of the project and their other team members. The larger your team and the longer the project, the more important it is to have good team-building skills.
- Proactive verbal and written communicator skills, including good, active listening skills.

Key competencies of the project managers can be mapped as: have great follow-up skills, be process oriented, be able to multi-task, have a logical thought process, be able to determine root causes, have good analytical ability, be a good estimator and budget manager, and have good self-discipline and most importantly to have the "right mental attitude".

The challenge :

Having identified the competencies it is now a daunting task to quantify them and to measure them. Some of the companies depend upon an educational qualification like PMI certification as measure of competency assessment. This method definitely ensures the mastery of the theoretical understanding but seriously lacks in the application of the knowledge. Also, the "attitude" required can not be guaranteed by this method.

Another approach followed by many companies is to mentor the project managers by making them go through the completed projects under the supervision of the mentors and correct them in their approach and context. This is found out to be a very effective method but is necessarily an accelerated learning. Even this approach does not really test the "attitude" of the candidates.

In the light of the challenges above, it was decided to conduct an experiment to evaluate some other innovative ideas to measure and identify the competencies by the author of this paper.

The experiment :

For the purpose of this experiment it was decided to use simulation gaming approach. The simulator used for this experiment is called SimSE. This has been developed by University of California at Irvine. The details of this software is available at:

http://www.ics.uci.edu/emilyo/SimSE/index.html

SimSE is an educational software engineering simulation environment whose goal is to bridge the gap between the large amount of conceptual software engineering knowledge given to students in lectures and the comparably small amount of this they actually get to put into practice in an associated "toy" software engineering project. SimSE allows students to practice a "virtual" software engineering process (or sub-process) in a fully graphical, interactive, and fun setting in which direct, graphical feedback enables them to learn the complex cause and effect relationships underlying the processes of software engineering. Here is a glimpse of a SimSE game:

The company in which this experiment was conducted is one of the prominent software development firms with 3000 developers working in India. This company is assessed at CMMi level 5 and PCMM level 5. The company has a large group of 160 project managers. Most of these managers have assumed responsibility by rising through the ranks.

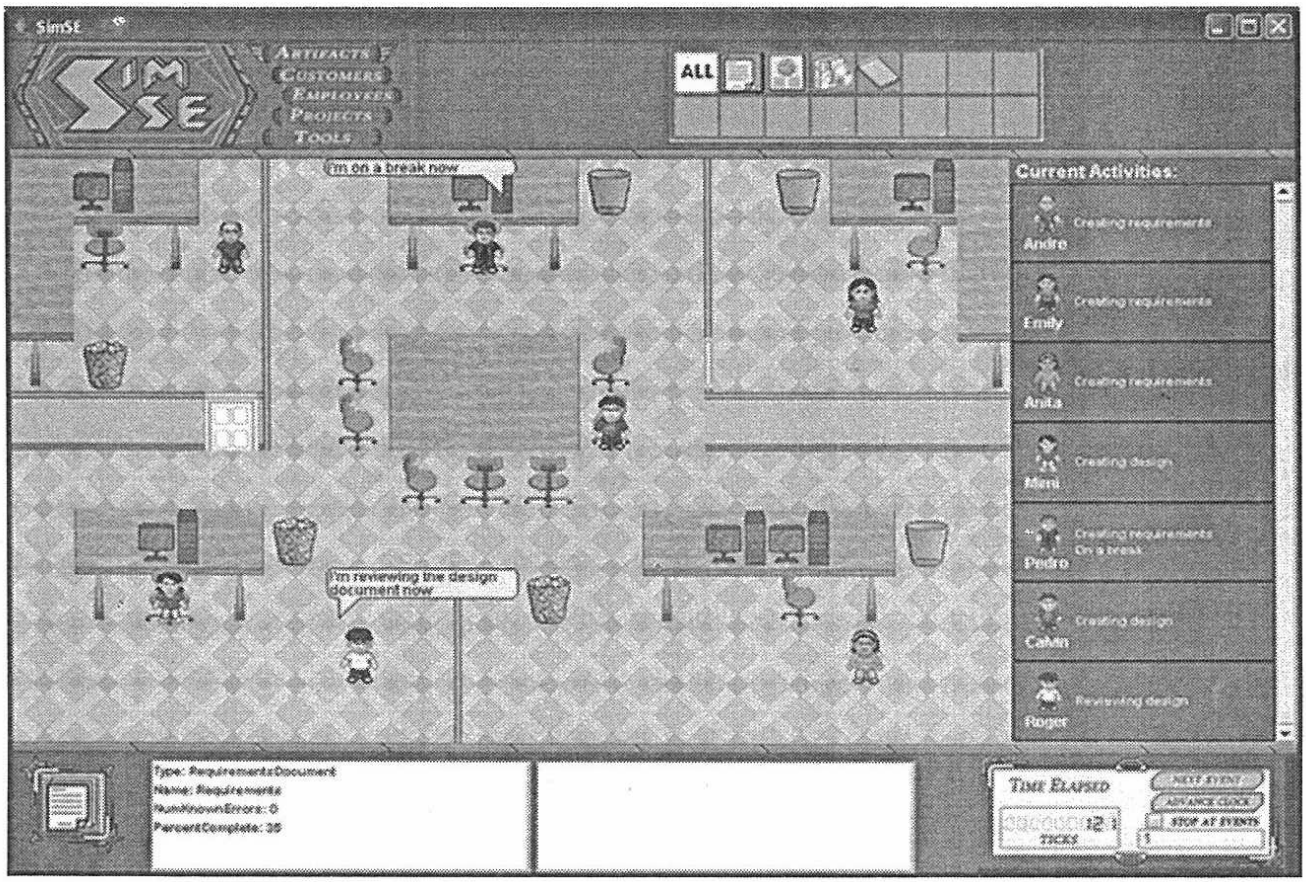
The conditions and environment of the experiment

The SimSE was installed under the JRE (Java Runtime Environment 1.4) on the machines within the training department. The scenario

chosen was a typical SDLC (software development life cycle) methodology. The pilot was conducted on a small group of 15 Project Managers who were explained the following rules:

1. You have got a project which needs to be competed in 1350 clock ticks(say hours)
2. The total project cost is $ 280,000.
3. You have got 7 developers available to you. The details about your team like their experience, rate (compensation) and expertise is available in the table under the tab of "Employees"
4. You may possibly use the development tools, details of which are available under the tab of "Tools".
5. You may choose your own method to go about executing this project. The work can be assigned by right clicking on the employees and you will get online assistance in most of the situations. In case you have difficulty, please let the facilitator (author) know.
6. The customer may request you for a CR (Change Request) and each of this will have some impact on your projects.
7. You can monitor the project by observing the "Artifacts" tab.

Apart from these basic instructions they were also given an instruction manual which explained in details the entire gamut of this simulation. The instruction manual was given one hour in advanced and all their queries were answered before the game begun.



The time allocated to them was 90 minutes for the game. Once the game was started by them no queries were entertained (except in the case of break down).

After one 90 minutes the game was stopped and the final score was calculated on the basis of their completion of the project. They were given 30 more minutes to debrief their learning experience and feedback. These debriefing sessions and feedback were recorded for further refinement.

The Outcome

The purpose of this paper is to give a qualitative account of this experiment and to inform the peers in the industry on the advantages and disadvantages that were observed by the author. The general opinion of the participant was that of excitement. Some of the points they brought out are as follows:

1. The game is very engaging
2. It looks simple to begin with, but soon you realize the complexity and prove to be challenging.
3. The game reinforced their understanding of theory but required them to think like a "project manager" to apply their knowledge.
4. They were able to identify the mistakes which in real life are very difficult to identify.
5. They will like to play this game again to improve their scores

The author's observations were also very encouraging to develop this type of approach into an assessment instrument for the competencies. The major focus of the observation was on the "attitude" and understanding of the big picture of software development rather than theoretical knowledge alone. Focus group discussions were conducted with the peers of the participants and their reporting managers to map the level of competency on the basis of attitude or temperament. This was done on a five point scale where 0 was least competent and 5 was most competent. The results are tabulated below.

As of now there is no quantifiable and universal method to assess the competency of a project manager in software development environment. This paper is attempting to indicate the possibility of using simulation gaming as an assessment instrument. An experiment was conducted in a large software development firm to see the validity of this. The experiment throws a very interesting spectrum open about the usability of Simulation Gaming as an assessment tool.