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Managing teamwork in a highly distributed project

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Abstract

Today's large projects often are geographically dispersed which means that people and teams may spread across different production locations and time zones. Geographically dispersed projects generate specific problems for management in directing the project as well as, tracking teams and their progress. The authors have had industrial experiences in how to support the project management using modern intranet technologies in connection with legacy database systems. The approach is specifically based on a mature teamwork process.

1. Introduction

This approach is based on the Team Assignment Process (TAP) which is described in more detail in the "Management Support of the Team Assignment Process", S. Becker, W. Petsch. Here we focus on the execution phase of the TAP.

Managing a project requires up-to-date, accurate status information. Assuming such data can be acquired, keeping track of all of the information is an extremely difficult management activity. Ideally, the managers and the project members should be able to go to one place for all of the status information about their project. One way to provide such a place is to dedicate a single room for all project status information. Such a room, called a "War Room," can be used to visually post project status for all to see. This status information can include progress reports, trouble report status, overall project status, pictures of important contact people, charts, graphs, calendars (planned schedule - actual schedule), and the project anatomy.

The war room is a tool mainly for the project management to drive and control a project in a team-based environment. The second purpose is to facilitate team work and to maintain high-performance teams. A mechanism for visualizing project status (and related information) provides project management and teams an opportunity to uncover problems which may not have been discovered or resolved in a timely and efficient manner. This is possible because of the visual project connectivity among management and teams.

2. Managing distributed projects with virtual war rooms

There are unique project management and team problems resulting from distributed projects. It is much more difficult to keep track of the activities and the progress of

distributed teams. The people involved in the project including management and team members often do not meet and may be located in different time zones. The time zone issue is significant because the work day may only overlap by a small timeframe resulting in a lag or lack of communication.

It has been found that this problem is not resolved by adding more progress reports or more details to existing progress reports. Typically, this only generates additional administrative effort to maintain such information with little benefit to management and teams. In fact, the information may be outdated by the time it is received or presented in a meaningful format. The burden of providing such information is often placed on the team leader because of his/her experience, expertise, or willingness to do so. As a result, the team performance and motivation is negatively impacted because of the administrative effort required.

One way of resolving this issue is to rely on progress report distribution to teams and project participants via email. However, email distribution leads to administrative overhead. Storage and access to emails would have to be delegated to all project participants. Also, email does not provide a visualization mechanism for effectively relaying information about project and team progress status. It was found that this is not an effective solution to providing timely information to all participants.

The Virtual War Room is an instantiation of the war room concept using WWW technologies to visualize projects. It is designed to support reporting and information distribution in a team based geographically distributed project. The main purpose is to enable the project leaders to drive the project by visualizing the current status of the project on a daily basis and to make reporting and information search for the teams easier. It also allows the teams to visualize how they are doing with respect to other teams and within the project.

The progress reports were filled out using a WWW page and stored on the dedicated server. All progress report from all teams were instantly accessible for all project participant without any additional work. By having all reports structured and stored centrally, it was very simple to extract a specific section across all teams reports. Example: Generating a list containing all risks identified by the teams. This was available with one mouse click. In addition, it was very easy to distribute any kind of information (text, data, graphs, etc.) to all participants without bothering with different computer architecture, operating systems or applications.

3. Tracking a distributed project

In order to have an up-to-date project status, the organization must have access to timely information about the progress of the project deliverables. This information is typically not readily available but must be gathered, compiled, and then distributed among the project participants. What is needed is a properly defined process with a central CM and/or document respository that gives project management the opportunity to track the progress of a project on an ongoing basis. To accomplish this, what is needed is:

Inspections throughout all process phases.

Defined document status for all documents and the code based on the inspections (e.g.; nonexistent, stored, ready for inspection, inspected, ready for release).

Document status accessible via the CM-system/document repository.

Document type accessible via the CM-system/document repository

The different phases of a project are usually defined in a artificial way. Looking at the waterfall model, for example, a specific phase is defined using dates; whereas, the design phase is finished when all design documents have reached their final status (e.g. Released). Analysing the status of all documents gives a good picture of the current state of a project:

Table 1: Document Status for Design Phase

Document Status	% of Documents
nonexistent	10%
stored	30%
ready for inspection	10%
inspected	30%
ready for release	10%
released	10%

All of this information is available in the CM without impacting the developers (e.g. adding additional tasks to their team assignment). In addition, the project plan and assessment may be based on the information provided in the CM (as shown in Table 1) thus providing greater flexibility in managing project activities. The waterfall approach, for example, does not provide such flexibility because it summarizes information in terms of a fixed number of project activities (e.g., requirements, specification, design). The progress of the project can be calculated automatically using milestones which are defined how many documents of a specific type have reached a certain status. Our first target project used incremental development and had more than 30 teams spanning 9 time zones. The virtual war room was developed and successfully introduced while the target project was already running.

4. Lessons learned

The success of the introduction of any project management support for driving and tracking a project is closely connected to the additional work load for the project participants. Adding more administrative overhead to gain more control over the project is counterproductive as manpower is wasted and the motivation is decreased. In the introduction of the virtual war room we successfully lowered the overhead for progress reporting substantially by gaining much more information flow at the same time. The

introduction of the document based project status gave the project management a detailed picture of the running project on a daily basis that would have been not available otherwise.

5. References

References are provided upon request.