What is a *Project* and when is a *Project Manager* needed?

White Paper

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Explanation of a Project and the Value of a Project Manager

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Preface

We all know that Project Management is vital to the successful completion of large NASA-type projects. Complex technology rollouts and the big-dollar national space exploration projects have teams of project managers. Yet project management is also for small projects – even small, seemingly personal projects that may appear to have nothing to do with anyone but you alone.

This paper received an award from IT Papers.com for being one of the most requested White Paper downloads in the Corporate Computing category for October, 2002.

Overview

This white paper is intended for those who are not experienced with projects and project management. We will explain what a project is, as well as explain some of the more common terms associated with projects and project management. By the end of the document you should see the value a Project Manager can add to almost any project.

Most people view a project as a designated set of tasks needed to accomplish a particular goal. Using those criteria, many of the things you do each day could be considered projects. That is not always the case. In order to best utilize a Project Manager it is important to understand when one is needed.

People often have the wrong impression of what a Project Manager does. It is not about being able to create a complex project plan to hang on your wall. It is not about scheduling meeting after meeting. It is about understanding a business goal, understanding the technology involved, being able to communicate at various levels, being able to motivate and direct people, being able to deal with stress and problems, and being organized enough to ensure everything that needs done, gets done.

Is this a project?

For instance, dealing with your incoming mail could be a project. You retrieve the mail, sort out what is junk and what is of value, throw away the junk, open the rest, read it, and respond appropriately. Responding to a particular piece of mail could be a sub-project, involving research and organization of the results into a written format. Should you consider dealing with your incoming mail a project? Probably not, especially after the first time.

True projects share some common characteristics. They have a clear and agreed upon objective, have a defined life span, generally are doing something that is new or a one-time effort, and have specific requirements (time, cost, and performance are the three basic sets of requirements).

What differentiates a set of tasks like dealing with your mail from a true project? Let's use an example of implementing a new software system as our sample project and watch the progression of events. We will provide examples within the context of this project that should make some of the concepts more tangible.

One Possible Scenario

One day, a Manager in a very large company, responsible for purchasing parts, realizes it would be quite useful to be able to predict when certain parts are likely to be in demand. This prediction would most likely be based on things like sales data from previous periods and known trends (month, season, product line, industry, etc.). This manager may not know exactly how to achieve the end results, but he has a business reason for wanting to manage inventory better.

Some of these parts are very expensive and having too many in the inventory for an extended period of time is not good financial practice. Unfortunately, there might not be sufficient time to obtain the parts after a customer's order, due to supply chain issues. The main business objective is to be able to balance being able to promptly fill a customer's order, with a secondary objective of keeping the financial impact on the company as minimal as possible. This manager knows what they want to accomplish, but may not know exactly how to do it. We'll refer to this Manager again later as the Vision Holder.

The idea is discussed with management in the company's IT department. A Business Analyst may be assigned to investigate the matter further and report on their findings. The Business Analyst has detailed knowledge about the specific industry and processes and is equipped to determine the feasibility, define design and implementation issues, and estimate approximate level of effort required to implement this type of change. The Business Analyst determines that the information needed to predict when certain parts will be in higher demand is captured in the company's sales history database. What is needed is a set of programs that can take this data (as opposed to information), aggregate it, and produce a graphical prediction of when to add more of these parts to the inventory.

If the project is large enough, or if the potential impact of the project is great, then there will probably be an executive Sponsor.

A Project Manager is designated to assemble a project team and manage the project. The first job of the project manager is to analyze the reports produced by the Business Analyst. These reports probably include documents such as a requirements analysis stating what is *really* needed, a gap analysis that describes the specific gap in functionality between the current system and the new or enhanced system, and probably some type of detailed design document. Once this has been accomplished it is necessary to produce a project plan.

And so the process begins…

The project plan includes the following:

- A Sponsor for the project and a project board or steering committee. Often the Sponsor will specify the project board.
- A detailed definition of the new software system that is the end goal of the project. This includes a description of the expected functionality as well as a statement of the benefit that should be derived from this effort. It need be very clear what the goals and objectives of a project are at the very beginning of the project.
- A detailed definition of the work that need be accomplished to achieve the end goal of the project. This involves dividing the project into numerous tasks and determining what types of resources (people, equipment, facilities, etc.) are required for each task.
- An estimate of the amount of time necessary to complete each task for that project.
- An estimate of how many programmers, database administrators, network specialists, etc., are needed to complete the project. There are many factors that need to be considered when doing this. Will each person be 100% dedicated to the project or task? What is the skill level of the people / person being used? Will time constraints require the use of additional people in order to meet the objectives? If Consultants will be needed to help staff a project it is always good practice to identify that need early so there is time to "shop around" for the best Consultants based on your specific needs.

- An estimate of the amount of the existing infrastructure (computer systems, communication systems, etc.) needed to be dedicated to the project and the resulting software system, and what needs to be added to the existing infrastructure.
- A definition of the project review process to be followed.
- An analysis of project risks and plans to mitigate them.
- A budget for the project based on estimates from the plan.
- A test plan.
- An implementation plan.
- A roll-out plan.
- A support plan.

Once the project plan is produced, the Project Manager (we will refer to him or her as the "PM") reviews the project plan with the project board and together they agree on the estimates for human resources (programmers, database administrators, etc.), infrastructure, budget, and a schedule.

For our explanation we will say a problem is identified in the human resources estimate, and two additional programmers need to be added to the estimate, and the budget, in order to achieve the stated delivery date. The impact of this addition on the infrastructure is then also added to that estimate.

When the project plan is agreed upon, the PM proceeds to request the allocation of the human resources available for the project, to possibly assist with the hiring of additional human resources that are not available from within the company's IT department, to request the allocation of the necessary infrastructure, and to purchase the additional infrastructure necessary.

Let's look at these tasks with a little more granularity:

- Requesting available human resources means making written requests to the managers of the applicable IT departments to request the services of their personnel for a specific period of time. Hiring additional human resources may include working with employment agencies to find candidates for the roles, interviewing these candidates, negotiating compensation, and completing the hiring process. Staffing a project may also include interviewing and securing consultants.
- Requesting the allocation of the necessary infrastructure means writing very specific requests and guidelines for resources (what, how much, when, and where).
- Purchasing (for a large acquisition) means writing very detailed specifications for what is needed, issuing requests for bids or proposals, evaluating these bids with a point system, and awarding the contract to the winner. It is important to note that this can be a very involved and time consuming process and therefore must be factored into the project plan.

Now comes the real work. A few of the things that the PM must do are:

- Divide the tasks necessary to accomplish the project between the human resources that are available.
- Assure each person working on the project has the tools needed to accomplish his or her task(s).
- Assure each task is completed on time, so that any task dependent on another can begin on schedule.
- Assure the allocated existing infrastructure and newly purchased infrastructure is available when needed to support the new software system.
- Assure external tasks and dependencies are being met by; hardware or software suppliers, outsource service providers, project partners (company customers or vendors), etc.
- Perform personnel management.
- Do the budgetary accounting.
- Resolve any of the myriad problems that arise because of a flaw in the design, a programmer being sick for a week, a vital piece of equipment being damaged in the loading bay, etc.
- Report to the company officers and/or the project board regarding the status of the project.
- Periodically reassess progress, change, and risk, and take any necessary corrective action.

Once the infrastructure is in place, the programs are written, the database tables are created, and all of the other bits and pieces are ready, the PM must oversee testing. Of course the software will have gone through Quality Assurance testing by this time, but there is still response time testing (did every one of those database queries really complete in under two seconds?), integration testing (did the report that is done for the CFO every two months cause an unforeseen fatal error in the new software?), and there are the joys of getting the Vision Holder (remember him?) to agree that the new software system is doing what he asked for, and that the project is complete.

A bit more complicated than dealing with your incoming mail? Yes. But, projects vary in their complexity. A project might be a very complex effort like the one described above, accomplished by a diverse group of people in a tightly controlled environment, in a constrained time frame. Or, it might be a set of tasks that is really not much more difficult than doing your mail. Unless there is a plan to achieve the clearly defined objectives it is unlikely that a project, large or small, will truly be successful. We define success as having a project completed on time, on budget, and delivering what the end user requires.

The things that successful projects have in common are these:

- A Vision Holder who understands the problem that needs solving and what the end result of the project should be.
- A Sponsor who is responsible for making sure anything necessary to accomplish the project can be done.
- A Business Analyst who analyzes the problem and its business requirements.
- A Project Manager who constructs a project plan and manages the project through to completion.
- A detailed definition of what the end goal of the project is (how else will you know when you are done?).
- A detailed definition of the work that must be accomplished to achieve the end goal of the project.
- An overall estimate of time to completion for the project.
- An estimate detailing how many people are needed, what each of these people are to do, and how long it will take them to do it.
- An estimate detailing the changes and additions that are necessary to the existing infrastructure.
- A definition of the project review process.
- A plan to minimize and mitigate risk.
- A budget that takes all of the above into account.

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