Project Management – Initial Steps

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Introduction

A Project is a variable length undertaking, which consists of one or more tasks, which must be completed before the Project can said to be finished.

A Project Manager is the person assigned to monitor each stage in the Project to ensure that the tasks have been completed
within budget, within time and to the agreed specification.

This paper is intended as a high level overview of the concept of Project Management and as a guide to the role of a Project Manager.

Basic Project Management Outline

A successful Project Manager must simultaneously manage the four basic elements of a Project: resources, time, money, and most importantly, scope.

All these elements are interrelated. Each must be managed effectively, all must be managed together if the Project, and the Project Manager, is to be a success.

1. Resources - People, equipment, material
2. Time - Task durations, dependencies, critical path
3. Money - Costs, contingencies, profit
4. Scope Project size, goals, and requirements

Most literature on Project Management, whether it be building a house, promoting a star studded evening dinner or creating an Oracle database, speaks of the need to manage and balance the first three elements: Resources, Time, and Money, however, the fourth element is the most important

and it is the first and last task for a successful Project Manager; primarily, you have to manage the Project Scope.

The Project Scope is the definition of what the Project is supposed to accomplish and the budget (of time and money) that has been created to achieve these objectives.

It is absolutely imperative that any change to the Scope of the Project have a matching change in budget, either time or resources. If the Project Scope is to build a building to house three ice cream makers with a budget of £100,000, the Project Manager is expected to do that. However, if the Scope is changed to a building for four ice cream makers, the Project Manager must obtain an appropriate change in budgeted resources. If the budget is not adjusted, a wise Project Manager will avoid the change in scope.

Usually, Scope changes occur in the form of "Scope Creep". Scope Creep is the piling up of small changes that by themselves are manageable, but in aggregate are significant. For example, the Project calls for a building to be 80,000 square feet in size.

The client wants to add a ten-foot long, 4-foot wide awning over one bay door. That's a pretty minor change. Later the client wants to extend the awning 8 feet to cover the adjacent bay. Another minor change. Then it's a change to block the upwind side to the covered area to keep out the wind. Next, it's a request to block the other end to make the addition more symmetrical. Eventually, the client asks for a ceiling under the awning, lights in the ceiling, electrical outlets, and a water faucet for the workers, some soundproofing, and a security camera. By now, the minor change has become a major addition. Make sure any requested change, no matter how small, is accompanied by approval for a change in budget or schedule or both.

You cannot effectively manage the resources, time, and money in a Project unless you actively manage the Project Scope.

When you have the Project Scope clearly identified and associated to the timeline and budget, you can begin to manage the Project resources. These include the people, equipment, and material needed to complete the Project.

Managing Resources - People, Equipment, and Material

A successful Project Manager must effectively manage the resources assigned to the Project. This includes the labour hours of the designers, the builders, the testers, and the inspectors on the Project team. It also includes managing any Contractors or Consultants. However, managing Project Resources frequently involves more than People Management. The Project Manager must also manage the equipment used for the Project and the material needed by the people and equipment assigned to the Project.

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1. People - Project employees, vendor staff, subcontract labour
2. Equipment - Cranes, trucks, backhoes, other heavy equipment or Development, test, and staging servers, CD burners or Recording studio, tape decks, mixers, microphones and speakers
3. Material - Concrete, pipe, rebar, insulation or CD blanks, computers, jewel cases, instruction manuals

Managing the people resources means having the right people, with the right skills and the proper tools, in the right quantity at the right time.

Managing direct employees normally means managing the senior person in each group of employees assigned to your Project. Remember that these employees also have a line manager to whom they report and from whom the usually take technical direction. In a matrix management situation, like a Project team, your job is to provide Project direction to them. Managing labour subcontracts usually means managing the team leader for the subcontracted workers, who in turn manages the workers.

The equipment you have to manage as part of your Project depends on the nature of the Project. A Project to construct a frozen food warehouse would need earth moving equipment, cranes, and cement trucks. For a Project to release a new version of a computer game, the equipment would include computers, test equipment, and duplication and packaging machinery. The Project management key for equipment is much like for people resources. You have to make sure you have the right equipment in the right place at the right time and that it has the supplies it needs to operate properly.

Most Projects involve the purchase of material. For a frozen food warehouse, this would be freezers, the building, and the material handling equipment. For a Project to release a music CD by a hot new artist, it would include the CD blanks, artwork for the jewel case, and press releases to be sent to deejays. The Project Management issue with supplies is to make sure the right supplies arrive at the right time (we'll talk about the right price later). All your skill in managing resources won't help, however, unless you can stick to the Project schedule. Time Management is critical in successful Project Management.

Managing Time and Schedule

Time Management is a critically important skill for any successful Project Manager. Project Managers who succeed in meeting their Project schedule have a good chance of staying within their Project budget. The most common cause of blown Project budgets is lack of schedule management. Fortunately, there is a lot of software on the market today to help you manage your Project schedule or timeline.

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1. Tasks - Duration, resources, dependencies
2. Schedule - Tasks, predecessors, successors
3. Critical Path - Changeable, often multiple, float

Any Project can be broken down into a number of tasks that have to be performed. To prepare the Project schedule, the Project Manager has to figure out what the tasks are, how long they will take, what resources they require, and in what order they should be done.

If you omit a task, the Project won't be completed. If you underestimate the length of time or the amount of resources required for the task, you may miss your schedule. The schedule can also be blown if you make a mistake in the sequencing of the tasks.

Build the Project schedule by listing, in order, all the tasks that need to be completed. Assign a duration to each task. Allocate the required resources. Determine predecessors (what tasks must be completed before) and successors (tasks that can't start until after) each task. It's pretty simple and straightforward.

For instance, think of a Project called "Getting Dressed In The Morning". The task "put on top" may have a longer duration if it is a buttoned shirt than if it's a pullover. It doesn't matter which order you complete the tasks "put on right shoe" and "put on left shoe", but it is important to complete the "put on socks" task before starting either of the "put on shoes" task.

The difficulty in managing a Project schedule is that there are seldom enough resources and time to complete the tasks sequentially. Therefore, tasks have to be overlapped so several happen at the same time. Project management software greatly simplifies the task of creating and managing the Project schedule by handling the iterations in the schedule logic for you.

When all tasks have been listed, resourced, and sequenced, you will see that some tasks have a little flexibility in their required start and finish date. This is called float. Other tasks have no flexibility, zero float. A line through all the tasks with zero float is called the critical path. All tasks on this path, and there can be multiple, parallel paths, must be completed on time if the Project is to be completed on time. The Project Manager's key time management task is to manage the critical path.

Be aware, that items can be added to or removed from the critical path as circumstances change during the execution of the Project. Installation of security cameras may not be on the critical path, but if the shipment is delayed, it may become part of the critical path. Conversely, pouring the concrete foundation may be on the critical path, but if the Project Manager obtains an addition crew and the pour is completed early, it could come off the critical path (or reduce the length of the critical path).

Regardless of how well you manage the schedule and the resources, there is one more critical element - managing the budget.

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Managing Costs, Money, and Profits

Often a Project Manager is evaluated on his or her ability to complete a Project within budget. If you have effectively managed the Project resources and Project schedule, this should not be a problem. It is, however, a task that requires the Project manager's careful attention. You can only manage effectively a limited number of cost items, so focus on the critical ones.

1. Costs - Estimated, actual, variability
2. Contingencies - Weather, suppliers, design allowance
3. Profit - Cost, contingencies, remainder

Each Project task will have a cost, whether it is the cost of the labour hours of a computer programmer or the purchase price of a cubic yard of concrete. In preparing the Project budget, each of these costs is estimated and then totalled.

Some of these estimates will be more accurate than others. A company knows what it will charge each of its Projects for different classifications of labor. Commodities like concrete are priced in a very competitive market so prices are fairly predictable. Other estimates are less accurate. For instance, the cost of a conveyor system with higher performance specifications than normal can be estimated to be more expensive, but it is hard to determine whether it will be 10% more or 15% more. For an expensive item, that can be a significant amount.

When the estimated cost of an item is uncertain, the Project budget often includes a design allowance. This is money that is set aside in the budget "just in case" the actual cost of the item is wildly different than the estimate.

Unusual weather or problems with suppliers are always a possibility on large Projects. Companies usually include a contingency amount in the Project budget to cover these kinds of things.

So, a Project budget is composed of the estimated cost, plus the contingency and design allowance, plus any profit. The Project Manager's job is to keep the actual cost at or below the estimated cost, to use as little of the design allowance and contingency as possible, and to maximize the profit the company earns on the Project.

To maximize your chances of meeting your Project budget - meet your Project schedule !! The most common cause of blown budgets is blown schedules. Meeting the Project schedule won't guarantee you will meet the Project budget, but it significantly increases your chances. And above all, manage the Project Scope. Don't allow the Project Scope to "creep" upward without getting budget and/or schedule adjustments to match.

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Project Control

There are various methodologies that assist Project managers to control Projects. They include PRINCE 2, a system that recommends a whole scheme of roles, forms, and stages, checklists that facilitate Project control. There are universal tools like GANNT charts and PERT charts that provide visual evidence of Project progress. Increasingly Project managers rely on Project planning software like Microsoft Project to help in planning and controlling Projects that are more complex. This software is also able to generate charts, plans, and critical path networks.

Conclusion

Successful Project Management is an art and a science that takes practice and above all correct guidance and training.

How can Seer Computing Ltd help you with Project Management?

We have experienced Project Managers who can help you run your Project from start to finish.

We can provide Project Management Consultancy during key periods of the Project life cycle

We can provide training courses for team leaders to become Project Managers.

Contact details

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