Keeping Your Project on Track

By Bruce Beer, PMP

Introduction

Even in these enlightened days where projects are the lifeblood of most companies' success, many projects fail, or at least fail to meet one or more of their three key expectations of time, cost, and scope. Being one of these statistics does not usually enhance a project manager's career and prospects. The following is meant to provide key pointers to you as a project manager (PM) to help keep your projects and careers on track.

The root of success for all three baselines is a good solid plan that is well defined, well understood by all stakeholders and is thought to be achievable. In this paper we examine each of the three key baselines of a project – time, cost and scope – to see what tips and tricks exist that might help you in future projects.

Keeping Your Project on Time

Consider this scenario:

You want to be seen as a leader among PMs in your company and to bring your new critical project in on time, leading to much praise, admiration and maybe even a pay raise. You completed a Microsoft Project® schedule and even highlighted the critical path, so now you are in business and feel confident about your success.

After a month, you have been focusing on your critical path and making sure these activities receive your full attention. Doing so, in your mind, ensures you will finish on time.

These are both faulty assumptions. There are certain fundamentals that you as a project manager need to understand before you can manage your project to a successful conclusion.

You must know the priorities of your triple constraints: time, cost and scope:

- Is this a time-driven project where you may have a fixed date for project completion? For example, the lease on your current hardware runs out on an immovable date and you need to have a new system using the latest software running on your new hardware by that date.

- Is it a cost-driven project where there is a fixed budget which cannot be exceeded on pain of death or job termination?

- Is it a scope-driven project, where the scope defined in the scope statement is absolutely critical? For example, migrating an old system onto a new platform, where total pre-existing functionality needs to be retained.

Not only must you know your highest priority, you should also know the order of the remaining two. You need to know your highest priority, lowest priority and the one in the middle before you start detailed planning.

Why should you know what the triple constraint priorities are? If your project is time-critical but you treat it as cost-critical, you might do an excellent job and end up coming in on cost, but after the due date, which would not be considered successful. Similarly, you might bring a cost-driven project in on time but overshoot your budget – again, not advisable for long-term career continuation.

For time-driven projects, some factors that you as project manager should consider to maximize the chance of bringing your project in on time include:

- You must keep your project schedule updated. Your critical path can get out of date and be potentially useless very quickly. The critical path might shift at any time, leaving you highly focused on the old, out of date and incorrect path. This is unlikely to lead to success.

- Keep activity lengths short for optimal monitoring and control. On normal projects, it is recommended that you keep activities to 10 days or less. (If an activity is greater than 10 days, break it down into sub-activities so each one is less than 10 days.)

- Time estimates should be as realistic as possible and provided by the best source. Do not be optimistic. Rarely is optimism rewarded.

- Carefully evaluate and include time risk, especially on critical path activities.

- Never plan on working overtime. This is a contingency you might need to use during execution.

- Do not accept unrealistic requirements from your managers or customers. Better to suggest realistic alternatives that can be achieved than to accept unrealistic requirements and fail.

Note that, as always, the root of project success is in the planning. If we follow the above suggestions to create a realistic schedule, we know the initial and most recent critical paths and we recognize and know what to do if the project starts to slip. If we follow the above suggestions, we stand a chance of bringing our time-driven project to a successful conclusion.

Once started, if your project starts slipping and you have detected the slippage at the earliest opportunity, for a time-driven project where scope is the middle priority and cost is the lowest, a sequence of remedies you might consider, in order, could include:

- Look for someone already on your project with the appropriate skill set who is available, is not on the critical path and has sufficient slack to assist with a critical path activity. Temporary addition of this resource to the critical path should bring your project back on track, retaining full scope with minimal additional cost.

- If there is no one suitable available in your project, you could look outside your project but within your company to keep additional costs as low as possible.

- If this is not possible, look outside the company for short-term consulting. This may initially require some time in getting the resource up to speed, but eventually they will be fully productive and bring the end date to where it should be but at additional cost. (Note that this assumes scope is a higher priority than cost.)

If the second priority had been cost rather than scope, then your first point of attack might be to remove some scope to bring the project back on track. There may be some bells and whistles that could be eliminated without affecting the overall effectiveness of the project. This should not involve extra cost.

Enabling this kind of flexibility means having a good idea of the full skill set of every project team member on your team, even if they are not using all their skills on this project. It would also be helpful to be familiar with other projects going on in your company and network frequently with the other PMs so that short-term transfer of resources between projects is relatively easy and will improve the overall success of projects in your company. Doing so requires that other PMs in your company are using critical path analysis on their own projects.

There is a great deal more to managing a time-critical project than outlined above, but this should act as a good starting point.

Keeping Your Project within Budget

Now let us turn our attention to one of the other key baselines: cost. If you have ever managed a project that has come in over budget, you may already realize that this is not entirely appreciated by management. So, how do we keep within budget?

Before we can plan to keep within budget, the first thing we must do is to set a realistic and comprehensive cost baseline, or budget, to keep within. Everyone knows that one of the key elements of cost is the cost of your resources. Most of us know that to determine this cost we need to identify *all* scope, create a work breakdown structure (WBS) once we have identified all deliverables, break those deliverables down into activities, allocate a resource or skill level to that activity and then estimate the duration for each activity. Once all that is complete, we can calculate a cost for each activity by multiplying the daily rate for the resource due to perform that activity by the duration. Once this is done for every activity (I strongly suggest you use a scheduling tool such as Microsoft Project® or similar), we can aggregate all these costs into one overall cost for the project – a bottom-up estimate of resource costs.

What many people do not realize is that this is *not* the budget; there are other costs involved to create the budget and some can be significant. These include items such as:

- Project Management / Project Management Office (PMO) costs

- Subcontractor costs

- Outsourcing costs

- Cost of quality (design, measurement, hardware, software, testing, inspection, etc)

- Risk contingency

- Cost of communication (time to create, disseminate, read, respond, etc)

- Costs of hardware, software, applications, tools, etc, that you require to complete the project

- Cost of facilities and utilities, etc, if they are allocated to your project

- Travel costs (transport, accommodation, living expenses, etc)

Once we have identified all estimated costs for the project based on a firm, solid knowledge of scope, we need to ensure that the unexpected does not come along and rock our financial boat. Two key elements that can throw our carefully created cost budget off track are additional costs due to risk and changes.

To ensure that we have allowed ample funds for known risks, take care to follow good risk management practices. This includes identifying as many things that can go wrong as possible, allocating the appropriate amount of contingency funding for each and then combining these into a project risk contingency fund.

The other factor, change, can be good for a project. It can breathe new life into a project, improve functionality and generally make the end result better. However, the downfall of many a PM is the dreaded scope creep, or uncontrolled change. Each PM should have access to their company's formal change management methodology or, if there is no such thing, create and distribute one to all stakeholders. Everyone should be familiar with the change process:

- If they want a change, they should request it in writing and give it to the PM (always the PM, never anyone else) so that it can be implemented.

- The PM will log the request to enable them to track progress, ensure an impact analysis is completed (detailing any additional scope, time and cost required to implement the change).

- The change request will be given to someone who is qualified to authorize the change (normally the customer).

Providing a project manager does not implement any changes at all without prior authorization, their project (and probably career) is as well protected as possible.

In the final reckoning, when managers ask whether the PM has met their cost targets, the PM should add all the authorized additional cost of changes to the original budget and compare that to the actual cost. Providing the PM has done a good job on risk contingency planning and rigidly enforced change management, they should be looking for promotion, pay raises, bonuses, appreciation from your management and an enhanced reputation. On the other hand, failure to identify and budget for all scope to be included in the project, failure to identify and allow for risks that can throw you off track and failure to manage change correctly will certainly lead to unwanted effects. The project will likely be over-time and over-budget.

Once a PM has identified the budget correctly, allowed for risk and rigidly controlled changes, then regular monitoring of costs during the lifetime of the project will enable identification of problems at the earliest opportunity. So what do you do if, despite excellent planning, costs start to exceed estimate and you can see defeat staring you in the face? If this is a cost-driven

project where cost is the top priority, the first step would probably be to remove some scope until costs come back under control. When defining scope, you probably defined the "must haves," the "wouldn't it be nice ifs" (WIBNIs) and the "bells and whistles." So when looking for some scope to remove, we can look first at the bells and whistles, then possibly at the WIBNIs. Using earned value management throughout the implementation of the project would help identify cost issues as early as possible, thereby enabling you as PM to step in and start corrective action as soon as possible.

To summarize, the keys to bringing projects in on budget are:

1. Good scope definition, to ensure everything is included during cost estimation

2. Good estimation of *all* project costs, not just team resources

3. Good risk identification, quantification and contingency funding and planning

4. Very tight change management throughout the project from all stakeholders (including the customer), such that no changes are implemented unless correctly authorized

5. Regular cost monitoring during the life of the project, resulting in prompt action to correct slipping costs and bring the project back on track

Keeping Your Project on Scope

We have now dealt with how to keep your project on track with regard to time and how to stay within budget. In this final section, we will now look at keeping within defined scope and avoiding the dreaded scope creep.

As with time and cost, to be able to meet your scope baseline, you first have to establish it. Project implementation can either be based on a firm, solid bedrock of requirements or it can be built on the shifting sands of indecision, false assumptions and differing interpretations, which will eventually sink the project and lead to project failure, recriminations, accusations, heated arguments and potentially a visit by the PM to the unemployment office. So, what are the basic requirements for a solid scope baseline and how do we create one?

The first step, often omitted, is to identify *all* project stakeholders – anyone who impacts or is impacted by the project. This is critical because any one of those stakeholders may have a requirement that is vital to the success of the project. If we miss this requirement at the start, it may take time, money and added complexity to include it later. It is imperative to interview, perform surveys, have workshops, etc, to ensure we get the full set of requirements at this stage, rather than during acceptance testing. However, note that not all stated requirements

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will be included in the final scope of the project because each requirement has to be cost justified.

Once we have identified all requirements, we can then start building our project scope by first identifying the deliverables required to meet them, then discussing and agreeing to these with the customer (the person paying for the project) to decide which requirements are "must haves," "wouldn't it be nice ifs" and "bells and whistles." At this stage, if there are any areas of uncertainty, they should be clearly identified as definitely either "in scope" or "out of scope," just so that there is no ambiguity or room for interpretation at a later date. Then we can create the work breakdown structure (WBS) – the heart of all project planning – based on these deliverables, followed by a specification. The WBS together with the specification create the scope baseline. The purists amongst you will know that there is a third element of the scope baseline, called the WBS dictionary, but we will not consider this now.

Okay, so now we have a solid scope baseline. We know exactly what it is the project has to deliver and we have created a detailed project plan based on the WBS. The primary task is to ensure that the project meets the three baselines. Controlling and meeting the scope baseline is probably the easiest to achieve, as there is one main process used to control scope: change management. This means that any deviation from the original specification will need to be formally requested, evaluated and authorized by the customer before it is implemented. The novice PM may hold the belief that any change that does not involve additional time or cost does not need to go through the formal rigor of change management. This is a faulty assumption and potentially damaging to the project.

Let us consider an example in which a customer wants to change the length of an address line from 25 to 30 characters. Let us assume this is recognized before the programmer has written that section of code, so there will be no additional time or cost just to extend that field. So why bother to create a formal change request for such a simple change? We will examine this from three main viewpoints: ripple effects, acceptance and stakeholder satisfaction.

Ripple Effect

If there is no formal change management process, the programmer extends the address line and keeps this as a well hidden secret because they do not want the PM to find out they did it. What harm can it do?

Let us suppose the address is part of the order input screen. Other areas of the software, such as invoicing, will be working on the specified basis of 25 characters per line, so all printouts, disc records, searches, etc, would use this basis. So the ripple effects of this apparently innocuous change can be many and serious.

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Acceptance

Now examine the acceptance for the above. During acceptance testing, the person performing the test will look at the specification (25 characters), incorporate any formal authorized changes (none) and will expect the test to meet this combined requirement (25 characters). The tester puts in a 24 character address, expecting it to be processed correctly. Then they will try a 25 character line with the same expectation. Then they try a 26 character line and expect it to fail and produce an error message. It accepts the over-length line without any problem. The tester will then declare that the acceptance test has failed.

Now let us consider the correct procedure. The customer creates a change request for the address field to be changed to 30 characters and gives it to the PM (all change requests must go to the PM). The PM logs it and sends it out for impact analysis. The analysis comes back identifying other parts of the project that might be affected by the additional characters and additional changes that might be required. The result is that there is minimal or no time or cost impact. The customer would formally authorize this change and the change would be implemented. The acceptance tester will see the initial requirement of 25 characters, will have the authorized change to 30 characters and will test accordingly. The field will now pass acceptance testing.

Customer Satisfaction

The third perspective to review, customer satisfaction, is defined as the project meeting the key baselines (expectations) for time, cost, and scope. Consider a fairly substantial change. If the change does not go through the formal process, it will not be formally approved, so in addition to failing acceptance, we now have additional time and cost to worry about. PMs are measured on how well we perform against the project baselines (customer expectations) for scope, time and cost. Immediately the PM now fails on all three baselines.

If there had been a formal approved change request, the project would then meet the scope requirement (initial specification plus formally approved changes). If the project took longer than initially planned but there are formally approved change requests providing an audit trail for the additional time to perform changes, then the initial time estimate plus authorized additional time is the new measure against which the PM will be judged. The same with cost – the initial cost plus approved changes is the new measure for the PM, so providing they meet their initial estimates plus allowances for formal changes, the project is considered successful. In conclusion, formal change management creates an audit trail of authorization for any change to the original baselines.

Another situation occurs when someone in the customer's organization asks a team member to incorporate a change. If it is not formally analyzed and brought to the attention of the

authorized customer representative for approval, they may end up with something that they did not want and could justifiably ask for the change to be removed.

Most companies these days will have a formal change management process with which the PM should be familiar and use. One of the key areas discussed by a PM during the project kick-off meeting will be to review and distribute copies of the change management process to all stakeholders. The PM should explain the serious repercussions of not following this process. If the customer is not at the kick-off meeting, the PM should review and agree on the process with the customer prior to the start of implementation, to ensure understanding and agreement on the change control process.

The triple constraints (scope, time and cost) are highly interrelated. If time or cost start going out of control, one option depending on constraint priorities is to de-scope the project to bring it back on track. De-scoping will involve looking at "bells and whistles" first, to see which can be removed with least impact on the end product. Once all of these have gone, the next object of your gaze will be the "wouldn't it be nice ifs." If you reach the end of these and are left with the prospect of de-scoping some of the "must haves," you have a serious problem. Removing any "must haves" will affect the viability of the project, so at this stage scope cannot be reduced further. You will need to review cost and time to reach the optimum results.

Conclusion

We have reviewed some of the key ways to enhance the chances of keeping a project on track in terms of the three key baselines of time, cost, and scope. There are certainly additional factors to consider: experience, skill level of your team, maturity of your customer, and management support and involvement. The tips shared here will at least give you the main pointers to staying on track and becoming the project management star of your company.

About the Author

Bruce Beer, PMP, is a certified project manager with over 30 years in the IT industry and over 25 years of project management experience in Europe and North America, including 20 years for Hewlett Packard Consulting. He is the founder and president of Apollo Project Management Consulting and specializes in project management training, project recovery, and project support. He is currently an instructor and course developer, including creating a class on project recovery. Bruce is a member of the Project Management Institute, Inc.

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