

## The Four Pillars of project management

### Background

This article is intended to give a round up of key practical project management practices to the novice as well as to the experienced. About 90% of this article is coined by others. As a practitioner, I have practiced and experienced these and benefited from these. The 10% original stuff of mine in this article come from my experiences.

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### Pillar 1 - Plan for the work

Every professionally managed, successful project is driven by a project plan and every un successful project is driven by the project itself. Very often project managers complain about the futility of making project plans and maintaining them. I agree as well as disagree.

I agree with the complaining project managers in the following scenarios;

- The organization doe not provide enough flexibility to tailor the plan, as per the project requirements. It is a one fit for all kinds of project scenario, where even smaller / simpler projects as well as larger / complex projects follow the same planning process. In this scenario, the project managers are right. The onus is on the organization to go back and improve their project planning guidelines / processes / templates.
- Let us understand this very clearly, under the sun no framework / standard insists on every project following the same planning process. It is up to the organization to become more creative and innovative in this area, if there is unrest among the project mangers with the current system of project planning.

I disagree with the complaining project managers in the following scenarios;

- I don't believe in planning, because the scope changes very often. A flexible project management framework will allow for scope changes. In an environment where there is frequent scope changes, the project manager is much safer by having a plan in place.
- The sponsor do not want documented plans ( he need not really worry about the plans, if he takes a stance like that, he cannot be blamed. It is the PMs responsibility to have plans and manage the project as per the plan.
- It is an overhead (you are only postponing the double overhead). Believe me, I have seen superb project managers, managing even a three month duration project, in a highly professional manner, with highly customized plans, very effectively.
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## Pillar 2 - First things first

### Critical path

"Critical path" refers to the sequence of activities from project start to end that bump up back-to-back against each other without any float. Another definition is "critical path is the longest path in the project network". This sequence of activities must be completed on schedule for the entire project to be completed on schedule. If the end date for the project has slipped, it is because at least one activity on the critical path did not complete on time.

It is important to understand the critical path to know where you have flexibility and where you do not. You may have a whole series of activities that end up running late, yet the overall project will still complete on time since the late activities are off the critical path. Similarly, if your project is falling behind, placing additional resources on activities that are off the critical path will not result in the overall project completing any earlier

Pretend you are the project manager for these examples:

Q1. One of the activities that you estimated to take two weeks has ended up taking five weeks instead. Should you panic?

A1. Is the activity on the critical path? If it is, your project will be delayed three weeks and you should look for ways to get back on schedule. If the activity is not on the critical path, then the activity delay may be a problem (for instance a budget problem), but may not cause a delay in the project.

Q2. Your sponsor just told you that the project needs to be completed three weeks early. You have a plan to assign a second person to complete a six-week activity in three weeks. Should you pat yourself on the back for a job well done?

A2. Is the six-week activity on the critical path? If it is, you may be able to meet the earlier end date. If the six-week activity is not on the critical path, you are just kidding yourself.

Unless you are able to accelerate activities on the critical path, the end date for the entire project will remain the same. Applying additional resources to activities that are not on the critical path may allow those activities to be completed early, but they will not affect the overall project end date. Your chance to make an impact on the estimated end date relies on your ability to identify and shorten the critical path. **The critical path may change**

There are many sequences of activities (paths) on a project to get from the beginning to the end. Given that there are many, many paths through the workplan, it's possible for the critical path to change. Some times there can be multiple critical paths (same duration). Remember that the critical path has zero float. However, other paths may have only a small amount of float. If a second path, for instance, has three days of float, what will happen if one of the activities on the second path took an extra five days to complete? All the sudden, the second path would become the critical path, and the original critical path would now have two days of float.

In summary, if you need to manage the duration of your project, you need to understand the critical path. The only way to impact the overall completion date is to impact activities on the critical path.

**Pillar 3 – Have a proper project tracking system in place.**

A good project tracking system should track the triple constraints of scope, schedule and cost and the best way to do it is to have an earned value management system in place, supported by a change management system

**EVMS - A framework for project progress tracking What is Earned Value Management?**

Earned Value Management (EVM) is a method of projecting cost or schedule overruns in a large project. It primarily defines a working relationship between the Federal government and its contractors. Many elements are involved and will be detailed later, but generally include task definition, appropriate communication pathways, cost projections, and comparisons between the actual and projected cost of a project. Thus, two sets of values are created; one firm set prior to project initiation and one fluid set based on the real costs of meeting tasks and objectives. EVM is a form of comparative analysis between the two throughout the life of the project.

With baseline values fixed prior to starting a project, the technique can locate deviations in project progress early, while they are small, before the cost to correct them becomes overwhelming. Earned Value Management can also be referred to as a cost/schedule control system (C/SCC). Early agreement on the EVM methodology, objectives and criteria is critical for projects that may last for many years. The main objective is always to contain cost, save money if at all possible, and locate early warning signs of deviation from the planned timeline of the project.

EVM is not a process, it is a system of criteria applied to baseline values and actual costs alike. No system can be used for more than one project - each is unique.

Cost and schedule are closely bound in EVM - each one drives the other and the completion of the whole project. Within EVM the two can be fully interrelated while maintaining distinct influences in contributing to project completion. One cannot vary from the project plan without affecting the other, thus this technique can spot changes in project progress even before monthly reports are filed.

**Terms to know**

<b>acronym</b>	<b>Term</b>	<b>Interpretation</b>
PV	Planned Value	The estimated value of work planned to be done
EV	Earned Value	Estimated value of work actually accomplished
AC	Actual cost	The actual cost incurred for the work actually completed
BAC	Budget at completion	How much did we budget for the total job?
EAC	Estimate at completion	What is the estimated cost (as of today) for the completion of the total project?
ETC	Estimate to complete	From now on, how much more do we expect it to cost, to complete the project?
VAC	Variance at completion	How much over / under budget do we expect to be at the end of the project?

### Formulas and interpretations

<b>Name</b>	<b>Formula</b>	<b>Interpretation</b>
<b>Cost variance (CV)</b>	<b>EV - AC</b>	<b>Negative is over budget, positive is under budget</b>
<b>Schedule variance (SV)</b>	<b>EV - PV</b>	<b>Negative is behind schedule, Positive is ahead of schedule</b>
<b>Cost performance index (CPI)</b>	<b>EV / AC</b>	<b>We are getting \$ ----- for every dollar spent</b>
<b>Schedule performance index (SPI)</b>	<b>EV / PV</b>	<b>Our progress is only at -----% of the rate originally planned</b>
<b>Estimate at completion</b>		
<b>EAC</b>	<b>BAC/CPI</b>	<b>If you will continue at the same rate of spending</b>

	<b>AC+ETC</b>	<b>Used when original estimate is not applicable any more. A new estimate for the remaining part of the work is made and added to the actual cost incurred so far</b>
	<b>AC + (BAC-EV)</b>	<b>Used when current variances are atypical of the future. Actual to date plus remaining budget</b>
	<b>AC + (BAC-EV)/CPI</b>	<b>Actual to date plus remaining budget modified by performance</b>
<b>Estimate to completion (ETC)</b>	<b>EAC – AC</b>	<b>How much more the project will cost?</b>
<b>Variance at completion (VAC)</b>	<b>BAC-EAC</b>	<b>How much over budget will we be at the end of the project.</b>

### **Steps to implement an earned value management system**

#### **Step1 – Agreement on a common yardstick for measuring project progress**

A progress report is a useful method to control cost and schedule. Due to lack of standardization of the term ' percentage of work completed ', very often it becomes difficult to monitor the progress of projects in organizations, based on a common yardstick. In professional project management, there exists standard norms for accounting the work accomplished. The following are the norms;

#### **50/50 rule**

A task is considered 50% complete when it begins and gets credit for the last 50% only when it is completed.

#### **20/80 rule**

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A task is considered 20% complete when it begins and gets credit for the last 80% when it is completed

### **0/100 rule**

A task gets 100% credit, only when it is completed.

If organizations can decide on one of these ratios as their norm for progress monitoring, then project progress across projects / locations become comparable, instead of leaving it to the whims and fancies of interpretation of different stakeholders.

The first step in implementing earned value management system is the agreement on one of these ratios, as the basis for tracking progress of every project within the organization.

### **Step2 - Determining the level of the WBS to track**

Too much tracking is bad. Too little is also bad. Striking a balance is very critical. Earned value management reports do not come free of cost.

The costs associated with a EVMS are;

- Data gathering costs
  
- Data processing and distribution costs
  
- Data analysis costs
  
- Corrective action costs

If the implementation is at the grass root level, the costs will outweigh the benefits. If it is at a very high level, then both the cost and the benefits will be low, which is again not desirable. The level of implementation is directly linked to the organizational structure and the managerial levels. Hence this has to vary from organization to organization.

### **Step 3 – Ensure the availability of the support systems (eco system)**

What are the components of the eco system for successful deployment of earned value management system?

- Budgeting system (scope, schedule, cost baselines)
- Scope, schedule and Cost monitoring system
- Automated earned value management system
- Change management system
- Project management review system

### **Pillar 4 – An atmosphere conducive for team work**

The four stages of team formation are;

- forming
- storming
- norming
- performing

During forming, the team member is new to the team or the team itself is new. During this phase everyone will be introspecting, whether their decision to join the team is right or wrong. Slowly they start expressing their view points based on their past experiences and this phase is the storming phase and the project manager's primary role will be of that of conflict resolution. Then slowly the team settles down (norm) and start performing. During this stage the project manager should learn to give maximum freedom to the team to perform.

The real challenge is not this. These days, the project cycle times are shrinking, and the project team need to pass through these phases of forming, storming, norming and performing very fast. How to achieve it?

The project management body of knowledge advocates 'servant leadership' along with monitoring and control.

What is servant leadership?

A servant leader is servant first. It begins with the natural feeling that one wants to serve, to serve first. Then conscious choice brings one to aspire to lead. That person is sharply different from one who is leader first, perhaps because of the need to assuage an unusual power drive or to acquire material possessions. For such, it will be a later choice to serve, after the leadership is established. The leader first and servant first are two extreme types. The difference manifests itself in the care taken by the servant first to make sure that other peoples highest priority needs are being served. The best test and the difficult to administer is this;

- Do those served grow as persons?
- Do they, while being served, become healthier, wiser, freer, more autonomous, more likely themselves to become servants

Another tool is to administer Q12 at regular frequencies;

The essence is to get self rating from the team on the following 12 questions at regular intervals and constantly strive to get a higher rating on these;

- Do I know, what is expected of me at work?
- Do I have the material and equipment I need to do my work right?
- At work, do I have the opportunity to do what I do best every day?
- In the last seven days, have I received recognition or praise for good work?
- Does my supervisor or someone at work seem to care about me as a person?
- Is there someone at work who encourages my development?
- At work do my opinions seem to count?
- Does the mission/purpose of my project make me feel like, my work is important?
- Are my co-workers, committed to do quality work?
- Do I have a best friend at work?
- In the last six months, have I talked with someone about my progress?
- At work, have I had opportunities to learn and to grow?

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As a project manager, if one can ensure high rating by the team members on these 12 questions, continuously, the probability of your success will be very high.

#### About this article

About 90% of this article is coined by others. As a practitioner, I have practiced and experienced these and benefited from these. The 10% original stuff of mine in this article come from my experiences.

#### References

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