Critical Chain Project Management: Not A Panacea, Just a Silver Bullet

Sanjeev Gupta

Fifty years of failed promise

Since critical path was invented in 1950's, it has created a multi-billion dollar industry worldwide. The Gartner Group estimates that companies spend close to $2 billion per year on early generations of project management software and associates services. Even with so much investment, it is regrettable that most projects, regardless of industry or type, are delivered late, over budget and under scope:

- Over 83% of IT projects are delivered late/over-budget. Projects completed from large companies have only 42percent of the originally designed features and functions (Standish Group Report – Chaos, 2000).

- Over 85% of engineering projects in the semiconductor industry finish late (2001 survey by Numetrics, Inc., a semiconductor productivity research company).

- On average, high-tech projects are late by 100%, despite the use of project management software and traditional tools (University of California at Berkeley).

- 80%of all embedded systems are delivered late (The Gansale Group, 2001).

- Most defense projects take too long/cost too much. Seven of the 10 largest smart procurement projects are late/over budget (National Audit Office, UK, Dec 2002).

In addition, organizations have encountered a strong resistance internally to make a change. Rigorous project plans quickly degenerate into a series of artificial milestones. Project participants stubbornly refuse to provide timely updates on project progress and executives often ignore resource availability during portfolio selection and prioritization.

As if 'customers' are the problem

The simultaneous presence of few results and strong internal resistance leads many observers to, most incorrectly; conclude that there is a causal relationship: improvements do not materialize because there is a strong resistance to change. Therefore, they stress that the answer lies in educating the organization on benefits of discipline, grounding project managers in the discipline, and getting executives to enforce such discipline.

The alternative explanation – a flawed solution

There is a contrary opinion. Lack of improvements and resistance to change, others say, arise from the same root cause: traditional project management is useless for its 'customers'. Since the product does not serve their needs, failure and resistance are natural.

So, what is wrong with traditional project management?

Traditional project management assumes a perfect world, one that does not exist. The theory is that you create a good plan, follow it, and projects will get done. In reality, many uncertainties strike you in execution:

- Requirements change

- Technology fails

- Vendors do not deliver

- Work materializes slower than expected

- Approvals do not come on time

- Priorities change.

The extent of uncertainties is what makes projects unique. These "unplannable" uncertainties account for more than 30% of a project's work. As uncertainties strike, plans go haywire, especially in multi-project situations. People are constantly pulled from one project to fix other project's problems. Priorities become unclear and people start multitasking. Delays compound. Managers are continually surprised by schedule slips. Focus shifts from delivering projects to explaining delays.

The next time, people are forced to create a more meticulous plan. Of course, that only means they now have even more details to track and explain. Managers at every level, wary of all uncertainties and delays from their

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previous experience, begin hiding safeties in their commitments before sending the plan upwards. Finally, everyone gives up on project planning. Dictating commitments and "managing on the fly" looks more attractive.

Is it really rational to expect people to embrace project management, knowing that it will bring no benefits and, possibly, make their life worse? Why force them to create project plans that will become obsolete before execution begins or issue a report status that is misleading?

The silver bullet

Critical Chain Project Management (CCPM) is the silver bullet that <u>delivers results</u> and <u>lowers the resistance to change</u> because of its unique ability to accommodate and manage uncertainties.

For the first time, managers can make project plans and execute them knowing they reflect the reality of their uncertain world. Of course, they still need basics like creating project plans, getting timely updates, and paying attention to resource availability. The difference is that by providing a means to accommodate and manage uncertainties, CCPM makes doing these activities practical and purposeful. For example:

1. No detailed planning upfront: Only high-level requirements and activities are needed during planning. Detailed project specifications are added as they become available in execution.

2. No more re-planning cycles: Even as uncertainties strike, project plans and due-dates remain valid. The burden of constant re-planning is removed.

3. No need to hide local safeties: Because explicit buffers are available to absorb and lessen the shocks of uncertainties, project participants are no longer measured regarding on-time completions of individual activities. Furthermore, CCPM even provides measurements that encourage people to give up local safeties.

4. Simple, meaningful updates: Project participants only report the time they need to finish what they are working on.

5. Utility for project participants: For the first time, project plans and progress updates can be used to dynamically synchronize priorities within and across projects.

6. Early warning signals: Managers do not have to manage on the fly.

7. Resource balancing: As resource estimates become more real, executives become eager to properly balance projects and resources instead of dictating commitments.

Implementation of CCPM

There are many myths that have been promoted by detractors of critical chain and more than a few quacks. Some of these myths and corresponding realities are:

- En masse cultural change myth:

  One widespread myth is that en masse changes in organizational culture and individual behaviors are needed. You have to discard old, sinful behaviors and embrace new, holy behaviors. Extensive education in the principles of CCPM and constant sermons by managers and consultants are proposed. Reality proves that changes in organizational culture and individual behaviors are an effect of, not a prerequisite for, implementing CCPM.

- Need for accurate data myth:

  The second popular myth is that one needs to collect precise data on task uncertainties. Significant literature is devoted to the science and art of collecting such data. Reality shows that CCPM is powerful because uncertainties, by definition, cannot be precisely known.

- Basic project management first myth:

  In many quarters, there is also a belief that you need to do basic project management first - and then embark on CCPM. As discussed before, in reality, so-called basics stand almost no chance of success. Furthermore, these basics are actually more complicated to implement without the common sense of CCPM.

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One might ask, "Where is the catch?" It is unrealistic to assume that nothing will have to change in order to reap the benefits of CCPM. So, here is the real scoop. Properly done, CCPM implementations rely on very few, but powerful, changes, brought about in a systematic manner.

Five changes that drive success

1. Task Manager Responsibility and measurement:

   Task managers are closest to where projects are executed. Making them responsible for execution (define task details, ensure priorities are followed, and provide progress updates), and rewarding them accordingly gets you maximum bang for the buck.

2. Master Scheduler role (only in multi-project environments):

   A senior person is made responsible for ensuring that project due-dates are capacity tested.

3. Buffering Policy guidelines:

   Executives specify the minimum buffers that projects should have to be considered for execution.

4. Project templates:

   A set of templates that anyone can customize/ fine-tune for their projects, without having to master the art of defining networks, are created. There are usually about half a dozen types of projects in organizations.

5. Aggressive estimates at the task level to accommodate buffer:

   Explicit buffers in projects also mean that safeties should be reduced from individual task estimates. There are three ways to do so and managers decide on how they would do it in their organization.

   Option A – Just do it: Start with the due-date, put in the buffer and then shrink task durations to fit the available time. Half of the practitioners use this approach.

   Option B – Take estimates from management: Experienced managers usually know how long it takes to finish a task. Around one third of practitioners use this approach.

   Option C – Ask rank and file: They can provide estimates, assuming they will be working on only one task and they will not be penalized for exceeding the estimates.

With these five changes in place, a good scheduling and information system takes care of the rest. It automates data collection, does the calculations, and provides appropriate reports to all managers so that they can measure performance and make decisions.

Fifty years after the advent of project management, it is finally possible to make projects finish on time, on budget and at scope. Successful operations know this and harness CCPM. Others languish in the land of fear and myths.

About the author

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