Delivering Successful Projects
Part 1 "What's Happening to Our Projects?"

Delivering successful projects is absolutely critical to business success. More and more businesses are turning to project oriented approaches. Project management methods are being applied to an ever-increasing variety of activities.

Construction	**Maintenance**
Software Development	**Reengineering**
Process Improvement	**Product Development**
Marketing	**Research**
Mergers & Acquisitions	**Renovations**
Stock Offerings	**Outsourcing**
Systems Integration	**Planning and Budgeting**

Yet there are numerous complaints that seem to be common to all project areas.
- Usually original due dates are not met.
- There are too many changes.
- Necessary things are not available on time. (Information, specifications, authorizations, etc.)
- There are major conflicts about priorities between projects
- There are budget over-runs.
- There is too much re-work
- In general projects take too long.

More and more businesses have spent large amounts of money training managers in project management methodologies and yet the problems continue to exist. Managers work very hard to control and deliver their projects and yet successes are hard to find. Why are so few projects meeting expectations and why are projects lead-times growing longer and longer?

To understand the answers to these questions, we need to look at the assumptions on which current project management methodologies are built.

"The way to improve performance of the organization is by inducing local improvements everywhere."

"The way to have the project finish on time is by putting pressure on each task to finish on time."

Current project management methodologies usually begin with defining project objectives and scope and getting everyone to commit to doing their part. Then project planning identifies the tasks that need to be performed to implement the project. Tasks are sequenced into project networks that show task precedence and dependencies. Tasks are assigned to responsible task managers who are asked to develop estimates for the time that is required to complete their tasks. Experienced managers know that they have to allow for significant uncertainty. Murphy's Law – **"Whatever can go wrong, will"**. So each task manager adds to the bare minimum work time some amount of safety to counteract Murphy. If we assume that 50% of the time a task will be completed early and 50% of the time a task will be completed late, we see that a statistical "bell shaped curve" could be employed to describe our estimating certainty. Of course reality and human nature are at work, and we actually see that as the degree of uncertainty rises more and more safety time is required to make the task manager comfortable. Most experienced task managers like to operate in the 85-95% comfort zone. After all they are accountable for the "on time" completion of their tasks. In general the amounts of safety time that are added to the actual base amount of task work time is usually double or triple the base task time. That means that most projects have significant safety built into their schedules. Yet we know that few projects finish on time. What's happening to all that built in safety? If half of the tasks usually finish early and half of the tasks finish late, shouldn't the safety time even out? Maybe, if we were not dealing in a real world populated by human beings. Let's examine what happens to all that safety.
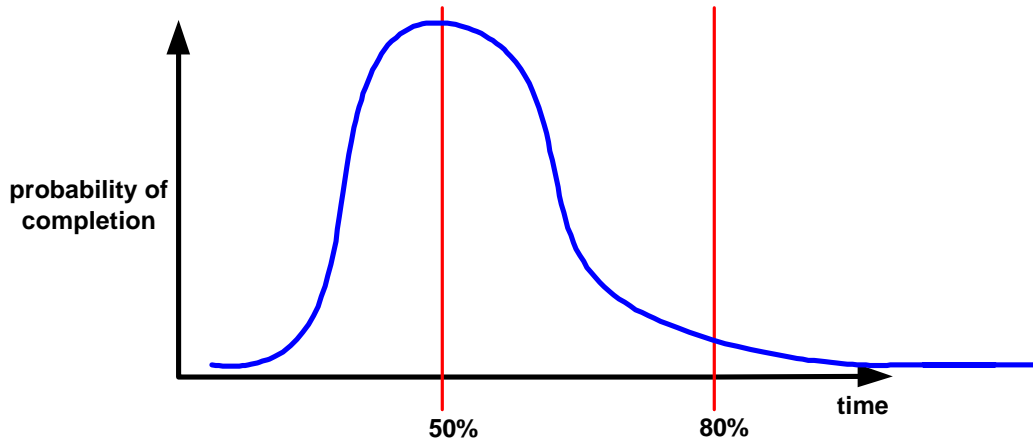
Fig. 1 A Statistical Representation of the Expanding Uncertainty of Estimates

The first thing that happens is called "the student syndrome". I have a task to perform, I have an amount of time allotted. I know the date when my work is due. But, I have other things that at the moment are more critical, so I've got plenty of time, I'll get started later. Of course, once I get started I run into some of those expected potential problems and delays, so the task completion just got shifted by the amount of my delayed start. I wasted some or all of the safety by procrastination. OK, but every task manager doesn't procrastinate so what happened to all that built in safety. The next thing that happens is called Parkinson's Law – **"Work expands to fill (and often exceed) the time allowed"**. Suppose I could deliver my task early. As an experienced task manager I fought hard to get my task time estimate accepted. If I'm early, then next time I turn in an estimate my managers will not trust me, and they will cut my time estimates. So, human nature finds a way to take all the time I was given and use it. I can always polish things a little, or add some extra redundancy or expand my scope slightly. The result is safety doesn't get given back to offset other delays. It is used.

Another cause of lost safety is seen in the normal "integration" of tasks. Tasks A,B,C,D,E are all integrated into Task F in the project network section shown below. They are called predecessor tasks of Task F because the are all required before Task F can be performed. This "integration of tasks" configuration is common throughout any typical project network. Task A finishes 10 days early, Task B finishes 7 days early, Task C finishes 9 days early, and Task D finishes 12 days early. We are accumulating some useful and needed safety. But, Task E finishes 6 days late. Because Task F can't start until all of its predecessor tasks are completed, all the accumulated extra safety from the early finishes is lost.
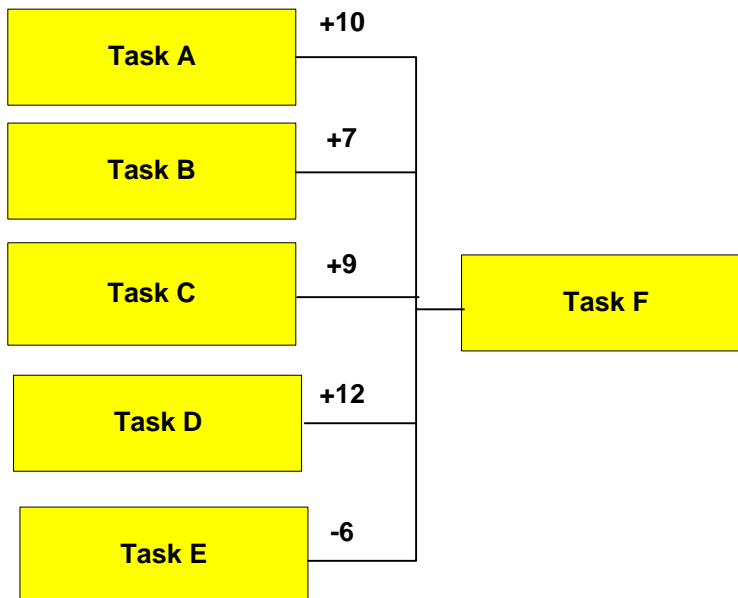

Fig. 2 A Typical Segment From A Project Network Showing Task Integration

Next, because we live in a real world, project resources are rarely dedicated to only one project. We can't afford to have people sitting around waiting for predecessor tasks to be done. I am working on project "A's" task when it comes time for me to start working on project "B's" task. Of course the project "B" manager screams loudly, that I have to stop what I'm doing and get on with his project. So I leave project "A's" task incomplete and start on project "B's" task. Soon, project "C's" manager wants me to stop everything and get started on his project. So I stop working on "B's" task and move to project "C". In a while, project "A's" manager starts screaming loudly that her project is suffering, so I switch back. Then "B's" manager starts to yell, so I switch again. I'm multitasking. The result is that even though each task had safety included to deal with that project's uncertainty, my multitasking adds additional delays because I lose time each time I come back to a previous task. I have to figure out where I stopped working previously, and I have to get familiar with this task all over again. Everybody loses, all the projects have late tasks.
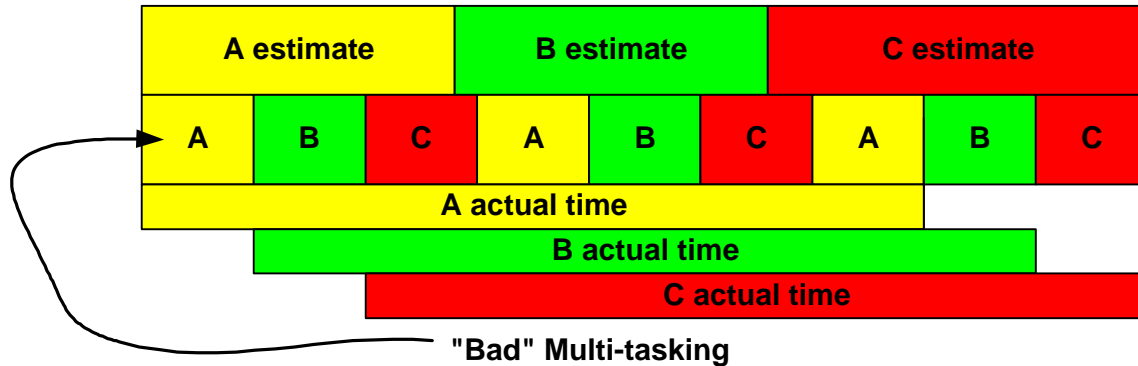

Fig. 3 The Expansion Of Task Completion Time As A Result Of "Bad" Multi-Tasking

So the "student syndrome" causes safety to be wasted and tasks to be late. Parkinson's Law eats up any "early finish" safety reserves. Normal task integration loses all safety if any parallel task is late. And "bad" multitasking causes tasks to be extended by the addition of stop and start set-up time. What are the chances that a project will be early? (Zero). What are the chances a project will be on original plan? (Slim to none.) So now we have a good idea why so many projects are late. Additionally, if you are a task manager and your tasks were late and your project was late. What will you do on your next time estimates? You're going to add even more safety. So the more times people do projects the longer their estimates and the longer the project lead times will grow. There must be a better way. In part 2, we will explore it.

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About The Author
Mr. Keslensky has been an executive in the personal computer industry for over 20 years. Today he is the head of Connected Concepts a management consulting firm which specializes in applying Constraint Management and the Theory of Constraints for Manufacturing, Logistics, Supply Chain Management, Project Management and Service Industries.
Contact Information:
Phone: 770-481-9992
Jerry.Keslensky@connectedconcepts.net