IMSI news & views

P R O J E C T P L A N N E R S & M A N A G E R S

Selected Articles Edition 5

Order v. Flexibility

The following is an excerpt from "Managing Projects in Organizations: How to Make the Most of Time, Techniques, and People," by J. Davidson Frame.

Project management can be viewed as a struggle against the basic principle of the second law of thermodynamics, which states that things tend to dissolve into a state of random disorder. With project management, we try to reverse this sequence; we strive to create order where the natural state of things seems to be chaos.

In our drive to create order, however, we run the risk of sacrificing reasonable flexibility on the altar of formal project requirements. The rationale for inflexibility is that order comes from structure: we convince ourselves that the more formal the structure we impose on our projects, the less chaos we face. Thus, we may require all project changes to be approved by three levels of management, and we may require staff to fill out six-page progress reports every week. We may also put together very detailed plans for our project, so that nothing is left to chance. We may hold daily staff meetings to make sure that workers know what they are supposed to do. And so on. In our attempt to realize order, we may instead achieve stifling bureaucracy.

One of the hardest tasks facing policy makers in project organizations is striking a balance between the need for order and the contrary need for flexibility. Why is flexibility necessary? Because projects are full of surprises, and overly rigid systems cannot respond adequately to surprises, just as a rigid stick will snap after it has been bent only a little. This is especially true with information-age projects, which deal with intangibles and tend to be amorphous. By their very nature, they are hard to plan in detail and they defy attempts at tight controls.

Too often people do not understand that order can be attained without excessive formality. If we are conscious of what we are doing on projects and avoid being accidental project managers, if we invest in front-end spadework, if we anticipate inevitable problems, and if we penetrate beneath surface illusions, we will help establish order in our projects.

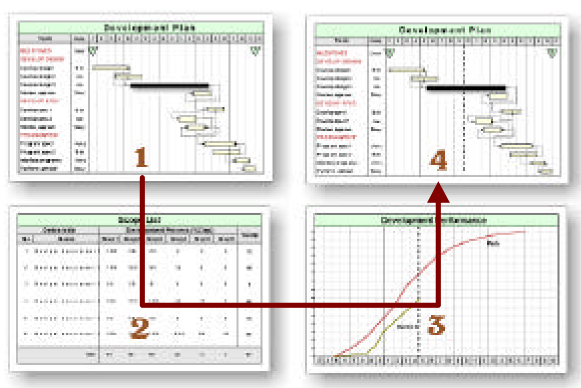
Tracking the Elusive "Big Long Bar"

The planner's life has never been easy. Finding useful methods in a wilderness of project management theory can be a challenge.

We often find "big long bars" appearing in project schedules to describe extended duration tasks that seem to defy detailed scheduling. BLBs wander the forest of product development programs challenging even the bravest planners to track their progress.

Crack any project management textbook to find the virtue of breaking big tasks into small ones and sequencing them into a tidy view of the future. Product development activity can be iterative and uncertain making detailed task sequencing within and between development teams ineffective. How then do we track progress against a 32-week development BLB when we know **what** needs to be done, but **not specifically how**?

IMSI has developed methods for dealing with the BLB beast. One method is described in four general steps below:



1. **Develop a workplan**
   - Establish required start and completion dates for BLB development activities.
   - Validate the overall duration based on historical data and development requirements.
2. **Develop and maintain a scope list**
   - Initially, define all BLB development documents (drawings, specs, etc.) and relative weightings – on the left; then, define typical development steps and relative weightings – on the top.
   - When updating for progress, assess the % completion by document by step; then, calculate overall % completes using weightings.
3. **Develop and maintain progress curves**
   - Initially, develop progress curves for overall development task and sub-groupings based on the workplan and scope list.
   - When updating for progress, plot % completion values for each progress curve based on results of the scope list update; then, analyze current progress, trends, and forecasts.
4. **Report progress**
   - Based on progress curve analysis, update the BLB to reflect its current status.

This method improves progress tracking for this work and provides a good checklist of what's-left-to-do that teams often lack.

If you want to know more about the method and the systems that IMSI has developed to support it, contact your account manager or Jim Coleman at the office. It might make you a better outdoorsperson.

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If, in addition, we reject unnecessary formality and rigidity, we may be able to have our cake and eat it too - that is, we may be able to achieve order and flexibility simultaneously.

Strong degrees of formality are appropriate on some projects. For example, as projects get larger the number of communication channels that must be maintained grows explosively, and formal protocols must be established to coordinate communication efforts. As a consequence, it is common in programs with budgets greater than $100 million to find from 50 to 65 percent of the total project budget dedicated to project administration.

Heavy formality may also be appropriate on low-risk projects when we know precisely what must be done to produce the desired deliverable. When we build a house in a development of nearly identical houses, for example, we specify in detail many formal requirements that project staff should meet; we leave nothing to chance. Such low-risk projects have a minimal need for flexibility, since they encounter fewer surprises than high-risk projects.

Information-age projects typically do not fall into either of these two categories. First, because they deal with information rather than with bricks and mortar, they do not usually achieve the size of projects to construct buildings or build fighter aircraft.
Second, because they deal with intangibles and are hard to get a handle on, they tend to be filled with uncertainty. Given the smaller size of typical information-age projects and their high degrees of uncertainty, the need for rigid formality in their management is generally low: therefore, in most such cases, heavy formality is undesirable. Having said this, I want to point out that this call for flexibility on information-age projects should not be used as an excuse for poor planning and control.

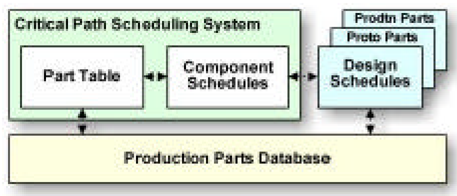
Answer to Good Question

The mule was "the beast (that) best burdens my budget least." The elephant would take about 29 hours for $1005; the ostrich, 173 hours for $1037; and the mule, 37 hours for $747.

Design Schedule to Production Part Database Interface

The following is an excerpt from "Critical Part Management in a Part Management World" by Matt Steigerwald. For the complete article, go to imsi-pm.com.

Perhaps the most important interface to the component schedules is the design schedule. A comprehensive process for scheduling the design activity is a key success factor for a vehicle development program. Management of this activity through an integrated schedule is essential. A thorough effort to establish design release requirements, obtain forecasts of estimated completions, enact recovery plans where necessary, and monitor progress to schedule is a primary focus of project management in the automotive industry. The design schedule enables component and tool planning to proceed based on the receipt of a verifiable deliverable.



The development of detail designs is the first activity that produces a measurable deliverable at a part number level. As such, the design schedule serves as an important source of confirmation of the part content from the production database. The design schedule is also the official source for design release dates. During the early planning phases, design releases are projected using estimated design durations and critical path techniques. Once a design schedule is available, the scheduled dates are used to kick off the downstream tooling and procurement activities. Information that would affect a promised release date should be fed back through the design schedule process.

The critical path component schedules also provide information back to the design schedule. Design release requirement dates are developed using a backward pass from part availability requirements, incorporating tooling and procurement lead times. Using a critical path system provides the necessary flexibility to model the various activities and relationships that may be required for different parts. Based on this late schedule date and some knowledge of what the design activity can achieve, a part release requirement date can be negotiated. This requirement may reserve some of the float for the manufacturing activity. An effective component and tool scheduling system will leverage the data in the design schedule. To reenter these dates into the component schedules would be time consuming and prone to clerical error. The preferred solution is an electronic interface. The design schedule release dates can be matched to the part content in the scheduling system. The corresponding part release milestones in the activity networks can be updated via the link to the part table.

Good Question!

Igny Uss was sitting on a 5000-lb. pile of rock looking quite sedimentary. Slo Lava passing by gave him a stony look but then asked, "Igny, you look ashen." Igny responded that he needed to transport the pile to a site 5000 feet away, but his cart had no ass to pull it.

Slo said his brother-in-law was a beast-leaser and offered three choices outlined on a brochure he pulled from his pocket:

eBeast.com		Pull Rate (feet/hour)		
Leased Beast	Max. Load Size (lb)	Fully Loaded	Fully Unloaded	$/hour
Elephant	2000	1000	1200	35
Mule	1500	800	1600	20
Ostrich	800	300	900	6

Terms and Conditions:
1. Beasts get twenty minutes rest between trips during which carts may be loaded/unloaded.
2. Leasee pays for all beast time between the start of the first trip to the return of the beast to the initial pile site when done.
3. Pull rates on partial loads may be prorated.
4. Beasts work round the clock.

Igny paused, "If I can load and unload the cart in less than twenty minutes, which beast best burdens my budget least?" Slo gazed at the pile and thought to himself, "Good question!"

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