

VIEWPOINT

Penny Wise and Pound Foolish:
Realistic Resource Scheduling*by Harvey A. Levine*

There is a four hundred year old English saying: “*Penny Wise and Pound Foolish.*” We are all guilty, at some time, of this tendency to mind things in painstaking detail and let larger things get by with much less scrutiny or care.

I was reminded of this at a recent presentation in the Netherlands, when faced once again with the question: “*At what level of detail should I assign and control resources?*”

This led to a heated discussion, as there was a considerable range of opinions in this matter. Frankly, during my 45 years of PM practice, I have done a complete about-face on this issue.

Traditional Thinking

With the development of sophisticated resource scheduling (resource leveling) software, as far back as the 1960's, many PM practitioners became strong supporters of using these tools to develop extremely detailed resource schedules. We assigned resources down to individual people, first in weekly or daily time segments, and later even down to the hour and smaller increments. And we scheduled these assignments way out into the future – at times as much as several years. We thought that, with the power of the computer, this would provide better plans.

There were at least two problems with this. First, the resource leveling algorithms in most scheduling software, were exceptionally weak, resulting in automated resource schedules that contained excessive and unnecessary voids in assignments. This caused schedules to be unnecessarily stretched out and showed resources to be only partially utilized while, in reality, they were overloaded.

Second, there was a tendency to disregard the reality that, over time, the schedule would surely change, that the individual resources available would change, and that the work scope, itself, would change. The result, with the aid of the computer, was a very precise error. The data, delivered by this automated resource scheduling, was not entirely a waste. It did present a view of what the demand on resources could be if this were indeed the schedule and loading. It did point a finger to potentially critical resources. But, in all likelihood, we already knew which resources were in high demand and short supply.

For certain, the data was virtually useless for actual scheduling of resources. For a scheduling authority and software champion such as myself, this statement might be considered heresy. Yet, today, I confess to leaning toward less detail and more common sense in how we go about developing schedules that account for realistic limitations in resources. Not that I prescribe less diligence in attending to resource scheduling. Rather, I

believe that we can accomplish our goals in this area better than with the traditional detailed assignment approach.

Assumptions

My proposed approach is predicated on the following assumptions about assigning and scheduling resources on projects:

- The availability of most resources is fluctuating and flexible
 - Resource pools change. People come and go.
 - Supplementary resources are often available
 - Many labor resources have multiple skills
- The schedule for work changes
 - Most plans are obsolete by the time they are published
 - The definition for the work changes as predecessors are completed
- The work scope changes
 - Items are added and deleted
 - Items are redefined
- Only a select few resources are critical
 - It is common to have one or two resource groups that are in short supply and not easily supplemented.
 - There can also be a few named individuals who's specialties are unique and in demand.
- Resources are being shared among multiple projects. A key goal is to optimize the value of the firm's resources by assigning critical resources to projects that will deliver the most benefits.

The New Conventional Thinking

- Demand on resources should be forecast well into the future. But actual assignment to the work should be for a shorter range and detailed scheduling of the assigned work should be even shorter.
 - Identify expected resource need by assigning the resource classification or craft (System Analyst, Carpenter) rather than by individual.
 - Do not use automatic resource leveling, but rather evaluate computer-generated resource aggregation for potential overloads.
 - Consider resource mitigation options for projected overloads.
- Demand on resources should not be satisfied by a computer-based algorithm, but rather by assignment by resource managers.

- An exception to this can be made in the case of identified critical resource groups or individuals. In such instances, trial leveling runs can be made for such resources to seek the most efficient scheduling of work within these resource constraints. However, this should primarily be for guidance only, due to the limitations of the software to optimize resource assignment timing.
- This chore is made simpler by allocating resources to work groups (programs, projects, work packages, etc.).
 - Allocation of resources to programs/projects is made by the resource owners.
 - The actual assignments are made by the program/project managers, rather than the functional managers.
- The actual assignments are not made and scheduled to individual tasks until it is fairly well known when that task will be available to start.
 - For instance, the project team holds Friday afternoon meetings to list the tasks and assignments for the next week. Work in progress is assumed to continue (unless there are problems) and new items are added (from the approved task list) based on availability to start, priority, and availability of resources.

Benefits

- Planners do not get bogged-down in superfluous details.
- Sufficient resource loading information is available for long-range planning and resource overload mitigation.
- High-level, critical-resource analysis helps to determine optimal maximum project load.
- Allocation by resource owner but assignment by project manager is more practical and makes the process more local.
- Assignment of resources is more timely and up-to-date.
- Assignments of currently available resources are made to currently scheduled tasks.



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Mr. Harvey Levine, PMI Fellow, is a well-known project management (PM) author, consultant, and authority on the subjects of PM software, technology, earned value, project portfolio management and general PM practices. He has nearly 45 years of PM experience, including 24 years with the General Electric Company. Since 1986, Harvey is a Principal with The Project Knowledge Group, a PM consultancy based in New York and California that specializes in building PM competencies and providing guidance, training and services related to PM software selection, evaluation & implementation. He is also a leading advocate and mentor in the expanding field of Project Portfolio Management. One of the leading consultants to the PM software industry in the USA, he has provided advice and services to many of the leading vendors in this field. Harvey has also been recognized as a PM software industry watchdog, and a PM software "guru" for his knowledge, understanding, and insights regarding both vendor and user issues. Mr. Levine is the author of three books: "*Project Portfolio Management: A Practical Guide to Selecting Projects, Managing Portfolios, and Maximizing Benefits*" (recently published by Jossey-Bass); "*Practical Project Management: Tips, Tactics, and Tools*" (John Wiley & Sons 2002); and "*Project Management using Microcomputers*" (Osborne/ McGraw-Hill 1986). Former editor of the PM Software Forum in PMI's *Project Management Network* magazine for 13 years, he has published over 240 articles and whitepapers on PM in the past 15 years. Mr. Levine served as President and Chairman of the Board of the Project Management Institute (PMI®) during 1985-86, received PMI's Distinguished Contribution to Project Management award in 1989, and was elected a Fellow of PMI in 1998. He was named a Global Advisor for PMForum.org and **PM World Today** in December 2006. Harvey can be contacted at halevine@earthlink.net. Additional information about Harvey Levine can be found at <http://www.pmforum.org/pm%20forum%20team/index.htm#3>