

Program Manager and Engineering Effectiveness Whitepaper

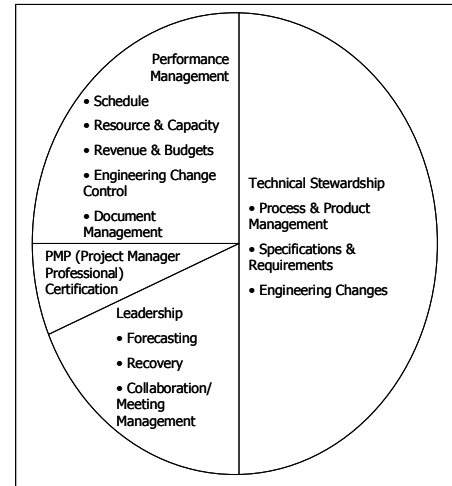
By Ted Barth, Managing Partner BNW Manufacturing Associates LLC

Program Management Effectiveness Overview

One of the largest paradigms in project and program management is the proper use or lack of use of the proper fundamental principles and project technology tools. This paradigm causes laborious effort to plan, track, and be proactive on project schedule, work requirements and capacity, and project costs and prevents quality performance of projects.

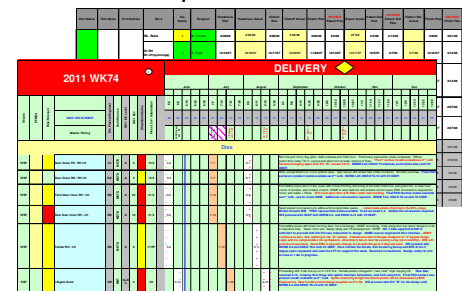
There are, in fact, a number of best practices that practitioners can utilize to avoid or eliminate laborious effort, simplify the project management process, and greatly improve project and program performance. This whitepaper will summarize the major best practices in five categories—schedule; resource & capacity; integration of projects in master schedules on major, complex programs; cost; and technology. Interestingly enough, these best practices are universal to the five major, robust technology alternative choices of project software manufacturers.

If you view program manager effectiveness in the adjacent skill set pie chart, you will understand that the upper left hand quadrant contains all the aspects of schedule, work, engineering changes, documentation, and cost that pertain to their ability to provide the project driven organization with forecasted outcomes in the most efficient manner.



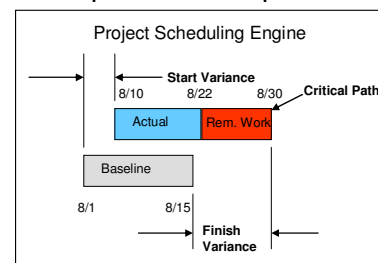
Effectiveness of Scheduling Functionality

The number one project scheduling software application is spreadsheets. Spreadsheets are popular but in reality very ineffective. They are the most popular because they are easy to use, require minimal training, and require no company reporting standards. The negatives outweigh the positives—spreadsheets are more laborious for data entry and maintenance by 3:1; rarely have schedule baselines which foster accountability; although they track plan and actual, they cannot forecast; and are impossible to roll up data for executive decision making.



Any robust Project Technology software tool will do all of the work that spreadsheets *do not do*—including the singular most important functions—provide a critical path for exception management (productivity), provide an accurate forecast of expected schedule outcomes, and provide project schedule variances and resulting accountability.

There are twelve best practices that all users of robust project technology can learn and utilize in order to achieve good project schedules. These practices primarily have to do with the



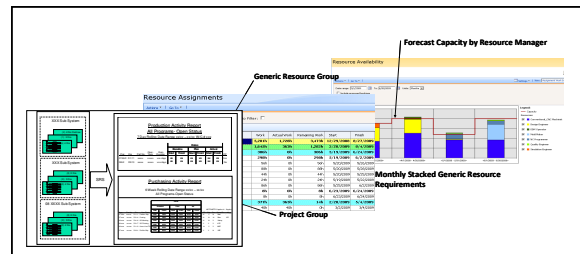
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granularity of the tasks with work and the workflow linking of tasks and the limiting of relationships/ schedule constraints that destroy critical path calculations that forecast schedule outcomes that can be acted upon. They also provide project schedule baselines and standard “rollup” rules that promote accountability which when acted upon, produces high performance results. See adjacent diagrams.

Effectiveness of Resource & Capacity Functionality

A typical paradigm that exists is that resource requirements and capacity are somehow related and capacity can be resolved with a technology “leveling” function—highly promoted by project software manufacturers. This is simply not true-- resource requirements can be effectively developed by utilizing resource and capacity best



practices allowing both of them to be independently time phased. These resource requirements and resource capacity are totally independent of each other and are never equal. This principle leads project management organizations to the ten best practices resulting in program manager effectiveness. Granularity of tasks that will accept generic resources (standard skill set resources) and not accept organization roles (too broad and too general) nor named resources (names of individual contributors) which is too detailed are another paradigm. Organizational leadership can assure the project management office (PMO) that Resource Managers will be accountable by providing resource managers the rolled up multiple project schedule tools filtered for their needs and the capacity planning tools.

Once program management system forecasts the time phased resource requirements, resource managers will utilize the information to schedule project task work within his/ her control. Resource manager own Capacity forecasts then are compared to generic resource requirements and provide intermediate term to long term capacity management tools the organization needs to not allow internal resource capacity constraints to interfere with customer scheduling.

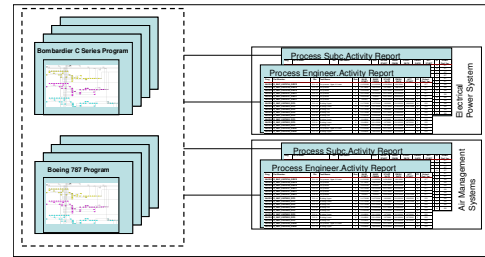
These are a few of the ten best practices provide the easiest, shortest path to project performance by providing project managers of multiple projects much a more proactive scheduling and capacity planning by resource managers to supply projects with the right resources at the right time—thus promoting high performance schedule and budgeted work performance. Using robust technology--activity reports, assignment views, and capacity views and data roll up--- provides the resource manager the tools to execute and the project manager the tools to forecast resource bottlenecks causing unfavorable schedule and cost variances.

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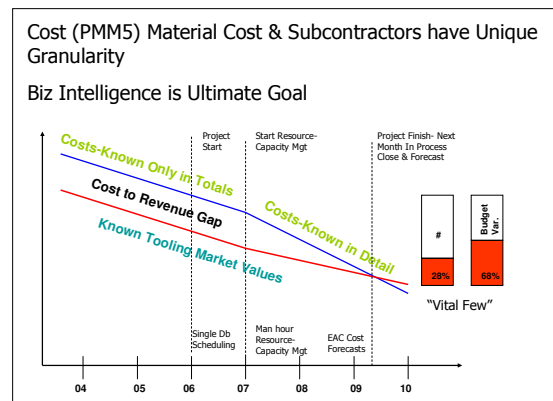
Effectiveness of Integrated Master Schedule Functionality

Program management effectiveness has the tendency to be worse organizations with very large programs that have multiple systems and sub systems due to the complexity of linking workflow processes between these complex, large programs. The best practice to improve program management effectiveness is to have all project, sub system, system, and program data in a single, central database and provides the ability to build integrated data toolsets that provide program managers the program information they need to more effectively manage a complex program. See adjacent diagram showing multiple projects of systems and subsystems on the left feeding data reporting on the right showing resource manager information in resource and capacity functionality section.



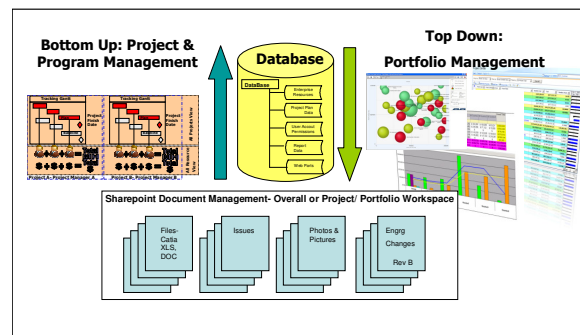
Effectiveness Cost Functionality

Project Costs have a unique set of criteria that will allow an advanced level of project management maturity and yet keep it simple. There are five best practices that allow this result. Man hours forecasted and progress tracking from resources should be extended by standard generic rates to provide man hours- human resource investment costs. This cost best practices leverages the resource functionality best practice of a previous section. Purchased costs should be grouped in material packs in the ERP system through organization of Engineering bills of materials structure and those material costs transferred with line of business integration to the central project database. Planned costs should not necessarily be assumed to be the same as baseline cost since baseline costs may or may not be achievable compared to historical experience. These are some of the cost best practices that promote program manager effectiveness.



Program Management Effectiveness Best Practices—Functionality- Technology

One of the little understood advancements in Technology has been available from all the manufacturers of robust project software tools since the year 2000- 2002 period. This technology is the web based access to a central database, otherwise known as enterprise technology. This technology has opened the



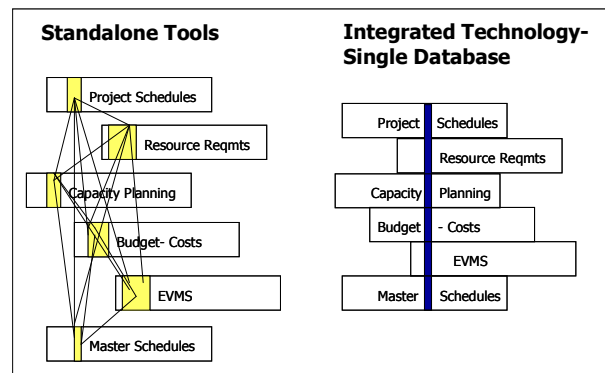
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door to a host of program manager and engineering productivity opportunities. Having all project data in a single data base and having it web accessible to all users—project managers, resource managers, and operational and financial executive is the single most powerful best practice of all. There are five best practices in this area. That startling fact that to achieve this powerful functionality that 90% of the total functionality is contained in that project scheduling standalone functionality that everyone already has—the enterprise system capability just unleashes these functional best practices. There are several best practices – which is not available with all the robust technologies—is an integrated document management database that allows document “space” with the project and programs. Another one with the Bottom up technology now has Top down technology “Portfolio Management” technology--- all integrated into the same central database. This technology allows organizations that formally plan “pipelines” of planned project with full time equivalent (FTE) manpower resources.

Source of Productivity resulting in Program Manager Effectiveness

Most program management organizations who do not use many of the above thirty best practices, cannot break their paradigms of how a central database can automatically produce program manager effectiveness improvements to a significant degree. The reason is that Managers and Executives cannot visualize the wasted effort and laborious effort of their utilization of spreadsheets and project tools in order to justify the investment of technology and structure to eliminate these inefficiencies.



The adjacent diagram demonstrates how this is possible. Note in the diagram on the left that with standalone technology and tools the data transfers are both redundant and laborious—as demonstrated by the “spaghetti chart”. Also note the size of the data effort is quite large represented by the width of the yellow bars. Note that when all the data is entered into a single database, as shown on the right, that all the data is entered only once—as represented by the blue bar. This drastically reduces effort, eliminates redundancy, increases accuracy and produces huge gains in program manager effectiveness.

About the Author:

Mr. Barth’s use of the BNW Project Management Maturity Model and best practice approach using principles and technology is considered one of the most accelerated and ease of adoption approaches in U.S. Industry today. BNW is considered to be a subject matter expert and leader in the development of schedule, resource capacity management and cost management use for complex projects and programs. Mr. Barth currently is a guest speaker at PMI chapters and industry groups nationally on these topics.