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A Focus on People: The Plan for Microsoft Office Project 2007

By Daniel Queva, Senior Product Manager, Microsoft Project

As Steve Ballmer talked about in his keynote at the 2006 Project Conference, the Microsoft team is still hard at work building the next version of Office — formerly code named Office “12.” Across the entire 2007 Microsoft Office System, the focus for our innovations has been the same: We’re continuing to improve people’s ability to lead what Bill Gates likes to call the “Digital Workstyle.”

In essence, we are trying to do what we can to make all the details of everyday business operate more smoothly and efficiently. The goal is to empower people to make better decisions through digital techniques and execute the processes that drive business success. No application is more in tune with this overall mission than Office Project.

Bringing people together with the intangible objectives and processes of an organization, is exactly why Project was designed. With people at the center, there are three areas where we are trying to broadly innovate in the next version of Microsoft Office, and specifically with Microsoft Office Project 2007.

Unlocking Business Information and Putting it to Work

Number one, we’re trying to improve people’s ability to work with others across boundaries. These boundaries exist in many areas — inside companies, between organizations, between information sources, and between vendors, partners and customers. The

purpose here is to streamline access to information, so workers can find what they need to make necessary decisions. This concept has many implications, and the functionality we are producing can support a wide variety of scenarios.

As it relates to Project 2007, these innovations come mainly through improved usage of Office SharePoint Server 2007, as well as integration with the Microsoft Office Business Scorecard Manager product introduced last fall. These innovations will help companies take more of the information that today feels like it’s bound up in the project management system, and make it more accessible.

Number two, we have tried to raise the visibility and insight into data that comes from using Project. In other words, we are putting that new information to work in new ways with new tools, that allow for better reporting and analysis. Importantly, this elevates data visibility to business decision-makers who are generally outside the main project flow.

For example, the Business Scorecard Manager allows the company to pull information from line-of-business systems. Key performance indicators such as project spend against budget in various parts of the asset portfolio, can be displayed graphically using Project 2007 through a SharePoint-based interface. The system allows for a view into what’s on time, what’s over budget, and can provide very specific task information. And most notably, all of this information is delivered via the Web.

Optimizing the Company’s Asset Portfolio

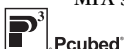
The third area of focus is optimizing the company’s asset portfolio. Project 2007 gained a major piece of the puzzle — portfolio management — through the acquisition of UMT, announced in December, 2005. In UMT, we acquired software and intellectual property that clearly puts us in a position to build the bridge from the world of projects and process, to the world of decision support and business intelligence.

For users of Project 2007, the result is a set of decision support tools that ties to the project management system. This enables the company to evaluate which projects are most valuable, which are least valuable, and which are worth the most investment. Then based upon those decisions, the company can

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Microsoft® Office Project, Microsoft Corporation

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From the Editor

Although the New Year is already three months old, "new" remains a cornerstone of the MPA mantra. We kicked off the New Year in January, at the fabulous Microsoft Office Project Conference. I'm sure for those who were there, the "new and improved" version of the Office Project tool due later this year, is a highly anticipated launch. MPA will continue to provide expert resources to navigate these improvements, as we have in the past with all other versions.



Beth A. Swartz

Hopefully, attendees were also able to see all the new marketing collateral materials which debuted at the Conference as well. Chapters will be receiving packages of these items as inventory levels permit.

Also "new" in Q1 2006, was the online member survey, which so many of you were kind enough to respond to and participate in. Closed just a few weeks ago, we are still analyzing all the data. Using this direct information, we will be developing the results to offer "new and improved" member benefits as the year progresses. Your feedback ensures that MPA remains vitally connected with our members and continues to attract a membership committed to growth, education and performance.

Our newest chapter, Mexico City, Mexico, was launched at the end of January, with a thunderous welcome. Boasting over 110 attendees at the inaugural meeting, we welcome them with open arms.

I will take this opportunity to extend a heartfelt thanks to Ashish Chopra, who has moved to new position within Microsoft, leaving a very successful trail of new paths blazed with the vision of Microsoft and MPA. Ashish's clear directive was to ensure the worldwide growth of MPA, to serve members around the globe, with accessible and value-driven benefits. Among his many accomplishments, we can cite the revised website, the rebranding efforts and the market research survey. Thank you Ashish! You will be greatly missed. We will look forward to working with our new Microsoft champion in Redmond, to help us secure support and additional funding for special projects as needed.

Ahead of us, is Q2 2006. Three new months to continue to navigate, develop and execute programs directed at the MPA membership. Our immediate future brings us new fields to explore as we pursue membership agreements with universities offering project management course options, new chapters to found and launch around the globe, and new ventures to evaluate and implement. I look forward to sharing all of the latest programming and benefit improvements with you as the year progresses. And of course, I wish you all a "Happy New Year!"

Best Regards,

Beth

A Focus on People

Continued from page one

determine how to allocate resources against those projects most efficiently.

More than half of all projects that CIOs consider today do not get funded. These professionals are confronted daily with decisions about which projects to fund, and how to allocate scarce resources. Our objective has been to provide tools, whether it's to the CIO or other decision-makers, that bring these two elements together. With better evaluative criteria, companies can more effectively plan their project mix to optimize business results and support their objectives.

To facilitate the proposal of projects in the first place, there is a new feature in Microsoft Office Project Server 2007 that lets users enter a project proposal through a simple SharePoint Web interface. We call this Web-based proposal management. This allows a broader range of employees to get their ideas into the system without having to engage a project manager.

The interface can include parameters on time, budget and how the proposal aligns to the business drivers identified by the company. Work details can also be added to provide deeper information on what it's going to take to turn the proposal into a project.

Furthermore, using the Resource Plan feature in Project 2007, decision-makers can estimate the resources that must be dedicated to the project, by skill, by named resources or generic resources, so they can more clearly develop a full picture of what the proposal entails.

Once all the information is in place, Project 2007 puts it into action. This is much more than a list of proposals. Tight integration with UMT Portfolio Manager, provides a much more powerful environment that can apply real calculations and real analytics. This helps the CIO make and communicate the decision on which proposals get the green light.

Notably, the business drivers identified by the company can be ranked. This allows the UMT product to provide a detailed view of the ideas ranked by value, to the organization. The UMT system also allows the CIO to "force in" mission critical projects that must be funded, such as security, maintaining existing systems, and compliance-driven controls.

The result is compared against available budget to create an optimized mix of selected projects. The decision is now based on: business drivers, the alignment of the project to the business drivers, and other constraints such as total budget and critical projects.

Getting Started After the Green Light

Once the decisions are made on which projects to green light, the executive team can then push the decisions back into the Project 2007 workflow environment. At this point, they become "real" projects. All of this is done via the Web through integration with SharePoint. These projects have now all been approved, and for each one, a new Windows SharePoint site has been created - a Project 2007 workspace.

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A Focus on People

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The Project 2007 workspace comes pre-populated with checklists, specs, documents, best practices and other policies to follow, based on the specific methodology in use by the company. Whether it's a Microsoft Operations Framework or Microsoft Solutions Framework, the solution creates a methodology, along with a place for people to start getting work done.

Driving increased participation on projects.

Integration of the new Outlook Scheduling available with the 2007 Office System, is an amazing new feature. With the schedule and project information integrated into Project 2007, an employee with Microsoft Office Outlook 2007 can participate, without getting started on the full Project 2007 Professional product. These features, combined with the new improvements on task integration, make working in Outlook 2007 a completely natural way to be a participant.

From within the Outlook task view, users can indicate that a task is 100 percent complete, which becomes a task update in the project system. The task is updated on the central Project workspace, the resource availability is updated, and the task schedule progresses to the next point.

Performance and Extensibility

Another critical point to notice with Project 2007, is that

Microsoft has put a great deal of effort into performance. For those who attended the (January) Project Conference, you probably got a sense of how much we have improved this area. Recognizing this need, we have been able to achieve 100-to-1 improvements due to changes we have made in patching.

And last but not least, is the extensibility. By transforming Project to sit on top of the .NET and SharePoint-based infrastructure, all of the power that comes with those tools can be integrated with the rest of the project management experience. Developers around the world want to build-out custom projects, custom processes, and custom workflows. We think that making this extensibility simpler and giving developers access to better and better tools, provides a powerful combination.

In the end, businesses of all types will be able to benefit from Microsoft Office Project 2007. This new product will provide: a better mix of work, real-time insight into the work portfolio, a connection directly into line-of-business data, Web-based scheduling and analysis, a connection with familiar tools (like Outlook), and, of course, the newest addition to the Project family, the UMT Portfolio Management Analysis Tool.

For Microsoft, that adds up to a lot of excitement around this new release. We look forward to seeing how the professional community is able to work with it and benefit from the many enhancements.

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Microsoft's New Portfolio Management Offering

By: David Gage, Pcubed, PMP (Member, Knoxville, TN)

I am going to tell you a common story about selecting projects vying for the finite resources of time, money, and personnel. Let's say, there are two competing projects that both look like outstanding opportunities, but the organization really doesn't have the resources to engage both projects at the same time. The first project is championed by a very charismatic leader we'll call Steve. The second project is lead by a very intelligent but reserved person we'll call Bill. Steve and Bill put together fantastic information about why their project should be selected and present the results to the project selection board. As expected, Steve does a great job presenting the merits of his team's project. Bill also gives a good presentation with greater detail on the project benefits. Which project will the selection board choose?

Often the answer is both projects, even though this puts the success of each in jeopardy. If a single project is selected, then it is often the best sales presentation that wins. So what can we do to mature our organization and stop selecting projects based on emotion? The answer is portfolio management, which focuses on managing the overall portfolio of projects with respect to business demands and constraints. Microsoft Project Portfolio Server 2007 will provide many capabilities to manage the portfolio of projects throughout the project lifecycle and even long-term product costs.

Microsoft has announced the Microsoft Office 2007 suite, which will bring vast changes to the project, resource, and portfolio management space. Microsoft Office Project Server 2007 has been greatly improved with a new architecture and many new capabilities. Microsoft has also moved into the portfolio management space with Microsoft Office Project Portfolio Server 2007. This article will touch on some of the capabilities and ways an organization can put portfolio management to work with Project Server 2007 and Project Portfolio Server 2007.

Portfolio management may be unique to each organization and it is important to understand the business drivers, requirements, and constraints of your organization. Pharmaceutical and financial institutions might be required to perform many regulatory projects, while manufacturing or IT organizations might be able to focus more on growth opportunities. Understanding each measure and the appropriate importance or weighting, will allow an organization to focus their efforts on the projects that will most support those metrics. Sample metrics include alignment to corporate goals, regulatory requirements, return on investment, resource availability, and cost.

The first step in managing a portfolio of projects is to ensure you start the best projects that will return the most benefit to your

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organization. A business case needs to be made for each project in the form of a proposal that contains relevant information such as investment cost, return on investment, scope, dependencies, risks, and alignment to strategic goals. Capturing all of this information for each project will allow the projects to be intelligently compared and selected based on metrics important to the organization.

While the selection of a project based on the organizational measures is important, there may be other factors such as resource availability that would necessitate selecting a project lower on the list of "best" projects. Portfolio management is not new and many organizations have been practicing it for years although resource alignment has always been challenging. Project Server 2007 and Project Portfolio Server 2007 will work together to ensure the organizational constraints are brought into the project selection matrix. Portfolio Server 2007 will allow you to plan and align resource utilization with the portfolio of projects so that the best project becomes the optimal project for your organization to perform at that point in time.

Another area where Portfolio Server 2007 will expand project management is to include costs associated with the life of the product. In traditional project management we are concerned with the implementation of the product, but cease to concern ourselves after it has been implemented. The product lifecycle expands beyond the implementation to also include the costs incurred throughout the life of the product. Tracking these costs will allow better decisions when there is a desire to replace an existing system. This can then become another metric in the project portfolio selection process.

Project Server has enabled organizations to become more efficient in project and resource management and I expect this trend to accelerate with Project Server 2007. While project management has improved organizations, Project Portfolio Server 2007 has an even greater opportunity to truly impact and improve how a company performs. The next few years look very promising and I can't wait to use these tools to truly improve how a business operates. It won't be easy, but it will most definitely be worth it!

Three-point estimating for work values

Brian Kenemer, www.projectified.com ...endlessly obsessing about Microsoft Project so that you don't have to.

Three-point estimating helps project managers make better estimates. Instead of merely coming up with a ballpark figure, managers using three-point estimating have more granular control of how the end value is calculated. With three-point estimating, the end value is the weighted average of the estimates.

Project managers have been exposed to this technique through PERT (Program, Evaluation, and Review Technique) three-point estimating for Duration values. Microsoft Project gives us access to PERT estimating via the Analysis toolbar.

PERT uses three estimates—Optimistic, Pessimistic, and Most Likely—to derive the duration of a task. PERT asks a project manager to give each of these estimates a weight, which when taken together must add up to 6. You can think of the weight as a measure of confidence in that estimate. Figure A contains three estimates and a weight for each.

Op	
Work	
Most Likely Work	
Pess Work	
Op Weight	2
Most Likely Weight	10
Pess Weight	25
	0
	3
	3

Figure A

This particular weighting shows one of the advantages of three-point estimates. This project manager has decided to compensate for some uncertainty or risk in the estimates by giving no weight to the Optimistic estimate and nearly equal weight to the Most Likely and Pessimistic values. Because the ML and Pess weights are nearly equal, the end value will be close to the average of the Most Likely and Pessimistic values. An even more pessimistic assessment might give the Most Likely value a weight of 1 or 2 and the Pessimistic value a weight of 4 or 5.

Using the weights, the project manager can have more control over how the estimates are used to get the value. A very confident estimate might have a weight of 5 on the Optimistic estimate and 1 on Most Likely. Such optimism

Ask Brian covers topics appearing in the Microsoft Office Project Support Newsgroup, where people with questions about Microsoft Office Project can interact and seek solutions. Members can find this newsgroup and many more in the Members Only Section, www.mymppa.org/members.asp

might be appropriate for a task that has been completed several times before and has always taken the same amount of time to complete.

The basic formula for such a weighted average is as follows:

$$((Op * Op Weight) + (Pess * Pess Weight) + (ML * ML Weight)) / 6$$

Estimating work values

You can see the benefits of using three-point estimates in your scheduling. But what if you tend to estimate work values instead of durations? Microsoft Project does not have built-in functionality for supporting this kind of "Work PERT" estimating. But one of the cool things about Project is that with a little work in VBA (Visual Basic for Applications), you can make it do almost anything. A very short VBA routine can provide "Work PERT" functionality. It uses six custom number fields (Number1 – Number6) and a custom Text field (Text1). Figure B shows how the fields should appear.

Custom field
Field title
Number 1 Op Work
Number 2 ML Work
Number 3 Pess Work
Number 4 Op Weight
Number 5 ML Weight
Number 6 Pess Weight
Text 1 Work PERT Status

Figure B

Continued on page seven

You can choose to enter these fields in an existing view or create a new one for them. You can arrange them as you like, but remember which weight goes with which estimate.

One of the advantages of this tool is that it lets you set different weights for each task. In Project's normal PERT tool, you must pick one set of weights for the entire plan. However, you might have different levels of confidence in the estimates for different tasks. With the "Work PERT" tool, you can set weights on a task-by-task basis.

Once you have set the weights and entered the estimates, the last step is to run the macro shown in Listing A. It will run only for tasks that have not yet started. For each task it runs through, it will place a status in the Text1 field. For tasks where the Work value is calculated, it will enter the date the value was set. For completed or in-progress tasks, the macro will enter "Not Calc'd: Task In Progress or Complete."

If the weights don't add up to six, the macro will return a message in the Text1 field stating that there was a problem with the weights. If you see this note, you should fix the weights and re-run the macro.

Listing A

```
Sub WorkPERT()
```

```
Dim tsKT As Task
```

```
Dim blnFoundBadWeights As Boolean
```

```
blnFoundBadWeights = False
```

```
For Each tsKT In ActiveProject.Tasks
```

```
    If Not (tsKT.Is Nothing) Then
```

```
        If tsKT.PercentComplete = 0 And tsKT.PercentWorkComplete = 0 Then
```

```
            If (tsKT.Number4 + tsKT.Number5 + tsKT.Number6) = 6 Then  
                tsKT.Work = (((tsKT.Number1 * tsKT.Number4) _  
                    + (tsKT.Number2 * tsKT.Number5) _  
                    + (tsKT.Number3 * tsKT.Number6)) / 6) * 60
```

```
                tsKT.Text1 = "Work Calc'd: " & Now()
```

```
            Else
```

```
                tsKT.Text1 = "Not Calc'd: Weights <> 6"
```

```
                tsKT.Work = 0
```

```
                blnFoundBadWeights = True
```

```
            End If
```

```
        Else
```

```
            tsKT.Text1 = "Not Calc'd: Task In Progress or Complete"
```

```
        End If
```

```
    End If
```

```
Next tsKT
```

```
If blnFoundBadWeights = True Then
```

```
    MsgBox Prompt:="Some Tasks Weight Values were found  
        to be incorrect." & _
```

```
    Chr(13) & "Check the Text1 fields for details.", Buttons:=vbCritical, _  
    Title:="WorkPERT Weights Error"
```

```
End If
```

```
End Sub
```

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IT Staff Resource Capacity Planning Using Microsoft's Project Server – Part II

Bill Ferro, MS, PMP, The Cincinnati Insurance Companies (Member, MPA Greater Cincinnati Chapter)

Our previous discussion on this subject highlighted various IT resource management concepts that can be applied using Microsoft's Project Server. (See *The Project Network*, Volume 9 Issue 3 – 2005, page 8). The Chart of Work, Work Class, and Work Type categories are structures that may facilitate IT staff planning and forecasting of future work demand. A more detailed description and discussion of an approach for their implementation will be presented here. It is recommended that the reader review the previous article on this subject as noted above.

Recall the discussion of Work Type organization. High-level Work Classes were described as Class 1 – Operational, Class 2 – Tactical, and Class 3 – Strategic. Within Project Server, these may be manifested as published project schedules comprised of “bucket tasks” with Start and Finish dates pertinent to the organization. For example, the organization's fiscal year may be the appropriate interval. Organizations based on a calendar fiscal year would enter all tasks with Start dates of January 1 and Finish dates of December 31. These schedules describe the resource management Chart of Work.

The Chart of Work

The heart of IT Resource Capacity Planning is the Chart of Work. The Chart of Work (COW) is an analog to an accounting system's Chart of Accounts. The COW is a list of work categories to which time is reported. Much like the accounting budget, the COW categories contain representation for an allotted amount of time, rather than money. In Microsoft Project, the COW takes the form of a list of bucket tasks. Resources draw pre-planned – and thus, pre-allocated – time from their assigned COW tasks. This is accomplished simply by reporting time on the Project Web Access (PWA) timesheet. An example Chart of Work for Class 1 – Operational work is shown in Figure 1.

Work Categories such as Production Support, Discrepancy Resolution and Required Maintenance may be used as summary level bucket tasks within the COW. These may also be further sub-categorized to various lower level work or specific systems.

Resources can be assigned to these tasks in much the same way as applied to any project schedule. A formal planning process with each resource manager is suggested as an appropriate manner to gather planned allocations for each resource. Either percentages or specific time allocations can be applied for each resource assignment.

One consideration is adoption of the axiom “Less Is Best.” Keeping the COW simple and avoiding too much detail, can help to contain resource timesheet complexity and maintain ease of time reporting. In addition, it helps to avoid too many work categories and related standards facilitates management reporting.

Construction Hint: When building the initial COW schedule, extending the Finish date through the subsequent year will reduce the likelihood of diminishing Remaining Work to zero. This would cause you to run out of allocated work time and dropping the given task off the resource's timesheet. See

the example COW for Class 1 – Operational in Figure 1. A new COW for 2007 would still be in order. However, by using dates through the following year, the originally planned allocations can easily be extended.

Class 1 - Operational 2006

Task Name	Baseline Start	Baseline Finish
Class 1 - Operational	1/1/2006	12/31/2007
(AD) Administration	1/1/2006	12/31/2007
(PS) Production Support	1/1/2006	12/31/2007
Support, Trouble / Problem Resolution	1/1/2006	12/31/2007
System A	1/1/2006	12/31/2007
System B	1/1/2006	12/31/2007
General Ledger	1/1/2006	12/31/2007
Payroll	1/1/2006	12/31/2007
Other (Support, Trouble / Problem Resolution)	1/1/2006	12/31/2007
Customer Support / Help Desk Calls	1/1/2006	12/31/2007
System A	1/1/2006	12/31/2007
Other (Customer Support / Help Desk Calls)	1/1/2006	12/31/2007
General Systems Software Consultation and Assistance	1/1/2006	12/31/2007
General Business Unit Support	1/1/2006	12/31/2007
General IT Departmental Support	1/1/2006	12/31/2007
(DB) Discrepancy	1/1/2006	12/31/2007
Fix / Trouble-Shoot Application Discrepancies / Defects	1/1/2006	12/31/2007
(RM) Required Maintenance	1/1/2006	12/31/2007
Internal Release Installations	1/1/2006	12/31/2007
System A	1/1/2006	12/31/2007
Microsoft Project Server	1/1/2006	12/31/2007
Other (Internal Release Installations)	1/1/2006	12/31/2007
Support of other Releases	1/1/2006	12/31/2007
System B	1/1/2006	12/31/2007
Operating System	1/1/2006	12/31/2007
SQL Server	1/1/2006	12/31/2007
Other (Support of other Releases)	1/1/2006	12/31/2007
Systems Administration	1/1/2006	12/31/2007

Figure 1: Sample Chart of Work for Class 1 - Operational

To illustrate the concept, we have elected to describe the Chart of Work as comprised of three Work Classes: Class 1 – Operational, Class 2 – Tactical and Class 3 – Strategic. A Class 2 – Tactical schedule can be constructed similarly to the example cited for Class 1 – Operational. The Class 2 – Tactical schedule may contain work categories such as System Enhancements, On Demand Work and Tactical Projects. Each of these may be decomposed in a similar fashion, as required within the context of the IT department. A Class 3 – Strategic schedule is comprised of the various existing formal project schedules that you may already be managing. These are the schedules that currently form the timesheets for the existing resource pool. Be sure to carefully plan and use definitions for these Work Classes and categories. The definitions should completely partition the set of all IT work types that exist in your organization without ambiguity or overlap.

Definitions

Work Type definitions are absolutely critical. Definitions for Work Class and any sub-category work types – in addition to the Chart of Work – provide a standard for the organization. The standard permeates throughout the Resource Management system, procedures and management reporting. The definitions should be simple, concise and avoid ambiguity. They should be agreed to and completely accepted by management of the IT organization. All terms describing the various work types and categories should be formally defined. Reporting at all levels will depend upon consistency of applying these definitions. An example definition for Class 1 – Operational work is given below.

Continued on page nine

Continued from page eight

Class 1 – Operational: Work that runs the business. This is non-discretionary work that must be done in order to execute the business of the company. Relative to IT, this is the daily operation of the computing utility.

The Planning Process

Planning for application of resources to the Chart of Work is similar to an annual budgeting process. Rather than monetary units being allocated to accounts and projects, units of time are assigned to resources based upon their annual availability. For example, if a resource is considered full time and has 2080 hours available annually for work, this time can be allocated to the entries on the COW. (Note: 2080 hours annually is based on a 40-hour workweek expectation.)

The planning process may be administered through a series of individual or group interviews with each resource manager. The COW can be used as the central focus of the interview process. Resource managers should first reduce the availability of each resource by a planned Paid Time Off (PTO) amount, or perhaps use an organizational efficiency factor. This reduces the annual availability of each resource to a more realistic expectation – perhaps 70-75%. The remaining adjusted annual availability can then be allocated over the proper bucket tasks on the COW. An Excel spreadsheet for each resource may provide the mechanism for gathering this data initially. The COW from the previous year can also be used for future annual planning processes.

The data gathered for each resource is then entered to the COW as a planned allocation. The COW schedule should be saved, with a baseline established, and published to the Project Server. The baseline becomes the Plan for each individual for the year. As Actual time is reported on the timesheet, Planned vs. Actual reporting can be provided through the Resource Center and Portfolio Analyzer views within PWA. Naturally, all work planned for a given resource is not completely evident during the planning process. As work performed may vary over the year, and work categories may be changed or resource allocations adjusted, the reporting will reflect this. Shifting of resources' time between COW entries is similar to transferring money between accounts on the general ledger.

Reporting

Standard facilities of PWA can be used for resource management reporting. The Project Center will provide a view of the COW by displaying the Class 1 – Operational and Class 2 – Tactical schedules. The resources assigned to each COW entry (i.e. task) can be seen. The Resource Center provides entry points to views that can display resource availability, over/under allocation, timesheet history and accumulated year-to-date analysis. Portfolio Analyzer OLAP views can be built to demonstrate total time planned and time actually reported to the various Work Classes and categories. This can provide very valuable information to senior IT management when planning for future project funding and initiation. Figures 2 and 3 show examples of these reports.

Continued on page ten



QuantumPM Schedule Auditor (QSA)

Check Name	Result
Check Tasks For...	
Appropriate Size	Warning
Fixed Costs	Success
Incorrect Constraint Dates	Success
Predecessor and Successor	Warning
Reserved Names	Success
Unversioned Resources	Error
Check Resources For...	
Duplicate Entries	Warning
Invalid Entries	Success
No Cost Information	Warning
Over Allocation	Success
Scheduled Overruns	Success



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Goal of Resource Capacity Planning

While IT Resource Capacity Planning can be a useful endeavor and provide valuable data analysis for managing the IT department, there are other, long term objectives of the discipline. This includes the ability to provide input to the IT strategic planning process through resource forecasting. Also resource effort history may be used for forecasting and demand planning. Existing Class 3 – Strategic projects represent a portion of the current demand for IT resources. Figure 4 depicts the requirement for IT to balance demand for work with resource capacity planning. This topic will be explored in greater detail in a future issue of *The Project Network*.

Summary

In constructing an effective IT Resource Management system, care should be taken in defining the various types of work performed by the organization. Through thoughtful planning of a Chart of Work, the base structure of the discipline can be devised. Standard definition of terminology will enable consistent departmental analysis and management reporting at various levels. The structure for applying these resource management practices can be provided by Microsoft's Project Server. Potent analyses can be produced by utilizing the simple axiom "Less Is Best" and ensuring that resources report time consistently.

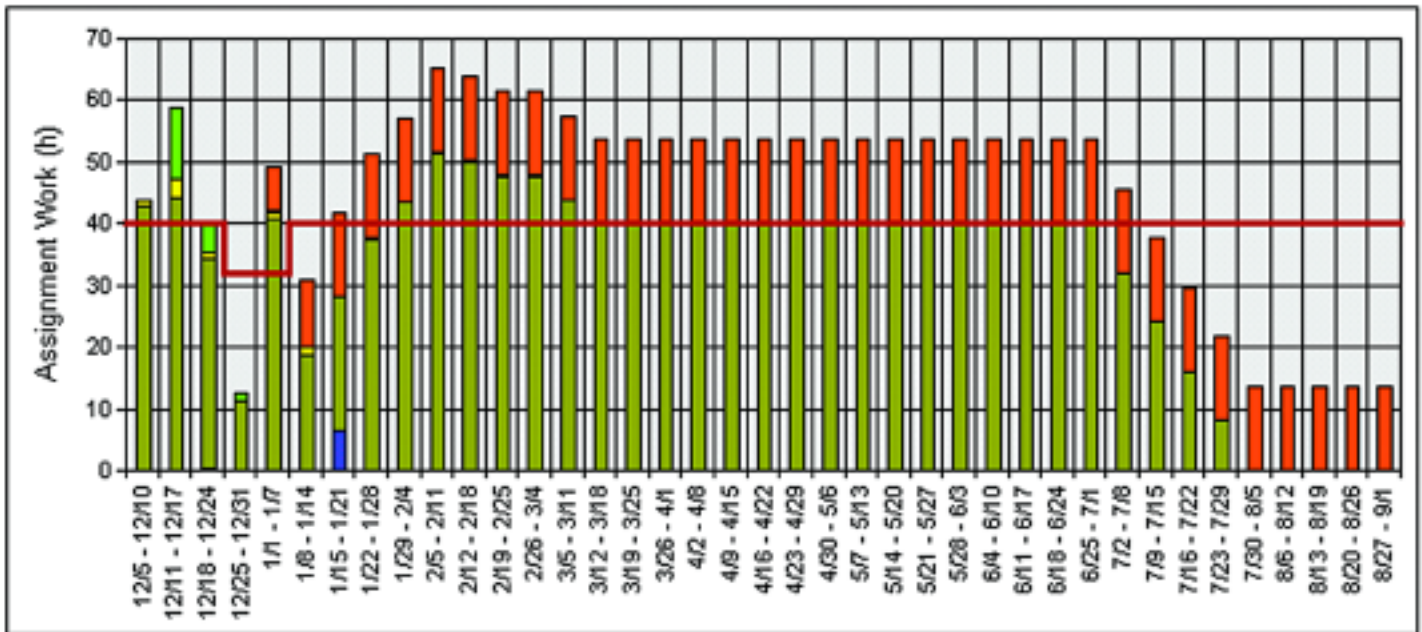


Figure 2: Resource Availability Report Example

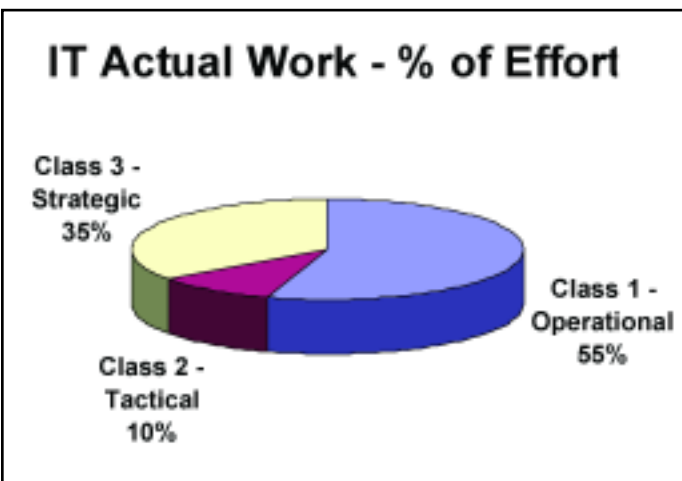


Figure 3: Percent of Effort Report Example

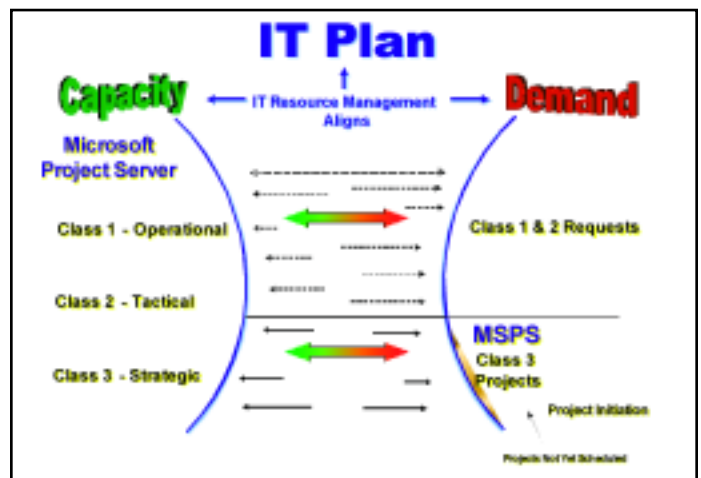


Figure 4: IT Demand and Capacity Planning

Calculating Planned % Complete

Vincent McGevna, PMP

During the execution of a project, most project managers track work performed or % complete for individual tasks. In Microsoft Project, these numbers are rolled up so that **% Complete** is available for each of the higher level summary tasks. This provides a good way of tracking progress at a higher level. However, it would even be better if the project manager could compare this to the original plan. That is, if the project were executing according to plan, what would the % complete be? While Project does not provide a field for planned % complete, it is possible to use calculated fields to provide an estimate.

This paper provides a way of using calculated fields to calculate **Planned % Complete**. To assure that the required information is available, the following project management best practices must be adhered to:

- The original plan has been baselined.
- Progress is tracked within the schedule by periodically recording % complete of individual tasks.
- When progress is updated the **Status Date** in the Project Information is also updated.

Using the **Status Date** is recommended. If the **Current Date** is used, **Planned % Complete** will change on a daily basis and tracking data may not be available this often.

Calculating Planned % Complete

Calculating **Planned % Complete** requires a number of sequential steps. First, the **Status Date** must be compared with the **Baseline Start** and **Baseline Finish**:

- If the **Status Date** is before the **Baseline Start**, then **Planned % Complete** is 0%.
- If the **Status Date** is after the **Baseline Finish**, then **Planned % Complete** is 100%.
- If the **Status Date** falls between the two, **Planned % Complete** is assumed to increase linearly over the duration of the task.

This is shown in the timeline below.

When the **Status Date** is between **Baseline Start** and **Baseline Finish**, as shown, **Planned % Complete** can be calculated.

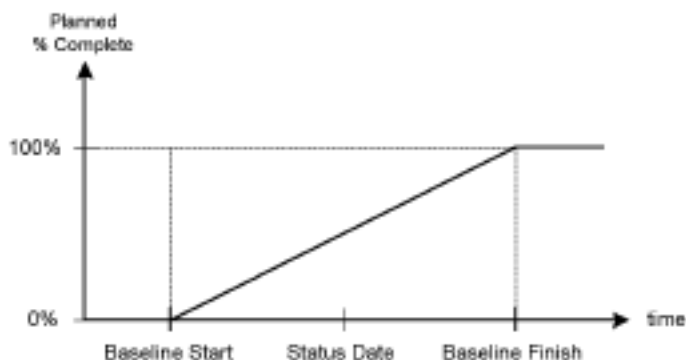


Figure 1: Plot of Planned % Complete

$$\text{Planned \% Complete} = \frac{\text{Status} - \text{Baseline Start}}{\text{Baseline Finish} - \text{Baseline Start}}$$

The numerator will be called Planned Duration for this analysis, and the denominator is **Baseline Duration**, which is saved when the baseline is taken.

Using Calculated Fields

The calculated fields in Project provide the functionality needed to make the calculations. The Customize Fields dialog can be accessed via the Tools Menu [Tools | Customize | Fields...] or by right clicking in the header of the table and selecting Customize Fields. This brings up the Customize Fields dialog box, as shown in Figure 2.

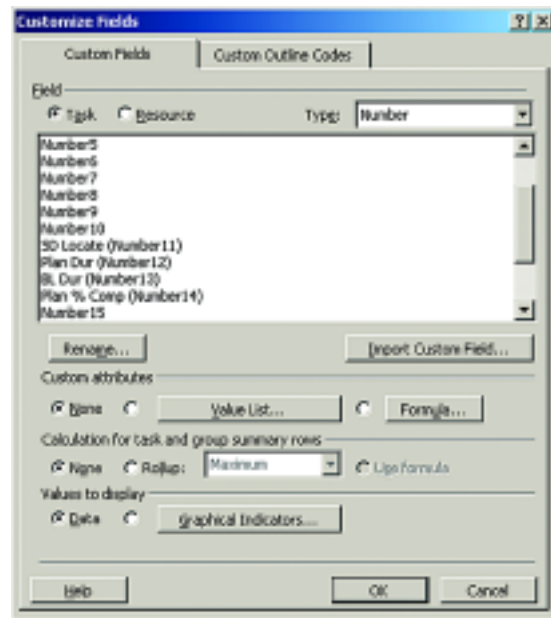


Figure 2: The Customize Fields Dialog Box

In the Customize fields dialog box, the user can assign a name to a field, provide a value list or a formula for a task field, and tell how to process summary rows. When using any of the custom fields in Project (e.g. Number1 – Number20; etc.), the rename should be selected to provide a unique, meaningful name to identify the field and to notify others that it is being used. As shown in the figure, Number11 through Number14 have been renamed to parameters for the **Planned % Complete** analysis. A field is selected and the Formula... button clicked. This brings up the Edit Formula dialog box:

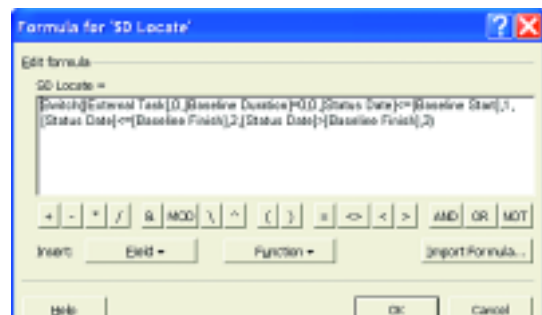


Figure 3: Edit Formula Dialog Box.

Continued on page twelve

A formula is created using fields, operations and functions. All of the fields in Project are accessible via the **Field_** button, and a large number of useful functions are available by clicking on the **Function_** button. The specific functions required for the **Planned % Complete** calculations are:

ProjDateDiff: Takes the difference between two dates based on a calendar, ignoring non-working time. This is needed to calculate the durations.

IIF Evaluates a boolean function and returns one of two parts if the expression is true or false.

Switch Evaluates a list of expressions and returns a value based on the first expression in the list that is True.

Choose Selects and returns a value from a list of arguments.

Once a functions has been entered for a field, the user must select how to calculate the summary rows. The field at the summary level can be ignored, rolled up using a number of formulas, or calculated using the same formula as in the task field. Calculating the **Planned % Complete** will require a mixture of rolling up sums and applying the task formula at the summary level.

The Calculated Fields for Planned % Complete

Now we are ready to perform the actual calculations. When calculating **Planned % Complete**, it is necessary to ignore external tasks and tasks which have not been baselined. There

is a boolean field, **External Task**, which is true for external tasks. However, there is no boolean field to identify if a task has been baselined. When a task has not been baselined, its **Baseline Duration** is 0. The duration of a baselined milestone is 0, but this will not impact the calculations. Therefore, this will be used to flag a non-baselined task.

To calculate **Planned % Complete**, the following number fields will be required:

- The region in which the **Status Date** falls. This will also be used to flag external and non-baselined tasks.
- **Planned Duration**. This is based on the location of the **Status Date**.
- **Baseline Duration**. Although available in Project, it is calculated to assure the same calendar as used for Planned Duration.
- **Planned % Complete**. This is the ratio of Planned Duration to Baseline Duration. This is expressed as an integer from 0 to 100.

To roll up the **Planned % Complete** at the Summary Task level, Planned and Baseline Durations are each rolled up as a sum, and then the ratio of these sums is taken.

The following number fields are used to calculate **Planned % Complete**:

Number11 [SDLocate]: Determine Location of Status Date

Set value: 0 – External Task or Baseline Duration = 0 (not baselined or milestone)

Continued on page fifteen

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Comparing Two Versions of an MS-Project Schedule

Kelly Jones, PMP, Sharp HealthCare (Member, MPA San Diego Chapter)

There are times when you may need to compare two versions of a project schedule. Starting with the 2003 version of Microsoft Office Project, an add-in that performs project schedule comparisons is automatically installed with the program. This add-in is also available as a download from the Microsoft website for MS-Project 2002. It creates a report that shows the differences between two versions of a schedule loaded into MS-Project as demonstrated in the following procedure:

1. Open both versions of the schedule in MS-Project.
2. Pull down the **Window** menu and select the most recent version of the project schedule.
3. Pull down the **View** menu and select **Gantt Chart**.
4. Ensure that the following fields are displayed in the view (using the **Column...** command from the **Insert** menu) if you want them compared:
 - **Duration** and **Work** for estimates,
 - **Predecessors** or **Successors** for dependencies,
 - **Constraint Type** and **Constraint Date** for constraints,
 - **Deadline** for deadlines,
 - **Resource Names** for assignments.
5. Right-click on any toolbar and select **Compare Project Versions**. This will display the **Compare Project Versions** toolbar as shown in Figure 1.



Figure 1: The Compare Project Versions toolbar

6. Click the left-most button on the toolbar to open the Compare Project Versions dialog box as shown in Figure 2.

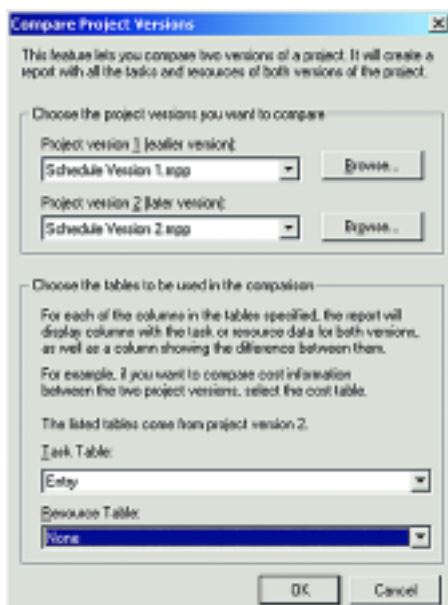


Figure 2: The Compare Project Versions dialog

7. If you didn't follow steps 1 and 2 of this procedure, you may use the **Browse...** buttons to change the designated earlier or later versions of the schedule you wish to compare.
8. For this procedure, we are comparing the default **Entry** table for tasks. If you wish to compare a different table (such as Cost, for example), pull down the field **Task Table** and select an alternate table.
9. Selecting a table from the **Resource Table** list will also allow you to compare resource information. However, for the purpose of this article, we will stick to task comparisons.
10. Click the **OK** button and the comparison operation will begin. When it is complete, the **Compare Project Versions — Done** dialog will appear as shown in Figure 3.

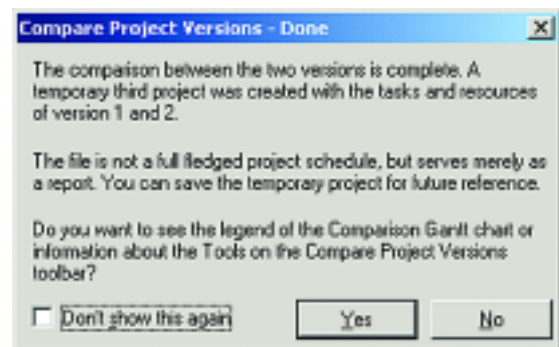


Figure 3: The Done dialog

11. Click the **Yes** button to view the Comparison report legend as shown in Figure 4.

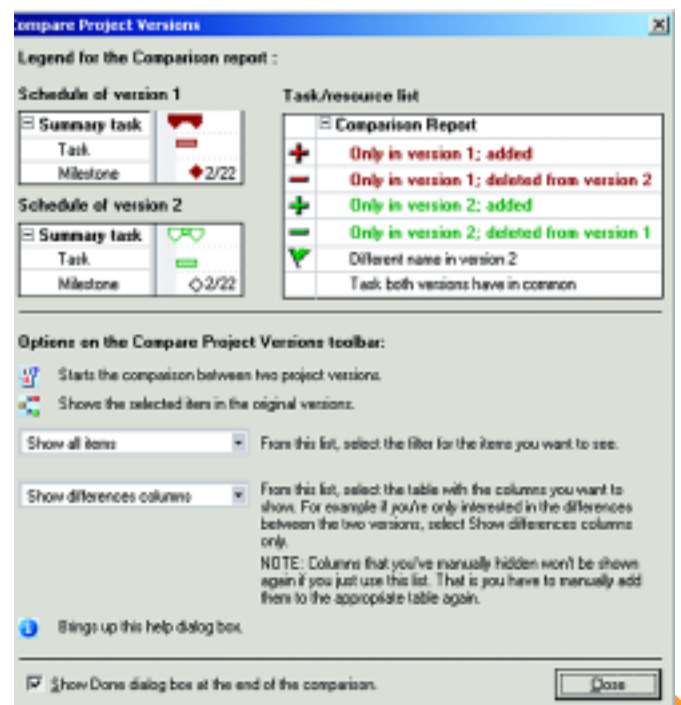


Figure 4: The Comparison report legend

Continued on page fourteen

12. Click the **Close** button to close the legend dialog and view the comparison report. Figure 5 shows a sample report. The report has three columns for each field you displayed in step 4:
 - a. A column showing the version 1 value (i.e. "Duration: V1").
 - b. A column showing the version 2 value (i.e. "Duration: V2").
 - c. Based on the type of data represented in the fields being compared, the third column will show the difference between the version 1 value and the version 2 value (i.e. "Duration: Diff") and contain one of the following:
 - i. **Numeric and Date fields:** A number showing the difference between the version 1 value and the version 2 value (i.e. 5 days).
 - ii. **Text fields:** A text assessment of "Equal" or "Different" to designate whether or not the version 1 value and the version 2 value were the same.
13. To display a 3-way view that shows a task selected in the report along side the original versions, click the  button.
14. Use the task/resource filter pull-down on the **Compare Project Versions** toolbar to display subsets of the records as follows:
 - a. **Show all differences** — only display tasks or resources that have differences. A combination of filters b, e, and f below.
 - b. **Show changed items** — only display tasks or resources that have changed at least one value between version 1 and version 2.
 - c. **Show unchanged items** — only display tasks or
 - d. **Show common items** — show tasks or resources that are common between version 1 and version 2.
 - e. **Show unique items of version 1** — display version 1 tasks or resources that do not appear in version 2.
 - f. **Show unique items of version 2** — display version 2 tasks or resources that do not appear in version 1.
 - g. **Show all items** — no filter applied.
15. Use the column display pull-down on the Compare Project Versions toolbar to display the following column options:
 - a. **Show data and differences columns** — display all three columns for each field as described in step 12 (a, b, and c).
 - b. **Show data columns only** — display only the data columns for each field described in step 12 (a and b only).
 - c. **Show differences columns only** — display only the differences columns for each field as described in step 12c.
16. The  button on the **Compare Project Versions** toolbar will redisplay the legend dialog as shown in Figure 4.
17. To see resource differences, select **Resource Sheet** from the **View** menu in the comparison report. (This assumes you selected a table from the **Resource Table** list in step 9).
18. When you have finished your analysis, you may close the comparison report schedule or save it as an MPP file for future use (**File – Save** command).

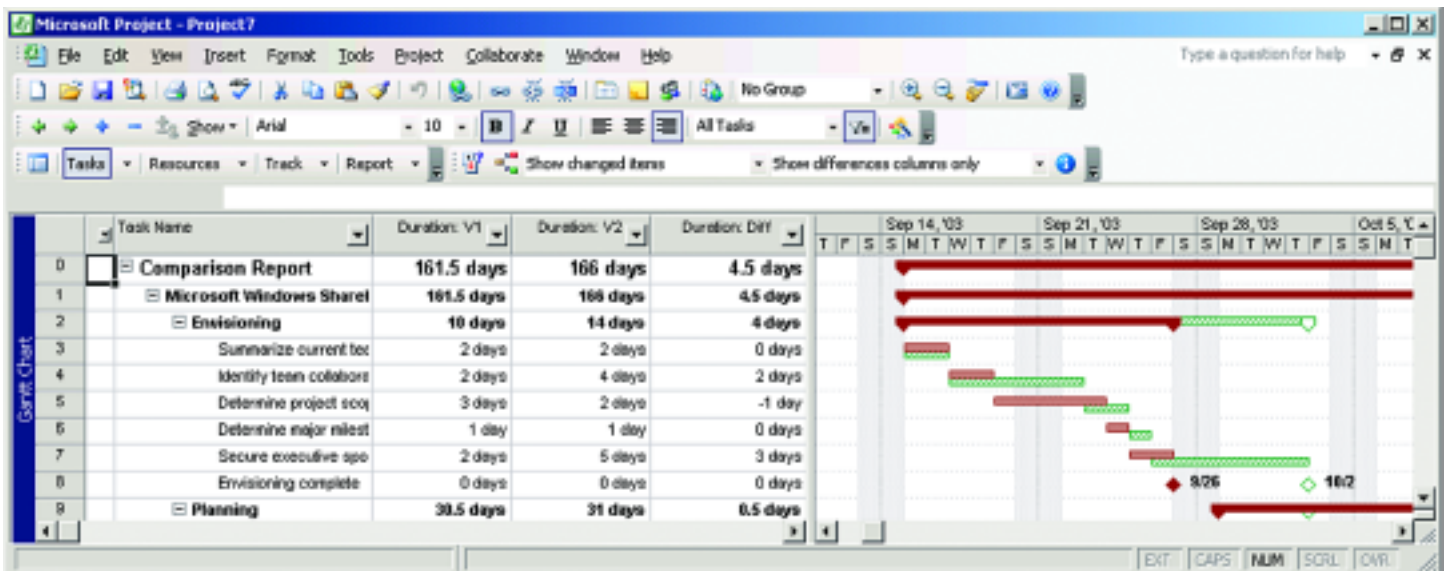


Figure 5: Sample comparison report for tasks

- 1 – Status Date before Start
- 2 – Status Date between Start and Finish
- 3 – Status Date after Finish

Formula:

```
Switch([External Task], 0, [Baseline Duration]=0, 0,
[Status Date] <= [Baseline Start], 1,
[Status Date] <= [Baseline Finish], 2,
[Status Date] > [Baseline Finish], 3)
```

Calculation for task and group summary rows: Formula

Number12 [Plan Dur]: Planned Duration:

Formula:

```
IIf([Number11] > 0, Choose([Number11], 0,
ProjDateDiff([BaselineStart],[Status Date])/480
ProjDateDiff([Baseline Start], [Baseline Finish])/480), 0)
```

Calculation for task and group summary rows: Rollup: Sum

Number13 [BL Dur]: Baseline Duration

Formula:

```
IIf([Number11] > 0, ProjDateDiff([Baseline Start],
[Baseline Finish])/480, 0)
```

Calculation for task and group summary rows: Rollup: Sum

Number14 [Plan % Comp]: Planned %-complete (as integer: 0 – 100)

Formula:

```
IIf([Number13]>0,Int(100*[Number12]/[Number13]+0.5), 0)
```

Calculation for task and group summary rows: Formula

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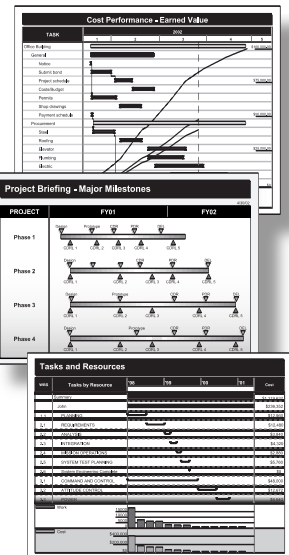
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