mpa ◆ THE PROJECT NETWORK

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THE OFFICIAL INDUSTRY ASSOCIATION FOR MICROSOFT® OFFICE PROJECT

www.mympa.org

# New Online Resources Expand Learning Options for Project Managers

Project managers who are hungry for resources to help them do their job more efficiently and effectively have two new – yet familiar – online entrées from which to choose. Recently expanded online offerings from MPA (formerly known as MPUG) and a new Microsoft Web site offer two of the largest, most diverse collections of online resources for project managers – regardless of whether they need tips on how to define the scope of a project, to sign up for an upcoming MPA chapter meeting or to find a new job.

The revamped MPA members-only Web site and other new online services debut this month, while Microsoft Office Online launched its new Tools for Project Managers Web site last September. The two offer complementary resources, with the new MPA offerings building on the free articles, training materials, templates and animated videos on the Tools for Project Managers site.

"The demands on project managers are growing every day," said Ashish Chopra, product manager for the Project team at Microsoft. "To successfully manage the different project management challenges they face and get the most out of Microsoft Office Project, they need to be able to easily build their skills and use Project in the most effective way, access the latest information and resources, and network and learn from their peers. Together, these sites offer a wealth of valuable resources and help build a community of project managers that facilitates knowledge sharing."

MPA has spent the winter expanding its online resources to create a new system of membership benefits on its Web site. You can check out the enhancements at www.mympa.org.


Figure 1 – The new MPA website at www.mympa.org.

Microsoft sponsored the enhancements and continues to work with MPA to help create a community of project managers. The new MPA offerings are based on feedback and surveys of the association's members. While grateful for the member-driven content, face-to-face learning and networking opportunities MPA has offered for years, members asked for more online resources, said Christine Buonocore, executive director of MPA.

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## In This Issue:



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# The Official Industry Association for Microsoft® Office Project

*"Microsoft recognizes MPA as the leading industry association helping project managers and organizations get the maximum value out of Microsoft Office Project. With its different avenues to interact and network and resources on Microsoft Office Project, MPA is playing a pivotal role in helping project managers and organizations learn from each other and maximize the success of their projects using Project. We strongly believe that any individual managing projects would benefit immensely from being part of this association."*

*Michael Angiulo, General Manager*
*Microsoft® Office Project, Microsoft Corporation*

## MPA Mission Statement

MPA is dedicated to fostering a dynamic professional association that serves as the preeminent resource for Microsoft Office Project to a worldwide member community.


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# From the Editor


*Angie Wean*

When I joined the MPUG team last summer and wrote my first editor's article for the September issue, I stated several lofty goals for the organization I was striving towards. I set out to "further the great reputation of MPUG to a broader base of Project users" and to "make your experience with MPUG the best it can be."

Over the winter the MPUG (now known as MPA) team worked diligently to make these goals and what some naysayers might even consider dreams, a reality. In March, MPUG began the official transition from MPUG-Global to MPA. This name change depicts what the MPA family feels is a reflection of our community growing from a user group into a professional association dedicated to Microsoft Office Project. Our revamped tagline for MPA is the Official Industry Association for Microsoft Office Project.

Along with a new name, MPA has a new brand identity to help facilitate this change. The MPA logo reflects core values of the association. The inner circle represents the community coming together while the outer circle reflects the continuous learning and information sharing, networking, and trading experiences amongst the members on a global level. The diamond depicts a milestone, which signifies the achievement of key goals and vital stages within a project. This encompasses MPA helping members reach their objectives professionally, whether on the project, job or in their career.

MPA has not only experienced a name/brand change, but a complete overhaul has been made to the web site with new features added to bring more value to your membership. The web site has been completely re-designed to improve navigation and functionality. The new URL you will want to bookmark is www.mympa.org. The members-only content library now features enhanced search functionality where members can rate and post comments on the material.

Members now have your own personalized 'My MPA' page that allows you to maintain your personal data such as contact information on file with MPA. You also will have the ability to select the MPA Chapters you want to receive meeting notices about and it will automatically send notices to you for future events.

On-line event registration is available for all Chapter meetings throughout the world. This centralized reservation system for MPA events will create a one-stop-shop so members don't have to work separately through their chapters for event registration.

Another new benefit is the addition of a Job Board that allows members to post job openings and search for employment. Employers who are members will have the added convenience of being able to post and manage their job postings.

A new Members Forum will be featured in the members-only section when Phase II of the site is rolled out during the summer. This area will allow members to post questions/comments and have other members provide feedback. This open exchange of information and ideas should provide a great resource for the

*Continued on page three*

## From the Editor *Continued from page two*

entire community and enhance the on-line synergy of our association.

MPA will continue to deliver on the benefits that members have come to enjoy over the past eight years. This newsletter, the monthly electronic newsletter emailed directly to you and our involvement with each Chapter will continue full steam ahead along with our commitment to the R.E.P program so that members may earn PDU credits via MPA activities.

Now to address my remaining goal: to further the great reputation of MPA to a broader base of Project professionals. MPA has created a new electronic publication, MPA Ezine for Microsoft® Office Project, geared towards non-members who want to learn more about MPA and are evaluating membership. One can sign up for this publication on the MPA homepage, as well as on Microsoft Office online. With this electronic publication we hope to increase our circulation of non-members and turn them into members to bring even more value, knowledge and a more robust network to our existing membership. MPA encourages current members to refer their non-member friends and colleagues to this newsletter to help spread the word of the benefits of MPA and bring added value.

Member feedback over the years has spawned these new benefits and made them possible to the entire association. To each of you who have contributed over the years, the MPA team thanks you for helping make MPA the leading association for Project professionals.

Angie Wean, Editor

## New Online Resources Expand Learning Options for Project Managers

*Continued from page one*

"With the support of our co-sponsors, Pcubed and Microsoft, we have been able to provide our members a higher level of service, one that brings MPA closer to its ultimate goal of becoming the definitive resource – online or offline – for any professional who leverages Microsoft Project," Buonocore said.

The new and enhanced membership benefits include:

- Searchable Library: Members can not only find what they are looking for faster with the new searchable library service; they also can discover resources they may not have known were available, by performing automated searches of MPA's vast online content library, which includes articles, white papers, case studies, tips and more. In addition, the library allows members to share knowledge and provide feedback, as well as rate content.
- Personalization: Members can more easily access the MPA information most valuable to them – such as details about upcoming MPA events closest to them – by logging into their 'My MPA' portal page.
- Job Board: Members can browse for jobs or post job openings on the online job board.
- Easier Event Registration: Members can review information about upcoming MPA events and chapter meetings, as well as register to attend directly on the MPA site.

Microsoft's Tools for Project Managers Web site provides a

*Continued on page four*


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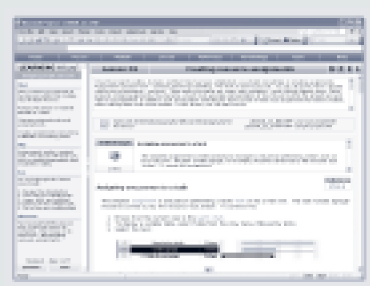
Stephen Michaelson, Program Manager, United Airlines



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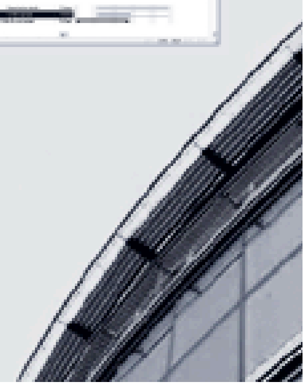

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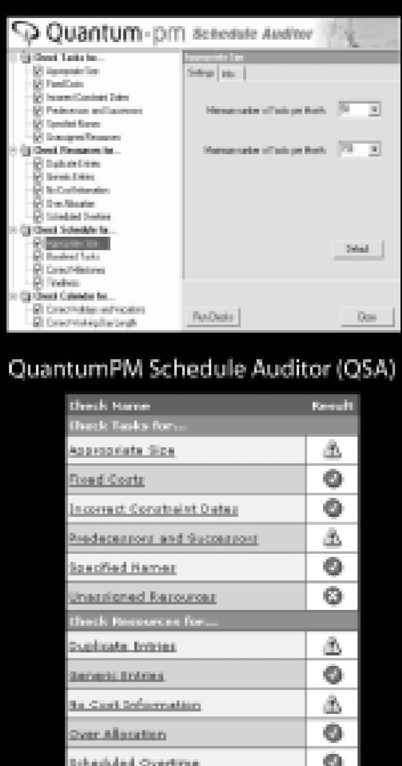
Figure 2 – The introduction page of the 'Tools for Project Managers' Website.

variety of resources, including templates, articles and animated video demonstrations. The site is part of the new Tools for Your Job section of Microsoft Office Online, which provides content aimed at helping people in specific occupations use Microsoft Office to be more productive.

The site, www.microsoft.com/occupations/projectmanager (see Figure 2), is organized according to common project-management tasks, offering a collection of tools to help project managers complete each task more productively. Tools for Project Managers currently provides assistance for 10 tasks. Among them: defining the scope of a project, estimating the duration of tasks, identifying and planning for risks and reporting project performance. Additional resources can be found on the Project Portal on Office Online at www.microsoft.com/project.

Microsoft worked with a wide range of project managers to define the tasks and tools included on the site, said Microsoft Acquisitions Editor Charlie Montgomery. "Our goal is to help professionals get the most value from Microsoft Office at work," Montgomery said. "Project managers will find really tight integration between Tools for Project Managers and the templates and other Microsoft Office Project content."

The Tools for Project Managers site also includes a Tell Us Your Story link, where project managers are encouraged to share stories, tips, and best practices. "We know there are a lot of people in the Microsoft Office Project community who have knowledge of best practices that they are willing to share," Montgomery said. "This knowledge can help their peers avoid common pitfalls and work more efficiently and more productively."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# Key Dimensions of Developing PMO Capability

*Blaise Novakovic, PMP, Pcubed (Member, San Fransisco Bay Area Chapter)*

The Project/Program Management Office (PMO) is the fastest growing concept in project management and is the key to successful implementation of Project Management within your organization.

PMO is commonly used in IT departments for project portfolio and resource capacity reporting but is also increasingly used by companies to deal with their major business initiatives such as mergers, acquisitions, and organizational realignments.

The purpose of this article is not to teach you how to implement a PMO as there is a great deal of literature available on this topic; but rather to share my experience on the key dimensions of building and developing PMO capability within your organization.

## Establish a scalable PMO

One of the key dimensions of developing PMO capability within your organization is to establish both the design and the deployment of your PMO on a scalable model. It will ensure that your critical needs are always met as the maturity of your organization evolves.

Your PMO design will be composed of various releases that will each include a set of processes, procedures, tools and templates. The first PMO release will cover the governance process, the critical project management processes, as well as their associated tools and procedures.

Let's start with the governance process. You will find that establishing a solid governance process is extremely time-consuming because it involves reaching agreement with many stakeholders in the preliminary stage of the initiative. It involves defining roles and responsibilities, level of authority of various stakeholders, project metrics and reports as well as the various forums, their frequency and attendees.

Secondly, you are likely to find out that each initiative or organization has different project management drivers. For a merger or an acquisition, legal deadlines are likely to drive the initiative, and therefore, your first PMO release will need to focus primarily on schedule management. On the contrary, for an IT organization, you will find that time tracking is the most critical driver. Many IT organizations are investing a great amount of time and money to implement time tracking solutions because there is a strong need to increase visibility and control on where the IT budget is spent. The Gartner group claims that the ratio between non-project work and project work should be 20%. You will find that in many IT organizations, this ratio is reversed. In other words, people are spending most of their time on non-project work. In this case, your PMO will need to focus its first release on time-tracking management.

Finally, your first PMO release will need to include the different tools and procedures associated with your key project management processes. An effective PMO can be set up without expensive additional software, although your organization's needs may eventually grow to the point where it requires an enterprise project management suite such as Microsoft Office Project Server 2003. The strengths of the Microsoft Project scheduling engine are all well known. In my view, Windows SharePoint Services provides the biggest "bang for the buck" because it can be used to enable the promotion and the evangelization of key project management processes such as risk, issue and change management processes by providing a single, simple and highly collaborative portal access to all users.

**Pcubed** (www.pcubed.com) specializes in EPM, server-based solutions, software implementation and technical support. Drawing on vast customer experience and expertise, *Pcubed Perspective* provides a blend of strategic and technical content, with a varied look at how Microsoft Project is being utilized within the marketplace.

## Learn to love politics

Another key dimension of developing PMO capabilities within your organization is to acknowledge politics as being the prime force for moving your organization or initiative.

Many people feel disdain and repugnance towards politics, but in order for your PMO to be truly successful it is essential to use politics appropriately and not become its servant. You will find that the biggest challenge in implementing a PMO is to overcome the numerous political barriers.

First of all, your PMO has to be incorporated into an existing structure where roles and responsibilities and levels of authority are clearly defined. PMO is based on interrelatedness, and its goal is to increase control, visibility and collaboration by breaking the barriers between departments. However, power holders are often department or functional managers that are more likely to see the implementation of a PMO as a threat and not as an enabler of their future.

Secondly, you will find that your PMO is likely to operate outside the standard functional hierarchy and its members do not have the authority to execute the various project management processes included in your first PMO release.

There are different tactics that can be used to overcome this strong organizational power.

First of all, in the initial stage of your PMO implementation, it is necessary to do a thorough stakeholder analysis that will allow you to identify political conflicts that could occur as well as to propose some positioning tactics to prevent them from occurring.

Secondly, it is essential that your PMO staff is able to develop "personal" power in the organization using "human" skills such

*Continued on page six*

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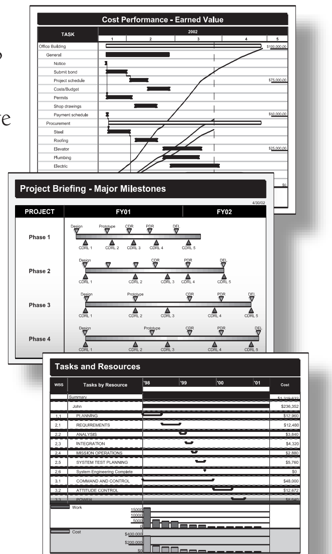


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## Key Dimensions of Developing PMO Capability

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as bargaining, influence, conflict management and negotiation.

Finding resources that are able to design a PMO in a scalable manner as well as to operate your PMO in a highly political environment might be the biggest challenges of all. That takes us to the last key dimension for developing PMO capabilities within your organization, the use of PMO consultants.

### Use PMO consultants

Even though PMO consultants cannot be expected to be as familiar with the organization as the managers, and are generally more expensive for each day of service than most employees, they provide, in my biased view, benefits that cannot be ignored.

First of all, organizations sometimes find themselves short of PMO expertise. Engaging project management consultants will allow you to get started on both your PMO design and operation by bringing the best practices and real life experiences within your organization.

Also, because consultants have apolitical viewpoints and are power agnostic, their views and opinions are more likely to be accepted as unbiased.

Finally, consultants can evolve within the organization more easily; they generally have access to C-level sponsors and can truly act as change catalysts for your organization.

Last but not least, in the event your PMO implementation fails, you can always blame the consultants!

## Mike Angiulo Supports MPA Chapter!

The MPA San Francisco Bay Area Chapter was honored to have Mike Angiulo, General Manager of the Microsoft Project Business Unit, speak at the February meeting. Angiulo is responsible for the product development and strategic direction of the Microsoft Project business. Officers and others who attended said that 'people need to here what Mike had to say.' This is consistent feedback from other chapter meetings, and attests to how valuable direct face-to-face interaction is as a membership benefit.

MPA San Francisco Bay Area Chapter Officers – From left to right: David Brown, Roger Warren, Phil Novak, James Nuthall, Dinesh Mistry, Ray Sanchez-Pescador, Joe Bellows, Mike Angiulo (Microsoft®), Peg Robinson.

Mike Angiulo, the Microsoft Office Project General Manager, talked with MPA members in San Francisco in February 2005 about Project, and how the Microsoft Office Project team is listening and responding to customers needs.

# Three Point Estimating for Work Values

*Brian Kennemer, Microsoft Office Project MVP, Quantum PM (Member, Puget Sound Chapter)*

Three point estimating can help project managers make better estimates because it gives them more granular control of how the end value is calculated. Rather than just being a number that gets entered it is the weighted average of the three estimates. For most of us our exposure to three-point estimating has been PERT (Program, Evaluation and Review Technique). PERT is three-point estimating for Duration values. Microsoft Project gives us access to PERT estimating via the Analysis toolbar. But what if you want to do three-point estimating for Work? PERT in Project does not allow for this kind of estimating for work values. This article will cover the basics of three-point estimating and also provide a VBA routine that will allow you to use custom fields to generate work estimates from a three element estimate set.

## What the Heck is PERT and for that Matter, What the Heck are Three-Point Estimates All About?

For those that have not heard of PERT it is a technique of using three different estimates to derive the duration of a task. The values are Optimistic, Pessimistic and Most Likely. PERT asks a project manager to give each of these estimates a weight. You can think of the weight as a measure of confidence in that estimate.

| Opp. Work | Most Likely Work | Pess. Work | Opp. Weight | Most Likely Weight | Pess Weight |
|---|---|---|---|---|---|
| 2 | 10 | 25 | 0 | 3 | 3 |

Figure 1 – This view shows how three different estimates derive the duration of a task.

Figure 1 shows that there are three estimates and for each there is a weight. The weights must equal 6. 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 equal weight to the Most Likely and Pessimistic values. This will make the value in this case be the average of the Most Likely and Pessimistic values. An even more pessimistic path would be to 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 PM 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 and 1 on Most Likely. This might be a good choice for an estimate of a task that has been done several times before and always taken the same time to complete.

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

((Opp * Opp Weight) + (Pess * Pess Weight) + (ML * ML Weight)) / 6

## The VBA Routine

Now 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? MS 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 give us this functionality. It uses 6 custom number fields (Number1 – Number6) and a custom Text field (Text1). The fields should be as follows:

| Custom Field | Field Title |
|---|---|
| Number1 | Opp. Work |
| Number2 | ML Work |
| Number3 | Pess. Work |
| Number4 | Opp. Weight |
| Number5 | ML Weight |
| Number6 | Pess. Weight |
| Text1 | Work PERT Status |

You can choose to enter these 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 you can have different weights for each task. In the normal PERT tool in Project you had to pick one set of weights for the entire plan. But sometimes 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 the weights set and the estimates entered you just have to run the macro shown in Figure 2. It will only run for tasks that are unstarted and for each task it runs through it will place a status in the Text1 field. For completed or in progress tasks it will enter "Not Calc'd: Task In Progress or Complete". For tasks where the Work value is calculated it will enter the date the value was set.

In the event that the weights do not equal 6 it will put 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 run the macro again.

**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.mympa.org/members.asp

*Continued on page eight*

```
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
```

Figure 2 – This macro will provide estimated work values instead of durations.

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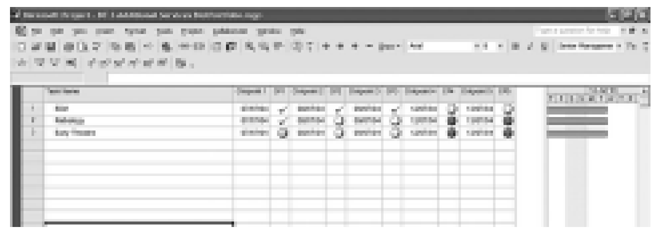
## MPA Tip File

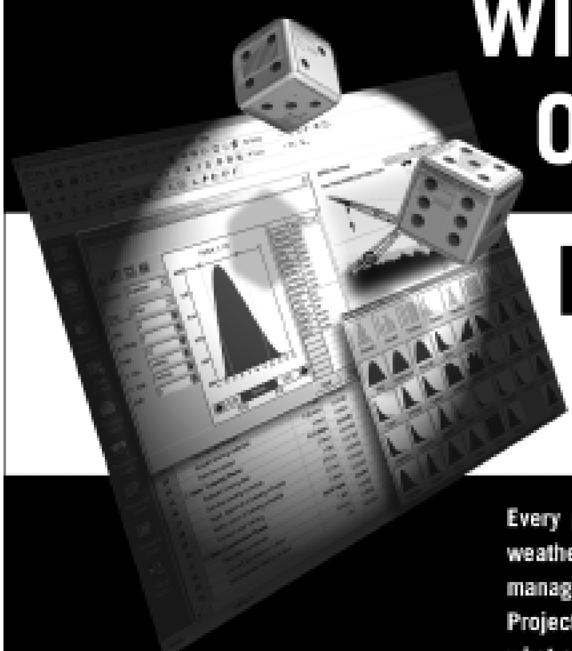
### Customer Question:

I have an issue with data copied and Pasted Special (with links). My objective is to create a single row in Project showing information from several predetermined tasks in the plan, and to bring these rows together in a single portfolio view. How do I do this?

### MPA Answer:

To create the single row, first create custom fields, then copy the cell from the row, and select Pasted Special and then Paste Link to the receiving cell. In order to make sure the links are not lost and the receiving cells are blank when inserting these plans into the master, you must copy the row from the source plan, and paste it into the master plan. It's best then to delete all other rows from the copied plan for simplicity. (See sample outcome below.)



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PALISADE DECISIONS WITH VISION

# Delays (the good kind...)

*Alex S. Brown, PMP, Mitsui Sumitomo Insurance Group (Member, Philadelphia-Delaware Valley Chapter)*

Experienced schedulers build their schedules carefully, using dependencies, calendars, and other tools to build a model of their project. They avoid fixing tasks to dates, because dates always change.

What do you do, though, when resource-leveling and other issues demand that a particular task start just a few days or weeks later? How do you model these situations so that your schedule will handle change gracefully? The easiest approach is to overtype the start or end date, creating a constraint, but a more effective method is to use delays.

Microsoft Project offers three types of delays, allowing a project manager to model almost any project accurately. Many project schedules require just one or two of these delays, but learning all three ensures that you can select the correct tool in any situation. The three types of delays are:

- Task-level leveling delay
- Assignment-level leveling delay
- Assignment delay

This article assumes experience creating basic predecessor and successor relationships between tasks in a Microsoft Project schedule. Examples focus on the common finish-to-start relationships. Experiment before using other types (FF, SS, SF).

All these delays build on top of the basic dependencies with leads and lags. Let's review the use of leads and lags.

## Leads and Lags

Predecessors usually appear as a task number or a list of task numbers. It is possible to adjust the task relationships by entering a lead or lag time. For instance, a predecessor of "3FS+2d" means that the task will start two days after task #3 finishes. Lags are represented by positive numbers and leads by negative numbers. You can enter these adjustments right into the predecessor or successor column of a task list, or in the "Lag" column of the Task Information dialog box or the Task Form window.

You can enter a lead or lag in any unit of duration, including weeks, days, hours, or minutes. Using leads or lags, a project manager can make just about any date adjustment. With this one tool, you can completely eliminate the use of fixed-date constraints in a schedule. Unlike fixed-date constraints, leads and lags will make all the dependent tasks move together when a predecessor's date changes.

## So Why Use Delays At All?

If leads and lags can do the whole job, why even use delays? Why worry about mastering three different types of delays?

Leads and lags are designed to represent inflexible constraints on your schedule. For instance, if walls cannot be erected until at least three days after the concrete foundation is poured, that is typically entered as a finish-to-start predecessor with a three-day lag. This waiting period is part of the sequencing logic of the schedule.

Delays are designed to represent constraints that are not part of the strict sequencing rules for the project. Resource leveling is the most common application for delays. If you want, you could use leads and lags to do resource leveling, but how would you know if a particular lead or lag was introduced as part of the project's sequencing rules or because of a resource conflict? Using separate fields for delays makes the difference clear.

## Using Leveling Delays

If you have ever used the automated Resource Leveling features of Microsoft Project, you may have wondered, "How does it make my tasks jump around that way? It is not fixing the start or end dates, so why are the dates moving around?" The leveling delay fields are the secret. You can change them by hand, either instead of or in addition to automated Resource Leveling.

The easiest way to see them is to use the built-in Leveling Gantt view. Go to the View menu, select "More Views..." and pick "Leveling Gantt" from the list. The column "Leveling Delay" appears as the second column. Of course, you can also add this column to your favorite view if you prefer, but this view is pre-configured with useful information for resource leveling.

Task leveling delay is an unusual duration field. It must be entered in elapsed duration units. "Elapsed" means that it is calendar or clock time, not work time. Put an "e" in front of the unit to enter an elapsed duration. For instance "ed" represents elapsed days. Three elapsed days starting on a Friday will end on Monday even if the weekends are non-working days. You can actually enter elapsed days in many duration fields. Task leveling delay is unusual because it requires elapsed duration.

If you have used Resource Leveling in Microsoft Project, there may already be values in the fields. If not, they will start as zero. As you enter values into the fields, the start date for the matching task will move further into the future. By fine-tuning these values you can resolve resource conflicts and over allocations.

## Assignment Leveling Delay

The Task Leveling Delay field moves the entire task in time. What if you want to delay the start date for just one resource assigned to a task? The Assignment Leveling Delay field allows you to delay each assignment individually.

You can add this column to any assignment-level view, but the simplest way to display it is to use the Task Entry view. This view features a split screen with a Task Form in the bottom pane to enter details about the task selected up top. (See Figure 3.) Click on the Task Form in the lower pane to select it, then go to the Format...Details... menu and select the "Resource Schedule" format. Each assignment will show a value in the Leveling Delay column. This delay is entered in standard duration units, not elapsed units.

Entering a number in this column will delay the start of that particular assignment. The start date for the task remains

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Figure 1 – Two tasks with a two-day lag between them

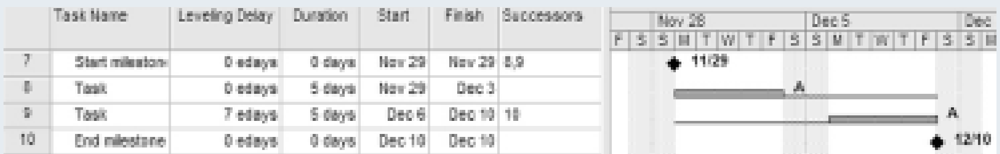


Figure 2 – Both tasks have the same predecessor but one starts later because of leveling delay

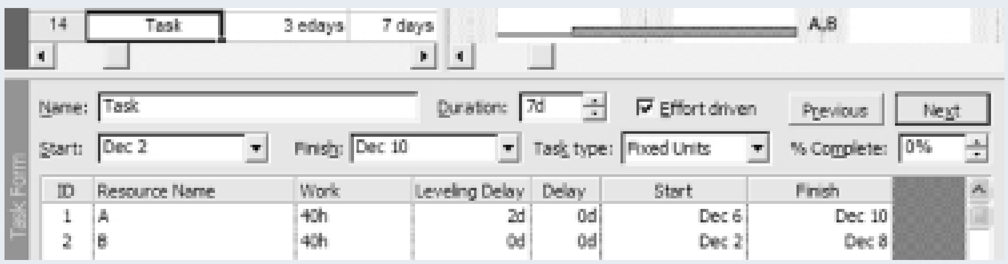


Figure 3 – One task with two resources assigned. One assignment has a two-day leveling delay, turning a five-day task into a seven-day task.

unchanged, but the finish date may move as you change the delay.

Using both assignment and task leveling delays can lead to confusing situations, where it is hard to tell why a task has a particular start or end date. I tend to avoid assignment delays and instead create multiple tasks, one for each resource. I find that this treatment makes the schedule easier to read and track. Each resource gets their own start and end date clearly marked at the task level. Of course, it is good to have the flexibility to delay an individual assignment when you need it.

### Assignment Delay

Microsoft Project provides a third delay field, called assignment delay. It is a different field from the assignment leveling delay, but it works exactly the same. Enter a duration into the assignment delay and the resource will begin work that number of hours, days, or weeks after the task start date. Enter a value for both assignment delay and assignment leveling delay and the total delay will be the total of the sum of the two delays.

The assignment delay field is available in the "Resource Schedule" Task Form discussed above. It is labeled "Delay" in that view. You can add the value to any assignment-level table by adding the "Assignment Delay" field to the table.

### Use of Leveling Delays vs. Other Delays

People sometimes ask why there are separate leveling delays at a task and assignment level. After all, they just add to the effects of task-level lags and assignment-level delays.

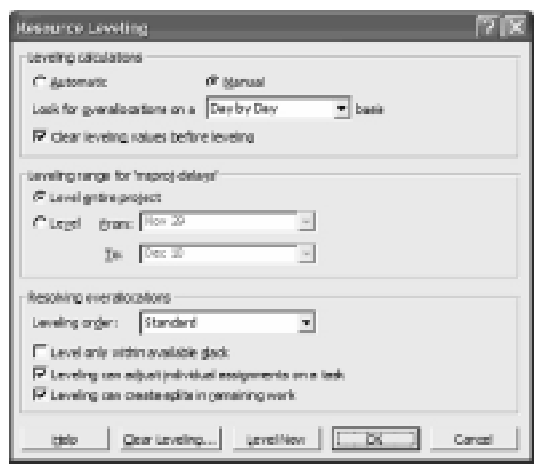


Figure 4 – The Resource Leveling dialog box lets you automatically adjust leveling delays for the whole schedule.

These dedicated leveling-delay fields are devoted to the issue of resource leveling. Under the Tools menu, the Level Resources... menu item displays the Resource Leveling dialog box. (See Figure 4.) This screen allows the scheduler to re-level resources automatically. The "Clear Leveling..." button, resets all the leveling delays to zero. "Level Now" automatically adds leveling delays to the tasks of the project to attempt to level the resources. The "leveling can adjust individual assignments" checkbox determines whether or not this leveling engine will use the assignment leveling delay.

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The assignment delay field is never changed by this dialog box, and neither is the task-level lead or lag. A scheduler can use these two fields for scheduling constraints that exist regardless of resource availability and the leveling delays to represent scheduling constraints that are based on resource constraints.

## Putting It All Together

These techniques will help you build a more robust schedule. They help you apply change to just one part of a schedule and have the changing dates ripple through the rest of the schedule more consistently.

For instance, imagine creating a schedule for a deliverable with four one-week tasks. They could be done in any order, so you enter them with no dependencies and use fixed dates to allow one person to accomplish them over a period of four weeks. If the resource actually starts doing the work out of order or delays start on the work, the dates for each task must be updated manually. Building a predecessor chain for the tasks would help with rescheduling remaining work, but would require a lot of rework if the resource does the work out of order.

Using delays, though, you can schedule these four tasks with a single start milestone as a predecessor and a single finish milestone as a successor. Enter appropriate leveling delays for each task to level out the resource use. Now if the work is rescheduled, you can simply move the start milestone's date and the rest of the tasks will follow, keeping the previous leveling delays intact. In most situations, these tasks will remain resource-leveled after changing the one milestone. If the resource does the work out of order, you can adjust the leveling delays as needed. Because your predecessor and successor values only show real dependencies, you do not need to change them. Adjusting leveling delays, you can be confident that your project's sequencing rules are still enforced.

## The Good Kind of Delays

The word “delay” usually causes stress for project managers, giving them visions of overrun budgets, late delivery, and lots of overtime. In Microsoft Project, though, delays are a critical scheduling tool. By using Leads and Lags, Leveling Delays (task and assignment), and Assignment Delays a project manager can accurately represent the most complex schedules. Schedules built using these delays will be much more resilient than ones built using fixed-dates constraints. Tasks will move together according to the rules set by their constraints and their delays, instead of being fixed to a particular date.

*Alex S. Brown, PMP provides advice to peers internationally through his web site, http://www.alexsbrown.com. All material © 2005 Alex S. Brown. All rights reserved.*

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**MPA Welcomes Sacramento Valley Chapter!**

The newly formed MPA Sacramento Valley Chapter Officers were on hand at launch night, as were two keynote speakers, Eric Uyttewaal (IIL) and Mike Angiulo (Microsoft). Back Row left to right: Dohn Kissinger, Rich Newbold, John Semko, Eric Uyttewaal, Mark Dochtermann—Front Row left to right: Dee Smith, Lance Williams, Chad Hodges, Patti Rabe, Mike Angiulo, Derek Loar

The Sacramento Microsoft Office was at maximum capacity of 60 people who attended the MPA Sacramento Valley Chapter launch in February 2005. The Chapter officers received rave reviews from those who attended, citing that the event was exciting, well executed, and packed with information that could be directly applied to Microsoft Project situations the next day.

Eric Uyttewaal, PMP Executive Director, Microsoft EPM Division, International Institute for Learning, Inc. is caught in the moment delivering a key message during his presentation titled Microsoft Project Best Practices. Author of the “Dynamic Scheduling with Microsoft Project” series, Eric delivers an energized presentation.

# Quantitative Risk Analysis with Microsoft Project

*Lev Virine, Ph.D., Intaver Institute Inc. (Member, Calgary, Alberta)*

Quantitative Risk Analysis has become an important component of project management. According to *Guide to the Project Management Body of Knowledge* (PMBOK ® Guide, Third edition 2004, Project Management Institute) "Quantitative Risk Analysis is performed on risks that have been prioritized by the Qualitative Risk Analysis process as potentially and substantially impacting project's completing demands. The Quantitative Risk Analysis process analyzes the effect of those risk events and assigns a numerical rating to those risks."

Microsoft Project implements Qualitative Risk Analysis methodology, but what about quantitative analysis? Quantitative Risk Analysis gives the project manager ability to see how the project schedule will be affected if certain risks occur. As a result, project managers are able to mitigate risk factors and manage their projects better.

## PERT Analysis in Microsoft Project

Microsoft Project implements the Quantitative Risk Analysis technique PERT (Program Evaluation and Review Technique). The PERT model was developed in the 1950s to address uncertainty in the estimation of project parameters. According to classic PERT, expected task duration is calculated as the weighted average of the most optimistic, the most pessimistic, and the most likely time estimates. The expected duration of any path on the precedence network can be found by summing up the expected durations.

Using PERT in Microsoft Project is very easy using the PERT toolbar. To enable the PERT toolbar on the View menu, from the Toolbars menu, choose PERT Analysis (see Figure 1).

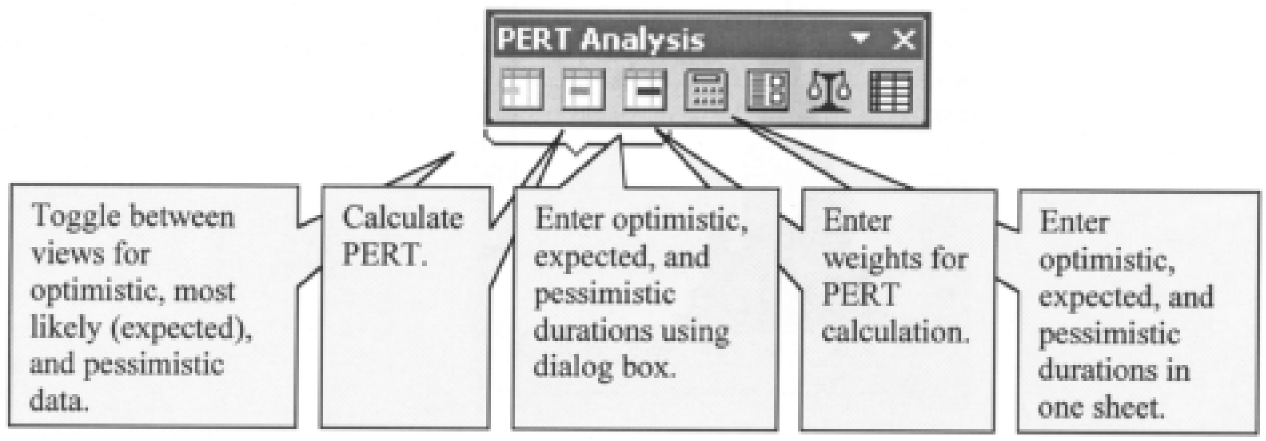


Figure 1 – PERT Analysis toolbar in Microsoft Project.

Microsoft Project has four views that help you to enter data for PERT analysis: separate views for optimistic, expected, and pessimistic duration, as well as a PERT entry sheet. The most powerful view is the last one, as it allows the user to enter and see all durations together. After you enter project data, press the **Calculate PERT** button on the toolbar. Calculations are performed based on optimistic, expected, and pessimistic durations. You will see results of the calculation in the **Gantt Chart** view.

The classic PERT methodology has a number of limitations. The main problem is associated with accurately estimating the optimistic, most likely, and pessimistic durations of the task. Another problem with classic PERT is that it gives accurate results only if there is a single dominant path through a precedence network. If there are a number of parallel paths through the network it gives an overly optimistic estimation. We recommend using the classical PERT model for quantitative risk analysis if you have accurate estimations for optimistic, most likely and pessimistic durations based on reliable historical data and if your project has a single dominant path through the network.

## Monte Carlo Simulation Models

To overcome the challenges associated with the PERT method, Monte Carlo simulations can be used as an alternative. Monte Carlo is a mathematical method used on risk analysis in many areas and is used to approximate the distribution of potential results based on probabilistic inputs. Each simulation is generated by randomly pulling a sample value for each input variable from its defined probability distribution like uniform, normal, lognormal, triangular, and beta. These input sample values are then used to calculate the results such as total project duration, total project cost, and project finish time. The inputs can be task duration, cost, start and finish time. This procedure is then repeated until the probability distributions are sufficiently well represented to achieve the desired level of accuracy. They are used to calculate the critical path, slack values, and more. Monte Carlo simulations have been proven an effective methodology for the analysis of project schedule with uncertainties.

To use Monte Carlo simulations with Microsoft Project you need to have an add-on tool. There are a number of such tools available on the market including @RISK for Project from

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Palisade Corporation (www.palisade.com), RiskyProject from Intaver Institute (www.intaver.com), Pertmaster software from Pertmaster Limited (www.pertmaster.com), Risk+ from S/C Solutions Inc. (www.cs-solutions.com). These software tools will help you find answer on the questions such as:

– What is the chance of your project being completed on schedule and within budget?

– What is the chance that the particular task will be on the critical path?

– What tasks affect the project duration at most?

– What is the project success rate?

Each Monte Simulation tool has its own specific functionalities; however, some features are common for all of them. First, all of the software allows the user to: assign different statistical distributions including custom distributions to project inputs (task duration, cost, etc.), perform Monte Carlo simulation, and output results in different formats. For example, you can use a frequency or cumulative probability charts or histograms to see the chance that the project will be completed within a given period of time (see Figure 2). You can calculate the criticality index or probability that a task lies on the critical tasks.

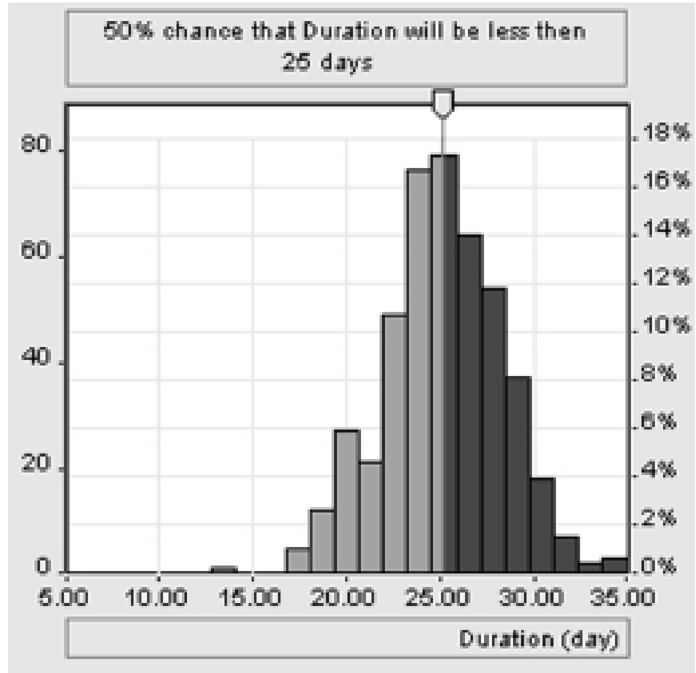


Figure 2 – Frequency chart can be used to assess the chance that project will be completed within a given period of time.

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## Quantitative Risk Analysis with Microsoft Project

*Continued from page thirteen*

You can perform a sensitivity analysis or calculate how sensitive the project outputs (project duration, cost, risks, finish times, etc.) are to the uncertainties of the project inputs (task duration, finish time, etc.). Results of sensitivity analysis can be shown on a chart, as in Figure 3. The tasks which are listed highest on the chart have the potential to affect project duration the most.

| | Name | Sensitivity Chart | Coeffici... |
|---|---|---|---|
| 1 | Task Web site development | | 0.671 |
| 2 | Task Web site content development | | 0.671 |
| 3 | Task Writing information topics | | 0.652 |
| 4 | Task Beta testing (by three selected clients) | | 0.558 |
| 5 | Task Web Site Design | | 0.285 |
| 6 | Task Web site layout and structure design | | 0.185 |
| 7 | Task Evaluation and purchase of web site templates | | 0.171 |

Figure 3 – Results of sensitivity analysis.

Monte Carlo simulation tools may offer features such as probabilistic or conditional branching. An example of probabilistic branching is when the user defines that there is a 40% chance that task A will be successor of task B and a 60% chance that task C will be successor of task B. An example of conditional branching is when the user defines that task A task will be followed by task B if task A duration is greater or less then a certain value.

The classic Monte Carlo simulation method has a number of limitations. Statistical distributions of project inputs such as task durations should be obtained based on reliable historical data and in many cases this data is available. For example, a project manager usually knows that a particular construction job will take between 1 and 3 days and can be defined by normal distribution. However, in some cases, especially for research and development projects, this information is not available and using Monte Carlo simulation may not improve your estimations. It is also very important to constantly track your project performance and update input data and associated distributions using performance measurement data. Another problem associated with Monte Carlo simulations is that if a project slips, project managers usually perform certain actions. It is difficult to define and forecast the management response within a Monte Carlo simulation method.

To overcome these and other challenges Event Chain Methodology has been developed as an extension of the classic Monte Carlo simulation method. Project uncertainties can be defined as a set of risks or probabilistic events (risk lists), which can be assigned to tasks, resources, or project schedule. Such events can occur at the middle of the task and can lead to task delay, restart, and cancellation. Events can cause other events and generate event chains. Project managers can monitor these events, determine the critical risks – which affect project schedules the most – and mitigate them. Event Chain Methodology allows you to perform Quantitative Risk Analysis by combining project schedule and risk lists.

You do not need to be a statistician to use Monte Carlo simulation tools with Microsoft Project. They are designed for project managers who want to bring the power of Quantitative Risk Analysis to the project. Project managers have successfully used such tools in different industries for years.

### MPA makes a statistical impact in 2004 thanks to members!

- MPA executed 150 events around the world in 2004. This translated into approximately 300 hours of content for our members to access on the Members-Only section of the Web site!
- Dedicated MPA Chapters worldwide were fortunate enough to have 300 volunteers serve as Chapter Officers. These dedicated individuals executed two events per week for 52 weeks, in addition to all of their other Chapter-related responsibilities!
- MPA's Project Ezine was a great resource of information for members in 2004. Members were provided 24 Project tips, informed about more than 75 Microsoft Web casts that pertained to Project and project management, as well as received at least one Project update or toolkit each month!
- MPA's quarterly newsletter, The Project Network, featured 28 Project related articles by more than 20 MPA members who volunteered their time and energy to make this newsletter a success!

# How to Run OLAP Cube Query with Excel

*Jacques Boulet, PMP, Ericsson, Canada, Inc. (Member, Montreal Chapter)*

I am used to preparing resource planning reports for our management team meetings only one hour in advance. Fortunately, it is very quick and easy to prepare such reports using the OLAP Cube. Reports can easily be customized for specific needs and data can easily be manipulated off-line.

Figure 1 is an example of reports I have prepared:

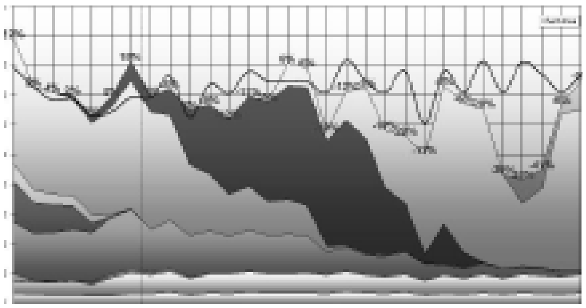

Figure 1 – A sample report.

The solid line is the organization's total work capacity. Capacity fluctuates according to the resources' Max Units, statutory holidays, and vacations. The stacked area displays the contribution (i.e., demand on the line org) of each project or group of projects over time. The dotted line (vertical) is the date that the report was run. To the left of the dotted line are actual hours spent, and to the right of it represents remaining/planned work.

In order to try this you will need the name of the server where your OLAP Cube resides. It is assumed that the OLAP feature is enabled in your Microsoft Project server environment and that you have been granted the permissions to access the server. If so, follow the steps below to acquire the OLAP Cube data within Microsoft Excel:

1. Install the required Excel add-ins.

- Starting from a blank Excel sheet:
- Select Tools > Add-Ins...

The add-ins that should be installed are as follows (ensure that there is a check mark next to each one in the list below), then click **OK**.

Access Links
Analysis ToolPak
Analysis ToolPak - VBA
Conditional Sum Wizard
Internet Assistant VBA
Lookup Wizard
MS Query Add-in
ODBC Add-in
Report Manager
Solver Add-in
Template Wizard with Data Tracking
Update Add-in Links

2. Configuring the OLAP Cube connection

- In the blank Excel sheet, select **"Data/PivotTable and PivotChart Report"**. This starts the "Data/PivotTable and PivotChart Report" Wizard, which will remain open until the following steps have been completed.
- Select "External data source" and click on Next >
- Click on "**Get Data...**"
- Select the "OLAP Cubes" tab and click OK
- Enter a name of your choice for the OLAP Cube (e.g., "MSP OLAP Cube")
- Select the OLAP provider for the database: Microsoft OLE DB Provider for OLAP Services 8.0
- Click on Connect
- Select "Analysis Server"
- Enter the name of the server where your OLAP cube resides
- Click on **Next** >
- Select the database and click on **Finish**
- Select the Cube that contains the data you want to retrieve and click on **OK**
- Select the name OLAP Cube you created (e.g., "MSP OLAP Cube") and then select **OK**. This will cause the Microsoft Query window to open
- Click on **Next >** on in the "Data/PivotTable and PivotChart Report" Wizard window
- Click on **Layout**...

You should now see a blank pivot table with several field buttons on the right.

3. Define the pivot table you want by dragging the field buttons to the pivot table desired column, row, or area. To prepare resource planning reports, you will need to define two pivot tables: one for Availability (see Figure 2), and one for Work. Use field Resource RBS, you will be able to drill-down to lower levels in the organization if required. You can define pivot tables in separated worksheets; it will be easier to maintain. When done placing the field buttons, click on **OK**, and then press **Finish**. At this point, copying the Microsoft Project OLAP Cube data will generate the pivot table.

Figure 2 – How the layout will appear.

You will now be able to filter and/or drill down into the data stored in the Microsoft Project OLAP cube within the pivot table in Excel and prepare chart as usual.

4. All that remains is to **Save** your Excel file for later use. When you revisit this file, make sure you have updated all pivot tables to ensure you have the latest MS Project OLAP Cube data. Open the file and click on **Data** > **Refresh Data**.

I hope you will enjoy running OLAP Cube query like I do every day.

*Author Jacques Boulet would like to thank his colleague Spiro Theopoulos for his help on this article.*

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