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Managing Resources and Timesheets in Microsoft Office Project: A Q&A with David Ducolon

As anyone who manages project-related resources, budgets and timelines within an organization can likely attest, predicting the final cost of a project-in-progress can feel as elusive as trying to catch lightning in a bottle – especially where employees' time is concerned.

It's a challenge that **David Ducolon**, program manager for the Microsoft Office Project software application set, hears repeatedly in his visits with Microsoft customer representatives who oversee resource management and time tracking. It's also a key focus area for improving the accuracy, flexibility and overall usability of this software within the upcoming Microsoft Office 2007 information worker productivity suite set for general availability starting later this year.

MPA asked Ducolon for more details about the software's current and future capabilities in the areas of resource management and timesheet administration.

MPA: What do enterprise project managers and leaders of project-driven organizations say are their biggest challenges with regard to managing resources and timesheets?

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Ducolon: Within resource management, people say they want to be able to track all of the work and all of the time that their resources are busy doing things, in order to have the clearest picture of their organization's capacity to do business. This requires better methods of capturing the data, mining it to extract the most relevant details about team members' progress toward completing their projects, then applying that intelligence toward process improvement. A common obstacle to achieving total success in those areas is that you're dealing with people, and people usually don't like their time to be scrutinized down to every 5 minutes or even 15 minutes – it just goes against human nature and human desire to be exposed to that level of scrutiny. But if you're unable to capture what every person is doing for every minute of their working day, then you won't be able to determine the ongoing cost of any given project.



David Ducolon

Also, while it may be relatively easy to capture the time they spend working directly on a project, a lot of organizations struggle to measure the time involved in people's other miscellaneous tasks or duties. Those things are often hidden from view. Without the ability to get that information from the employees, managers are neither able to assess what their employees' total capacity or abilities are, nor what the total cost to their project is of having someone perform those tasks which usually are a cost of doing the business of project work.

In terms of capturing resource costs through the timesheet, customers have competing needs. Project managers want to know what it is going to cost to finish the project, whereas the project management office wants to know what is the project cost to date. While the latter number is easy to get, the former is less of a firm number that's driven more by the projected efficiency of your project team members going forward.

Continued on page three



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Microsoft® Office Project, Microsoft Corporation

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From the Editor

In the Project Management universe, we get very caught up in words like "resources", "milestones" and "next steps". And even when we step outside our professional selves, we don't lose the ties to this thinking. We always stay connected to our project-oriented selves.



Beth A. Swartz

Well, it's time to change. Yes, I know we all love what we do, headaches and all included. But we're not leaving, just "refreshing". We are disconnecting on our downtime, so that we are better when we are working. A chance to realign and clear our heads, can go a long way personally and professionally. I grant you, there is a blend, a best of both worlds approach, but this moderation can be difficult to achieve. As solution-oriented professionals, moderation can seem limiting or incomplete. We say, "Do more, see more results." But, this may not be so.

When we do manage to step-away from our project selves, we somehow never leave the jargon ties behind. However, we can implement some minor language adjustments that will help us "find the middle". Here are some suggestions.

First, while time is a resource, recognize it is also a gift. Appreciate the fact we can use it and then, use it well. Some projects may need more of this "resource", but there may be a reason. Limit your time and frustration about it. Understand the reason, acknowledge it and move on. More importantly, your own time is for you. It has no criteria to meet other than your own needs.

Second, "milestones" are achievements. They are successes, mini-celebrations along the way. Was your child's mid-term report card a milestone or a great accomplishment? A short-term goal or a goal in and of itself? Be sure to see the difference and celebrate the attainment genuinely.

Third, there are always "next steps". If they were not there, likely, we would not be here either. So rather than the never ending "to do" list, our next steps are how we move from here to there. Usually forward, occasionally misguided, but always moving. And it is in this journey that we find the ability to be ourselves. Yes, even our project management oriented selves.

So, be better at being yourself by adding new dimensions to the definitions you so strongly embrace as a professional. You will enjoy the improved "scope".

Best Regards,



Beth A. Swartz

Managing Resources and Timesheets

Continued from page one

MPA: What effects can befall these organizations when their resource management and timesheet administration are less than optimal?

Ducolon: If you don't know precisely what a person is doing day to day, that tells you that you don't know what they are capable of doing. In that case, you cannot plan your business. You are making guesses at your organization's capacity to do work and to complete it within a certain time frame – which is the essence of effective project management.

The way that businesses typically are organized, timesheets and resource management are treated as very separate disciplines. Thus, many businesses are not looking at these two together. In fact you cannot have a working vision of 100 percent of your resources capacity to do work, without being able to capture all of their activities, which requires the use of a timesheet.

MPA: What specific tools and capabilities are currently offered in the Microsoft Office Enterprise Project Management (EPM) Solution to help customers optimize resource management and timesheet processes?

Ducolon: Microsoft Office Project Server currently enables employees to capture their project tasks and related assignments as direct input to their timesheet. Also, Office Project Server enables users to create new tasks without management input, and also to track so-called administrative projects or tasks in order to capture all of the person's work time. For instance, in an eight-hour day, you might have six productive hours on your project tasks, but you also need to be able to report those two additional hours. Microsoft Project users can capture that time by creating a new task in Project. The project manager can then get involved to discuss with the employee where that time might be more appropriately accounted for, if it doesn't belong on the project. Those two capabilities together enable team members to enter all of their work into the system so the resource manager and the project management office are able to view and categorize all of the time properly – how much is project-related work and how much represents other business-required work.

MPA: What types of new and enhanced resource management/timesheet capabilities can customers expect to see in the upcoming Microsoft Office Project 2007 release?

Ducolon: What we are doing in Office 2007 is to extend our functionality in both resource management and timesheets to embrace work entries that are less structured, or that represent more of a non-firm time commitment. In resource management, we will enable customers to plan at the FTE level what their

resource needs are on a given project and adjoin that information to the project. For instance, a project manager will be able to go into Microsoft Project and say: "I need one database administrator and two security experts and four coders; and the coders I need to have at three-quarter FTE and only for the middle phase of the overall project." By estimating the needs for the project in this way, the resource manager can more accurately assess the pipeline of available resource needs. These enhancements in the next release of Microsoft Project will help customers better plan how much work they can support going forward. Therefore, they will be less likely to over-assign resources, which should increase their ability to deliver the projects on time and result in better overall productivity for the business with less loss of money.

To help customers take that data and use it in the best way, we've also tied together the resource availability and resource assignment pages within the next release of Microsoft Office Project. Users will now be able to select a set of employees and look at their availability to see how these resources stack up. Whether they're looking to maximize utilization or find a resource to fit a certain opening, managers will be able to look at this information in a graph and deselect the resources that don't meet their needs. With the resources that are left in the selection set, a manager can look at their current assignments and narrow the list further based on which resources have the availability to take on a new assignment, and compare those people side-by-side. This will give a manager 100 percent insight to be able to say, "I know that resource is available and has the capacity to do this work."

MPA: What can customers start doing now to prepare for implementing Microsoft Office Project 2007 so they get the most benefit from its new capabilities?

Ducolon: They can sign up to receive the latest public beta version of this software, which we released in May, at the Microsoft Office System 2007 preview site (<http://www.microsoft.com/office/preview/default.mspx>). Microsoft also has published a set of three DVDs encompassing more than 110 hours of keynote presentations, breakout sessions and other highlights from the 2006 Microsoft Office Project Conference in Seattle, where I and many other speakers, extensively outlined the next version of Microsoft Project. Everyone who attended the conference in January will receive these DVDs. All others can order copies on the event Web site (<http://www.msprojectconference.com>).

By taking a deeper dive into the upcoming capabilities now, organizations will gain a much better idea of which specific process changes they might need to prepare for when Office 2007 reaches general availability in the next several months.

An Introduction to Portfolio Management System

Bill Raymond, Microsoft Project MVP (Member, Arlington, MA)

About this Article

Recently, Microsoft acquired a product called UMT. The product is now called Microsoft Office Project Portfolio Server 2007. More information on the specifics of this product will be forthcoming. This article will look at the ever-maturing Project Management space and delve into a relatively new market space called Program and Portfolio Management (most commonly referred to as PPM).

The Beginning: Enterprise Project Management

Not too long ago, there was a leap forward in the Project Management tools space, creating a new market called Enterprise Project Management (or EPM). This market was in large part, defined by the release of the Microsoft Project Server platform.

Using EPM, Project Managers are still managing project schedules, tracking critical path activities and managing milestones. These Project Management tasks are certainly not part of a common vernacular in which all members of a project team may be accustomed to. On the other hand, we are hard pressed to find anyone that does not know what an issue, risk or document is. Further to that, we all understand the concept of collaborative teams, whether technology is an integral part of that collaboration or not. EPM brings us one holistic environment to manage and maintain our projects and individual work deliverables.

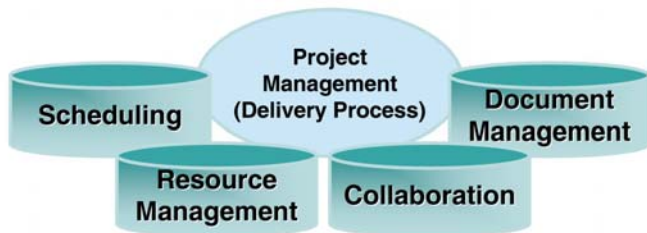


Figure 1: In today's EPM environment, project schedules and collaborative environments are maintained to meet a set of end deliverables. Microsoft Project Server and Microsoft SharePoint are the key elements of the Microsoft EPM environment.

EPM - Strategic Move, Tactical Importance

As an organization, we must take Project Management maturity, organizational effectiveness and, cultural adoption into consideration when considering an EPM solution. Therefore, applying the concepts and implementing supporting software constitutes EPM being a strategic direction for any organization.

Once we bring these EPM efforts into play and begin using the methods and software to implement projects, we are managing the tactical delivery of our projects. In other words, we have approved projects, they must be managed and whole teams must collaborate to deliver on the project's promises and we need a tool to track all of this for us.

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.

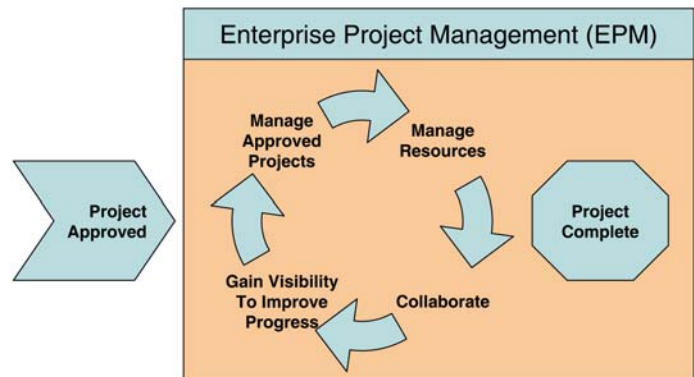


Figure 2: When project(s) are approved and a team has been selected, people will collaborate on their project within the EPM environment. We have strategically provided a platform for project teams to tactically manage their work to deliver an end product.

Program Management – Or “EPM+”

Armed with an EPM solution to manage our projects in a common and integrated way, we can now take a step back and get smarter at how we select and approve our projects in the first place and organize how we manage and maintain our projects in a more substantial way.

The first step we can take is look at all the projects that are in play and determine how they fit into the overall delivery of an end product or set of deliverables. This in and of itself can be a very difficult task. Take for example an IT organization, who manages projects based on lifecycle delivery processes, having to couple their project schedules with the facilities department, who runs their projects based on construction delivery methodologies.

Therefore, for us to manage a truly integrated set of projects as a program, we not only need integrated plans, but a more efficient way of identifying the key areas, such as phases, gates or milestones where projects tie together.

Today's EPM tools – and certainly Microsoft Project Server 2003 – can provide the capability to tightly integrate project schedules while providing flexibility on the overall methodology being used. By way of web-based reporting our Managers and Executives can look at resource utilization and overall project health with a bird's-eye view of the entire program, without necessarily having to know every project that makes up the program.

Portfolio Management System

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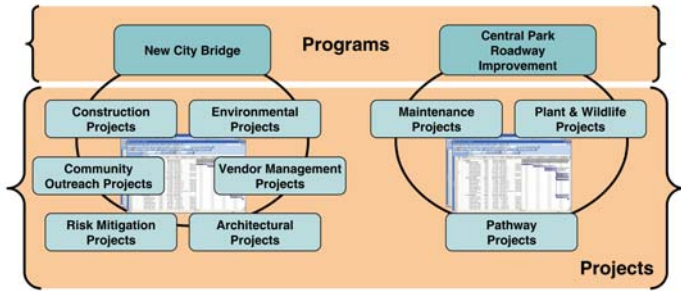


Figure 3: By organizing a group of projects, they will naturally fit into the appropriate programs, which provide a higher-level view of work being run to meet one primary goal or deliverable.

Introducing Program and Portfolio Management

Having brought ourselves to a point where we can manage our projects and work with cross-functional teams that are all marching to one goal, we can ask the next question: "What's Next?"

We are now in a great position to move into the Program and Portfolio Management (or PPM) space. Here, we look at our overall initiatives, revenue goals, funding outlook, resource availability and so on. This will drive us in a direction of asking – and answering – a critical question: "Are we doing the right work?"

The portfolio can analyze the current needs of your organization against the value of selected projects. Organizationally, we can put metrics around projects and map them against strategic alignment, value, regulatory mandates and other key drivers that help us select the right work, instead of the work that will not improve our business.

From an ongoing portfolio management perspective, we can continually track the budgets, shifts in organizational goals and risks against current or future projects and programs. Tracking such metrics will ultimately help an organization re-align their resources as needed and put projects on hold, cancel them or spin up new ones based on these changes.

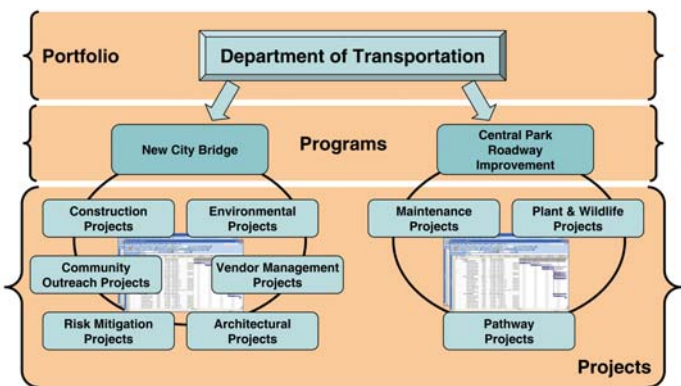


Figure 4: All projects are integrated to deliver on their program's objectives. The programs roll up to a portfolio that defines your organization's overall business objectives.

Potential PPM Architecture

From an architectural perspective, we are starting to blur the lines between how we budget projects (Finance), define business needs (Senior Management) and run projects (Project Managers, Project teams, etc.)

As we move toward a fully integrated Financial, Portfolio and Program Management space, we will need to align our organizations successfully and ensure that Project, Program, Portfolio and Budgeting processes fall into a common working framework. This is not a simple undertaking, but the benefits of selecting the right projects and enabling teams to manage work efficiently on projects they know are important will truly begin to drive a projectized organization.

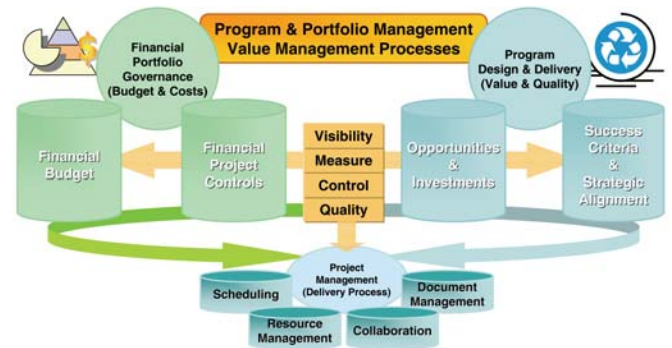


Figure 5: A fully integrated perspective of a Financial, Portfolio, Program and Project Management solution.

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Using VBA to tie a Project task start date to a certain day of the week

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

Sometimes, a task must start on a particular day of the week. Such tasks might include upgrades requiring a server outage, testing that can be done only when users are not online, or tasks that have to be done on a Saturday or Sunday. Unfortunately, if the task gets moved because of a delay in a predecessor task, you've lost your chance to perform the task on the specified weekday.

Microsoft Project provides ways to make sure that a task starts on a particular *date* but not on a given day of the week. This is a perfect example of how you can use VBA to add functionality to Project. This article will look at a macro that lets you specify a day of the week for a task to begin. When run, this macro will make sure that the task starts on that day of the week.

How it works

This macro requires you to use the Text1 custom field. For each task that must start on a given day of the week, you enter that day in this field. For example, the task in **Figure A** needs to start on Monday, which is reflected by the contents of the Text1 field.

Figure A

Task Name	Text1	Di	Jul 29, '01	Aug 5, '01
Task	Monday		F S S M T W T F S	S M T W

You enter the required weekday in the Text1 field.

When you run the macro, it sends the start date of each task whose Text1 field contains any text through the *Weekday* VBA function. This function returns the day of the week on which the given date occurs. The macro then compares this value to the contents of the Text1 field. If they are the same, nothing happens. The macro moves to the next task. But if they are different, the macro adds one day to the start date until they match.

The big thing to remember here, is that the day you enter into the Text1 field for any of these tasks, must be marked as a working day in the default calendar for the project. If the day you enter is not a working day, the macro will return an error message. **Listing A** shows our macro.

Running the macro

Next, you need to consider the timing: When should the macro run? You have a few options.

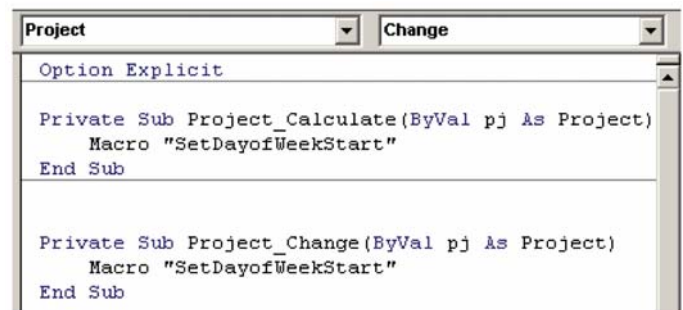
The easiest but least safe approach is to run the macro when you know your tasks have moved—or you think they might have. This is just a matter of running the macro manually, but it's somewhat risky because it relies on you to remember to run it.

The next option is to run the macro every time the project changes or is calculated. You can do this by inserting a call to the macro in the project's Change (or Calculate) event. **Figure B** shows the Change and Calculate events for this Project object with the code to call the macro.

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.mypa.org/members.asp

The downside to this technique is that it runs the macro often, so if your project is large, Project may run slowly. You'll want to select an approach that's tailored to a particular project and based on how often you think the macro will need to be run.

Figure B



Calling the macro via a project's Calculate and Change events

Seize the day...of the week

There's no reason for your project schedule to suffer because you missed a window for some type of critical testing or upgrade. Use this macro to link those tasks to a specific day of the week. That will be one more thing the system can manage and one less thing for you to worry about.

Listing A: Day of week macro

```

Sub SetDayOfWeekStart()
    Dim T As Task
    Dim D As Date
    On Error GoTo ErrorHandler
    
```

For Each T In ActiveProject.Tasks

 'Only check the tasks that contain text in the Text1 field
 If T.Text1 <> "" Then

 'Ensure the contents of the Text field are in the right
 'case. The contents need to be first letter capitalized
 'and the rest of the text in lower case
 T.Text1 = StrConv(T.Text1, 3)

 'Store the original value of Task Start date so that it can
 'be rest in case of an error
 D = T.Start

 'Depending upon the contents of the Text1 field run
 'code that moves the tasks to the specified date
 Select Case T.Text1

```

Case "Sunday"
Do Until Weekday(T.Start) = 1
    T.Start = T.Start + 1
Loop
Case "Monday"
Do Until Weekday(T.Start) = 2
    T.Start = T.Start + 1
Loop
Case "Tuesday"
Do Until Weekday(T.Start) = 3
    T.Start = T.Start + 1
Loop
Case "Wednesday"
Do Until Weekday(T.Start) = 4
    T.Start = T.Start + 1
Loop
Case "Thursday"
Do Until Weekday(T.Start) = 5
    T.Start = T.Start + 1
Loop
Case "Friday"
Do Until Weekday(T.Start) = 6
    T.Start = T.Start + 1
Loop
Case "Saturday"
Do Until Weekday(T.Start) = 7
    T.Start = T.Start + 1
Loop
End Select

```

End If

Next T

Exit Sub

ErrorHandler:

'Error 1101 is raised when the specified day is a non working day
'This causes the macro to add so many days to the start that it hits
'the upper limit of Project dates (year 2049) This error code will
'pop a message box and reset the start Date back to what it was
when 'the macro got to that task.

If Err.Number = 1101 Then

MsgBox Prompt:="Task: " & T.ID & " Contains a Day that is a
nonworking Day", _

Buttons:=vbCritical, Title:="Day of Week Set Macro Error"

T.Start = D

Else

MsgBox Prompt:="Error Number: " & Err.Number,
Buttons:=vbCritical, _

Title:="Day of Week Set Macro Error"

T.Start = D

End If

'The Weekday function can return any of these values:

'Constant Value Description

'vbSunday	1	Sunday
'vbMonday	2	Monday
'vbTuesday	3	Tuesday
'vbWednesday	4	Wednesday
'vbThursday	5	Thursday
'vbFriday	6	Friday
'vbSaturday	7	Saturday

End Sub

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

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

In our earlier discussions of IT resource management, concepts were proposed which introduced work type classifications for application through use of Microsoft's Project Server. (See *The Project Network*, Volume 9 Issue 3 – 2005, and Volume 10 Issue 1 – 2006, page 8). Work Class, Work Type and the Chart of Work, are structures that may be defined to facilitate IT staff planning with the goals of forecasting future work demand and reporting on the ability to take on new work. While some of the benefits of implementing this process were discussed and a few reporting examples were given, this discussion will highlight additional reporting features available through Project Server in support of IT resource management. It is recommended, in order to appreciate the following discussion, that the reader review the previous articles on this subject as noted above.

Having defined the high-level Work Classes as Class 1 – Operational, Class 2 – Tactical and Class 3 – Strategic; constructed the Chart of Work schedules; and implemented timesheet reporting throughout the IT organization, certain native features of Project Server can be used for effective periodic reporting. The various levels of IT management will typically have different needs and interests for viewing the resource management data. The Resource Center and Portfolio Analyzer features of Project Server can be used to provide this pertinent reporting.

Resource Center Reporting

Line level resource managers may be interested in viewing a detailed level of resource management data. The Actual time posted to the different Work Classes and Work Categories may provide valuable insight into the delivery of customer requests and performance of the particular organizational department. The most fundamental report is possibly a historical timesheet view. Through the facilities of the Project Server Resource Center, timesheet data can be sorted and viewed by individual Resource and the Work Classes. Through simple manipulation of the filtering capability available in the Resource Center, similar views can be generated which sort by Project, Task and Resource. See Figure 1 for an example (note that the data has been loaded to MS Excel, simply for ease of printing).

Resource Assignments - John Q. Smith April 15 through April 21, 2006

Task Name	Work Type	Sat 15	Sun 16	Mon 17	Tue 18	Wed 19	Thu 20	Fri 21	Total:
Class 1 - Operational - 2006	Act. Work	0h	0h	3.5h	2h	3h	2h	6.5h	17h
Class 2 - Tactical - 2006	Act. Work	0h	0h	0h	0h	0h	0h	0h	0h
Strategic Project AAA	Act. Work	0h	0h	4.5h	5h	5h	6h	1.5h	23h
Software Development Project	Act. Work	0h	0h	0h	0h	0h	0h	0h	0h

Figure 1: Sample Resource Center Timesheet View

In addition, the View Availability function can be used to demonstrate the past, immediate future and longer range planned allocation of individuals or logical groupings of resources. An example of this is shown in Figure 2.

As noted previously, this type of data and reporting can be useful in preparing status reports, tracking progress on work requests and initiatives, and justifying additional headcount or re-aligning available resources.

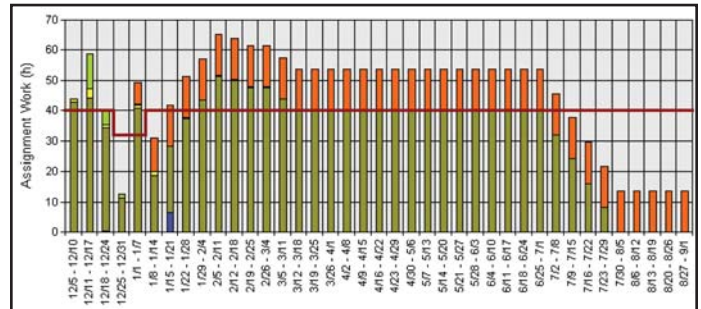


Figure 2: Resource Availability Report Example

Portfolio Analyzer Reporting

The Portfolio Analyzer features of Project Server make use of Analysis Services and OLAP reporting. This potent reporting facility enables Resource Management reporting useful to all levels of management. While the OLAP cube may be extended through programming and use of macros, and SQL Server Reporting Services may provide increased capability for report formatting and distribution, the standard functionality can be used to produce some very robust planning and management reporting. Some of this capability will be displayed here.

The Percent of Available Time Recorded can be tracked as a measure indicating the efficiency of time entry for the various IT groups. This is calculated by dividing the estimate of time entered in a work interval by the available time in the same interval. Figure 3, below, provides an example. This measure is a basic analytic measurement of effectiveness and completeness of the Resource Management process.

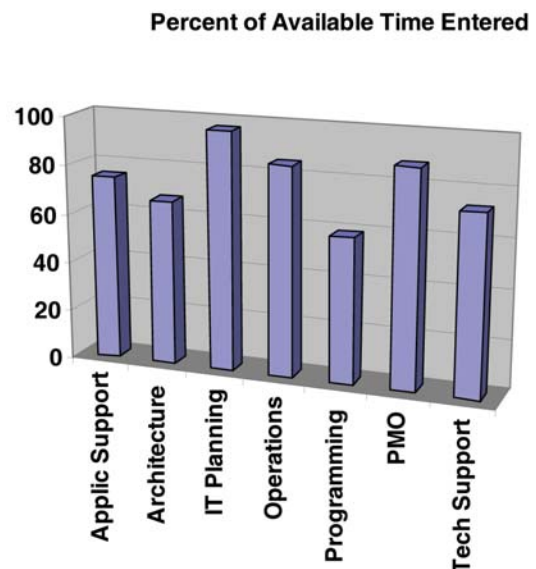


Figure 3: Percent of Available Time Entered

Continued on page nine

Continued from page eight

By reporting on Work Type, the amount of actual work performed in a given timeframe can be displayed by Work Class. This is useful in understanding where the IT organization is applying its efforts. The entire organization may be analyzed in this way, or the various departments may be isolated. See Figure 4. This type of graph may also be useful for displaying work performed by different resource types.

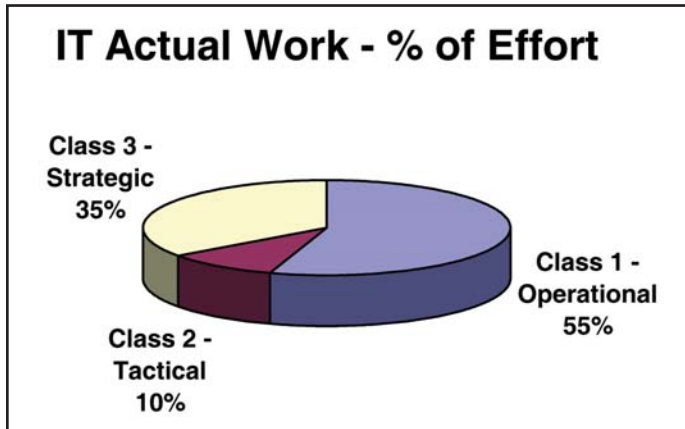


Figure 4: Percent of Effort Report Example

Actual performance of the IT organization may also be compared to the planned or budgeted time. This can also be analyzed by pertinent time intervals, such as monthly or quarterly. Figure 5 depicts this type of view. This report may also be constructed to show further sub-categories of Work Type.

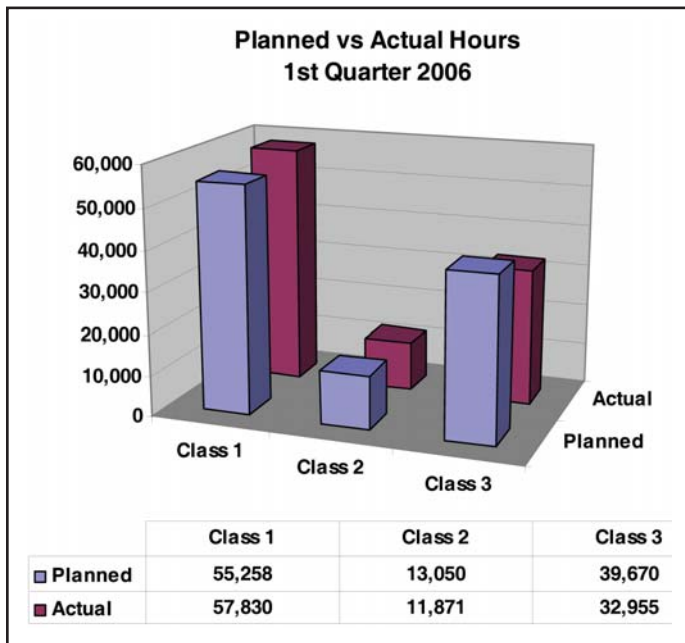


Figure 5: Actual Performance Compared With Planned Performance

Resource capacity projections and capability to forecast resource availability to perform new work will depend upon effective time reporting by all departments. Accurate and complete time reporting is the fundamental necessity to ensure realistic analyses. The graph in Figure 6 displays the remaining quarters of 2006 and calculates the residual availability of IT resources.

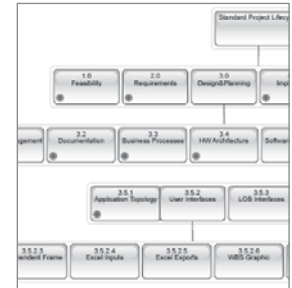
Continued on page ten



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Resource Planning

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By further applying the data from the existing project and Work Type schedules, calculations of work already scheduled for future completion is shown. The difference between the projected availability and remaining work represents the time available to be scheduled for new work. Negative values indicate projected over-allocation, while a positive value specifies time available for new work.

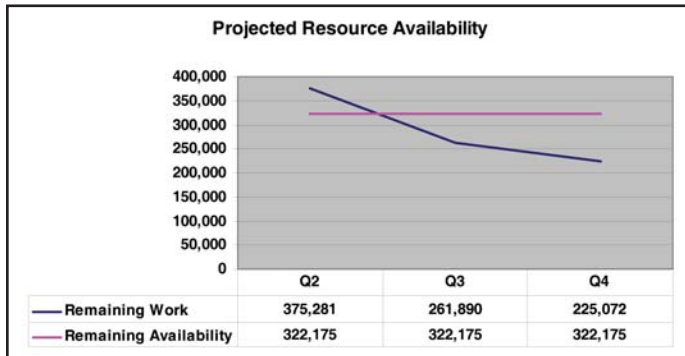


Figure 6: Projected Resource Availability

Figure 7 presents a view of the time available for new work in the remaining quarters of 2006. This information is shown for the entire IT organization, but it can easily be decomposed to present a graphical view by the individual departments.

Many variations of these report and graph types can be produced using the Portfolio Analyzer. Some suggested examples include

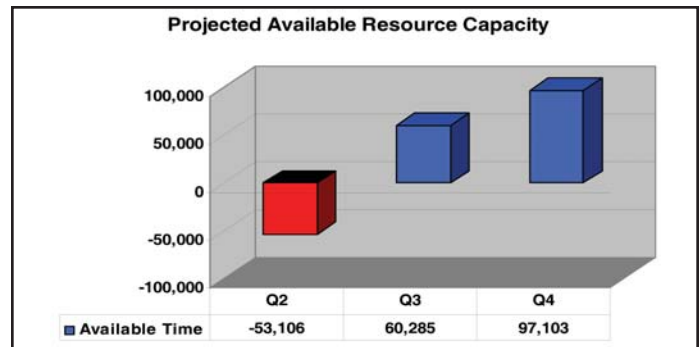


Figure 7: Projected Resource Capacity

filtering of data to display specific resource types, special projects and Work Types.

Summary

Resource capacity planning practices may be effectively applied in order to meet the demand for work imposed upon the IT organization. Budgeting of resources for planned project funding can be analyzed and tracked over time for successful management of work expectations. The reporting analyses discussed in this article demonstrate examples of how the resource management practices may be applied. This is just a suggested starting point. By applying creativity and working with IT management to devise new reports, the practice may be extended. Topics for future discussions in this series will address business plan alignment and application with IT resource management.



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Dynamic Scheduling with Microsoft Office Project 2003

Eric Uyttewaal, PM®, President, ProjectPro Corp. (Member, Ottawa Chapter)

The Principle of Dynamic Scheduling

Dynamic Scheduling is not just a fashionable term; it has some substance to it. The principle of Dynamic Scheduling is that, ideally, when one thing changes in your real life project, you would have to change only one cell in your Microsoft Project schedule to have *valid* and *accurate* forecasts again for all tasks. With a dynamic schedule, your schedule is easy to maintain and you will be able to keep your schedule alive during the busy project execution. A schedule is only dynamic enough if the schedule can easily be kept up-to-date when you are very busy during project execution. Think of a schedule as a dynamic model that you keep up-to-date continuously until the project is over.

You will only come close to this ideal if you set your schedule up in the right way. A schedule is only a dynamic schedule if it meets the following *requirements*:

- You treat dependencies as cause-and-effect relationships rather than as sequencing relationships. Many people use the feature of dependencies to drive certain dates or preferred task sequences into their schedule. These people capture chronology with dependencies. The problem with this is that the dates, sequences or chronology of tasks often changes in a project. For example, if you set a dependency between install software for team A and install software for team B to make team A happen before B, things might change that force you to reverse the dependency between A and B. For example, team A might tell you they are not ready that early. As a result of chronology dependencies, the network often needs to be adjusted. If you capture instead cause-and-effect relationships with dependencies in the schedule, you don't need to make changes to the dependencies constantly. After all, finishing the walls causes the roof construction to be able to start, which is true before, during and after the project; it does not change. Dependencies should reflect the practical necessary relationships between tasks. Similarly for lags and leads; they should reflect practically necessary gaps or overlaps.
- You find and enter all the cause-and-effect dependencies between the tasks in the schedule that may impact your forecasts. You need to carefully check if you have found and entered all relationships. There are simple techniques available to do this, but this article would be too long to describe them.
- You minimize the number of hard dates in your schedule. Hard dates are called schedule constraints in MS Project. We don't mean here that you cannot use constraints at all, but each constraint needs to increase the validity of the schedule, rather than only restricting the dynamic scheduling of tasks. For example, adding a must-start-on

constraint to a task man the booth at the conference creates a better schedule since the conference dates are fixed. On the other hand, if you promised a document to the client on July 13 and you add a finish-no-later-than July 13 constraint to the milestone document delivered, the constraint does not add validity to the schedule, but simply restricts MS Project in scheduling the task. Instead this promised date should be modeled in MS Project by using a deadline date rather than a constraint. Deadlines do not restrict the scheduling unlike constraints.

The way the data is entered into Microsoft Project determines if the resulting schedule is static or dynamic. If you enter only the deliverables, the tasks, their estimates and the dependencies between the tasks, you created a dynamic schedule. Perhaps you need one or two constraints, but you have to be able to explain how they make your schedule more valid.

How Does Dynamic Scheduling Help Me in Scheduling My Project?

Many changes occur in every project. Every time a change happens, you need to change your schedule to reflect the new reality. If you have hard-coded many dates in your schedule and created a static model, you need to review the start and finish of all future tasks every time you make a change in the schedule. If you have captured other things than pure cause-and-effect relationships with dependencies, you need to review many start and finish dates as well. You have used features in a way that restricts MS Project from doing its job.

If you have a dynamic model, you typically need to revise only one cell for each change that occurs. If you did an excellent job on dependencies, you probably don't even need to review the future tasks and you can rely blindly on the network of dependencies to adjust all future dates appropriately. That is what I do in my projects; I enter the change and I look for any red flags from missed deadlines.

Cause-and-effect network logic stays the same during the entire project. In other words, *show restraint with constraints. And if you do the logic well, your life will be swell.*

Will I Spend More Time on a Dynamic Schedule or Less Time?

Let's see if we can approximate how much time you have to invest to make the model dynamic and how much time you will gain when you apply the principle of dynamic scheduling. Imagine a 3-month schedule with 100 tasks. It will take approximately 8 hours of effort to discuss, identify and set

Continued on page twelve

Dynamic Scheduling

Continued from page eleven

all the dependencies and make the model of your project entirely dynamic.

How many changes will occur in the project? This is the hard question. We do know for sure that each task needs to be updated at least once, and about 30% of them twice. This already results in 130 changes to the schedule, if you enter them all individually. Apart from this, other changes typically happen in projects:

- Clients change their mind on requirements
- Deliverables are dropped; others are added
- Activities that were overlooked are inserted
- Activities that cannot be done are dropped
- Resources get sick or are reassigned
- Resources are interrupted with higher priorities (bug fixing, trouble shooting, help desk calls)

Let's be conservative and say that these other things cause 50 more changes, to a total of 180 changes for a 100 task schedule. Entering 180 changes in a dynamic model would take you about 8 hours, since you only need to revise one (or two) cells for each change. So, the total number of hours spent on a dynamic schedule is 8 hours to create it and 8 hours to maintain it: $8 + 8 = 16$ hours.

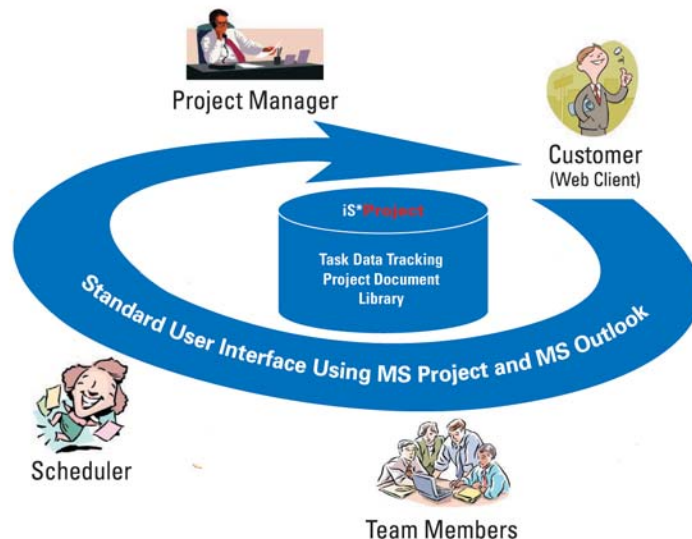
Entering 180 changes in a static model will require you to review the rest of the schedule every time. Therefore, you have to review and adjust on average the start and finish dates of 50 tasks in a static schedule with every change. If adjusting 50 tasks takes you about 2 hours for each change, the total time spent to keep the schedule alive will be $180 \times 2 = 360$ hours. Working with a static schedule becomes a fulltime job and does not allow project managers to help their team members any longer.

What you will see in practice therefore is that people who work with static schedules get smart and don't enter each change immediately. Let's say, they enter 5 changes at a time and only then review the rest of their schedule. In other words, they update their schedule only $180 / 5 = 36$ times instead of 180 times. Notice that the schedule is not up-to-date all the time any longer (up-to-date in real-time). Even in this case, they will spend at least $36 \times 2 = 72$ hours on their schedule. We can conclude that the difference in effort spent on a static schedule versus a dynamic schedule is at least: $72 - 16 = 56$ hours for a 100 task schedule of 3 months duration, which is the gain you can expect from applying the *principle of dynamic scheduling*. This is time you will be spending with your family or friends instead of with MS Project. Since there are about 56 business days in a 3 month project, a dynamic schedule allows you, as the

Continued on page thirteen

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Dynamic Scheduling

Continued from page twelve

project manager, to go home one hour earlier every day of the project if you apply dynamic scheduling.

What Are All Expected Gains from Dynamic Scheduling?

The expected gains from applying the principle of dynamic scheduling are:

- You save 56 hours of scheduling effort on a 100-task, 3-month project. The projects in your organization are probably different in size than the project I described. You can look at your average project duration and average number of tasks per project. You can then calculate the hours saved per schedule in a similar way as I did. Multiply this by the number of projects your organization has, and you will get an idea about the potential for savings.
- It is easier to develop what-if scenarios with a dynamic model than with a static model. Every time an unexpected event happens, you will have to develop several what-if scenarios to find a solution for a slippage or another issue. The dynamic model will allow you to find a favorable scenario much quicker than a static model.
- Dependencies allow you to manage proactively. You set dependencies during the planning phase of the project (when you have time) and then you reap the benefits of them during the execution phase (when you don't have time). If you use hard dates to schedule, it is the other way around; you will spend less time entering dates during the planning phase (when you have time) and you will spend more time keeping the dates right during the execution phase of the project (when you don't have time). Dependencies help during execution, when hard dates are a pain. Dependencies help you be proactive; hard dates will make you reactive.
- A dynamic model can be up-to-date all the time. If you also use Project Server as a communication platform, executives can see real-time status in their projects. Real-time status removes the feedback loop in reporting. A feedback loop causes a management delay in addressing issues. Long feedback cycles are known to allow projects to spin out of control (Systems Theory). You know this already because when you drive on the freeway, you need 0.1 second to slam the brakes. In 0.1 second you will still travel a certain distance. If you drive closer to the car in front of you than the distance you will travel, you will hit the car in front of you, for sure. The longer the feedback loop, the less control you have.

Let's create better schedules by treating them as dynamic and valid models of our projects. If you want further information on dynamic scheduling, please refer to the book "Dynamic Scheduling with Microsoft Office Project 2003". For more information, contact Eric Uytewaal at EricU@ProjectProCorp.com.



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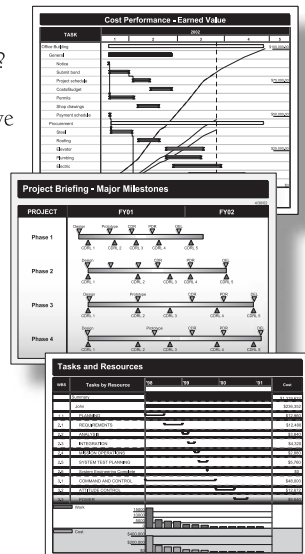
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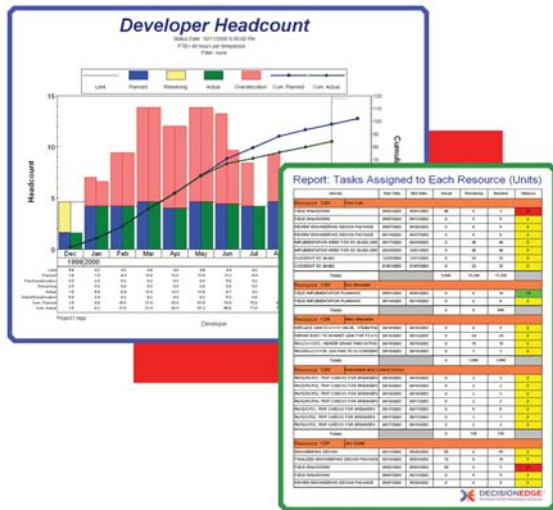
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The Visual Display of Project Information

John Garay, VP and COO, DecisionEdge, Inc. (Member, Philadelphia-Delaware Chapter)

Experienced project managers know that a project schedule is only as good as what goes into it. Without timely updates and attention to detail, a schedule can quickly deteriorate into an obsolete shell of the real-world project.

In the same way, what comes out of a project is just as important. Collaboration and decision-making will be impaired across the entire team if managers and stakeholders cannot get the interactive charts and reports they need to understand and communicate key information about project status, costs, performance, and resources.



Raise project visibility with charting and reporting solutions for Office Project

As Daniel Queva, Senior Product Manager for Microsoft Office Project, wrote in the last issue, raising the visibility and insight into data that comes from using Office Project is a priority issue. Microsoft is adding new tools and functionality in the next version of Office Project for better reporting and analysis, a key step forward in improving project collaboration. At the same time, Microsoft's software partners such as Critical Tools, DecisionEdge, and Kidasa, add value by providing solutions focused on helping managers make better decisions with enhanced project reports and graphics.

Adding complementary graphics and reporting software to Office Project can immediately provide new insight into all your projects. This new perspective can uncover important issues that might otherwise remain hidden until it is too late.

Focus on Key Project Areas and Functionality:

- 1) **Resources** – Interactive charts and reports that alert you to shortages in people, equipment, and material are critical. Multi-project resource charts and reports can also help you efficiently allocate resources across your entire project portfolio.
- 2) **Structure** – Understanding the basic structure of your projects helps ensure a realistic schedule. PERT and WBS hierarchy charts visually display the structures of your projects, while activity count charts show the number and type of tasks scheduled across time periods.

- 3) **Schedule Status** – Status charts and reports help you answer questions such as "How does this project compare to baseline?" and "Are we completing milestones on time?" Gantt and milestone status charts visually display schedule status, while status reports provide this key information in tabular format.
- 4) **Performance** – Adding earned value charts and reports can significantly improve your project control efforts. For a complete view of project performance, the excellent Australian Standard 4817 (AS 4817-2006) specifies ten project charts and reports for project performance measurement using earned value.
- 5) **Costs** – If you cost-load schedules, you want cost charts and reports to avoid shortages, compare against plan, and efficiently allocate money across your projects.
- 6) **Combine and Compare Projects** – Most organizations have not one but many active projects. A charting and reporting tool with multi-project capabilities provides a holistic view of resources and costs and provides a way to compare projects with each other.
- 7) **Executive Communication** – A picture that helps busy executives quickly understand key project information is worth more than a thousand words. Dashboards, bubble charts, and other high-level charts and reports provide executive stakeholders with the information they need for timely decisions.
- 8) **Reporting in Specific Formats** – Many organizations are required to create and share project charts and reports in specific formats. A solution that provides a development environment for custom charts and reports, or a solution provider that can provide design services, will help managers save the time and effort that would otherwise be spent copying project data into spreadsheets for manipulation.

As a manager in a project-centric organization, you already invest significant time and effort in your schedules. By adding a charting and reporting tool designed specifically for Office Project, you can also quickly and easily get the information you need from your projects so that everyone on your team can make better decisions.



Keep executives informed with dashboards

CHEAT SHEET - MICROSOFT PROJECT 2003 BOOT-TIE CAMP

Non-abandonment skills to pave the way for EPM elevated PMOs

David D'Silva, PMP, Intelligent Market Solutions Group Inc. (Interim President, Greater Toronto Area Chapter)

INTRODUCTION

Boot-Tie-Camp is a loaded name and therefore requires explanation. It arose as a mini Boot Camp (Boot-ee, get it?) version of the first Enterprise version of the Microsoft Canada Official Project/Visio Boot Camp course I was asked to author and instruct, and yes I wear a tie and love it when someone gets the “tie” joke. By now you may have a feel for my students’ pain and punishment.

The Cheat Sheet is a carrot seen to give gain without pain. The top-left hand short-cuts were a big deal a decade ago or so, when I created the Cheat Sheet. Today Grade One children know those short-cuts and therefore you should know them – just ask my Grade One kiddies. In fact, use of the Project Specific Shortcuts (bottom left) will likely win the respect of small children, as I did with mine. They (shortcuts) also reduce carpal syndrome, while reducing errors, speeding things up, and making it easier to transition into the world of legacy system integration through VBA programming (my next article). That and you will look cool.

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Ctrl+Home	Top Left
Shift+Arrows	Select
Shift+Alt+Right/Left	Demote/Promote
Ctrl+s	Save Child Window (File)
Ctrl+o	Open
Ctrl+w	Close
Alt+F4	Close Parent (Program)
Alt+f	File
Ctrl+Space	Select Column
Shift+Space	Select Row
F5	Goto
F2	Edit
Ctrl+x	Cut
Ctrl+c	Copy
Ctrl+v	Paste
Ctrl+f	Find
Ctrl+z	Undo
Ctrl+p	Print
Ctrl+Esc	Start

SEVEN ITERATIVE STEPS TO PROJECT HAPPINESS

1. Create a Calendar (Tools -> Change Working Time)
2. Create Resources (View -> Resource Sheet)
3. Create Tasks & Link (Task1 to Task2 as FS)
4. Assign Resources (Tools -> Resource Assignment)
5. Save Baseline (Tools -> Tracking Baseline)
6. Specify % Complete (Tools->Tracking Update Project)
7. Create & Print Reports (View -> Reports)

WINPROJ SPECIFIC / COOL SHORTCUTS

Ctrl+F2	Link
Ctrl+Shift+F2	Unlink
Ins	Insert Row
Shift+Space, Del	Delete Row
Alt+Home/End	Gantt Start/End
Shift+F2	Task Info
Alt+F10	Insert Resource
Shift+F6	Split Screen
F6	Next Pane

SEVEN SAMPLE DO'S AND DON'T'S

1. Don't hard code dates, use: Shift+F2 (Task Information)->Advanced->Constraint Types
2. Beware of dragging and dropping and the failed double-click on the Gantt Chart side
3. Beware of using multiple base lines unless you know what you are doing.
4. Do realize MS Project is a tool best used with a methodology
5. Do add WBS numbering: Tools->Options->Show outline number
6. Do use shortcut keys to avoid accidental “What the heck just happened!?” (See #2)
7. Do save (Ctrl+s) every time you hear yourself fret “My gosh, I hope I don't lose this!”

Start->Run->winproj->Enter



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