

HOW TO SCHEDULE YOUR PROJECT TO DEDICATE THE MOST AMOUNT OF TIME MANAGING, AND PREVENT PROJECT TOOLS FROM MANAGING YOU

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Introduction

All projects have schedules that detail the activities (work breakdown structure, wbs) that will be executed to complete them. Experience shows that the details that are included in those schedules varies quite significantly among projects, among organizations, and among industries. The most common cases are those in which project managers define the work to be performed (wbs) in minute details, including in the project plan complete lists of all activities that the project will execute. The less frequent cases are projects in which activities are listed at a high level and not detailed enough.

Both cases, too much wbs details in the project plan or too little details, create problems for the project manager. In the first case project plans become long and tedious lists of all activities that will be executed, and this then requires a very significant amount of time from the project manager to maintain, update, and report on those activities. Most important, this brings the problem that the project manager will then dedicate most of his/her time looking inward and managing the project plan and the project tools, instead of dedicating most of his/her time looking outward and managing the project, in meaningful managing activities such as integration, communications, monitoring, control, conflict resolution, risk analysis, and problem solving. In other words, which is more important to the project managers, managing the tools (project schedule) or managing the project? Obviously the later is far more important.

Twenty years of program and project management experience in several industries has shown the author that it is very common to find project schedules that are too detailed. For example, in my first consulting inquiry through my company (Best Project Management), a mid size biotech organization requested our services to simplify the project plan for the start up of a biotech facility. Such MS Project plan had more than 3,000 activities and the project manager was spending most of his time managing the MS Project schedule, and not managing the project. In addition, the project

schedule had become so large that the team had lost control of it, and generating status reports took an unacceptable amount of time.

In 2008 I was hired to manage the start up of a \$240 million facility for a Fortune 500 pharmaceutical organization. The construction and commissioning and qualification (C&Q) of the project had been managed by two other organizations, which had created a combined master schedule with more than 14,000 activities. My task was to lead seven teams from the client to manage the start up of the facility, by integrating the work of those seven teams into the construction and C&Q plans. On day one I informed this client that the start up project plan will be simpler, less detailed, and that all schedule activities will be presented in a poster size (24"x32") Gantt chart. This was done, and such simplification allowed me to dedicate most of my time managing the project (integration, communications, monitoring, control, conflict resolution, risk analysis, and problem solving), and comparatively very little time managing the project timeline.

Review of Current Bibliography

A review of some of the most widely available and most relevant scheduling literature shows that the problems created by too detailed schedules have not yet been properly addressed with enough specificity. Specifically, three of the most popular project management books do not address this issue (1) (2) (3). Neither WBS references (4), MS Project references (5), or the PMI Practice Standard for Scheduling (6).

The 2008 edition of the Guide to the Project Management Body of Knowledge (PMBOK) provides some guidance by stating (7, p.120):
".....excessive decomposition can lead to non productive management effort, inefficient use of resources, and decrease efficiency in planning the work".
However, although useful, this statement does not allow a project manager to decide when there is "*..excessive decomposition*".

The most details were found in the PMI Practice Standard for Work Breakdown Structures which prescribes that (8, p. 20): "*...All deliverables should be neither so small that the cost of control is excessive, nor should be so large that the item is unmanageable or the associated risk cannot be identified...*". However, similar to the PMBOK (7), such statement does not

allow a project manager to determine what is excessive decomposition and what is not.

Moreover, the PMI Practice Standard for Work Breakdown Structures (8, p.36) contradicts itself by providing rules to further decompose the WBS if the answers to the questions in page 36 are yes. This leads to unnecessary decomposition because for example such rules advise to decompose the WBS if the WBS element contains more than one deliverable and if it needs to be performed by more than one individual. There are many situations (see proposed guidelines at the end of the article) in which it is advisable not to decompose WBS elements with several deliverables, performed by several individuals.

The same guideline then provide ambiguous information (8, p. 38):
"Decompose the WBS to the appropriate level of detail by achieving a balance between project complexity, risk, and the project manager's need for monitoring and control..... Do not decompose the WBS too far.....Excessive WBS levels can require unrealistic levels of maintenance and reporting". Again, these non specific statements do not allow a project manager to determine when there is too much decomposition.

In all industries, in all parts of the world, including the US, Europe, and all industrialized countries, most projects are executed late, over budget, or are abandoned before completion. There is consensus in academia and among project managers that most projects do not fail because of schedules. Instead, most project failures are associated with organizational and environmental factors (9) (10) (11) (12). As a result, creating an unnecessarily detailed schedule is not going to address any of the recognized project management failure factors. Furthermore, most projects are never executed according to the initial schedule (6, p.1). Hence, it does not make sense to create a very detailed schedule when one knows that it is going to change.

Improvements to the PMI WBS Guidelines

Here are specific suggestions to avoid unnecessarily breaking down the WBS:

1. Do not include lists or groups of anything in the WBS. For example, around 77 new or modified standard operating procedures (SOPs) were needed for the start up of the \$240 million facility. If each SOPs is broken down into three activities (development, approval, training), then this would have required to add 231 (77x3) activities to the schedule. Similarly, dozens of portable equipment (tanks, kettles) needed to be transferred to the new facility, which would have required dozens of activities in the schedule, which were not included in the schedule. This suggestion contradicts the PMI Practice Standard for Work Breakdown Structures (8, p. 36) which advises to break the WBS if it contains more than one deliverables and if it needs to be performed by more than one individual.

2. Manage lists or groups with Excel Auto Filers, Pivot Tables, and Advanced Filers. MS Excel is far more powerful than MS Project, Primavera, or any project management software to handle lists, tables, and groups of anything. The author used this approach both in the start up of a facility in 2007 for a generic pharmaceutical company and in 2008/2009 for the start up of a facility for a Fortune 500 organization. Both clients were satisfied with using Excel pivot tables to handle long lists of SOPs and less important equipment.

3. Do not include approvals. The approvals of project plans, protocols, SOPs, capital allocations and other documents is fairly unpredictable in most organizations due to many factors. Hence, it is not worth detailing activities subject to significant uncertainty. Instead, monitor and control those activities outside the WBS with the regular project meetings or with individual interactions with the project stakeholders.

4. Do not include industry understood deliverables or activities. For example, in most cases there is no need to break down the qualification of a major piece of equipment into its activities (protocol development, protocol approval, execution, deviation corrections, approvals, closure).

Instead, consider simplifying those activities to say equipment 1 validation. The project plan, the validation master plan, or the validation protocols are better documents to specify those activities than the WBS or the schedule.

5. Only include in the WBS/schedule items from the lists or groups when there are significant risks that they would not be ready. This significantly reduces the amount of items to monitor and control.

6. Keep the WBS up to the point that the entire program/project can fit into one page to facilitate integration activities. A too detailed WBS cannot be fit into a one page Gantt chart, and the project reports that must be generated for monitoring and control then become far more complicated and time consuming to generate and to present. Integration is of the most important project management knowledge areas and the author finds that one page Gantt charts of the entire schedule significantly improve all integration activities.

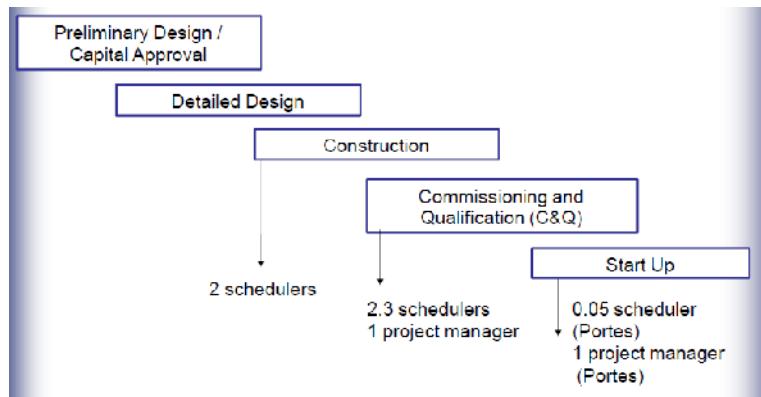
7. Divide the WBS only up to the point when deliverables can be estimated, managed, and controlled. The WBS should only be broken down based on analysis of factors on why it is broken down. Some of those factors are:

1. Knowledge. The more knowledge of the project team on certain WBS deliverables, the less than the WBS should be broken down and vice versa.

2. Risks. The more risks associated with WBS deliverables, the more than those WBS should be broken down.

Results

The author managed the start up of a \$240 million facility for a Fortune 500 organization with this lifecycle:



He applied all the suggestions listed above and as a result he only spent less than 5% of his time maintaining the schedule and more than 95% of his time managing the project (integration, communications, monitoring, control, conflict resolution, risk analysis, problem solving, deliverables).

The first draft of the schedule was prepared in one week in just one 24"x32" poster size print, was approved in one month, and was used during the entire one year project start up to monitor and control all start up activities.

Although the project success can be attributed to many other factors, such world class organization and world class team members and management, the project was finished on time, on budget, and a simple schedule was a contributor (not an obstacle) to the project success.

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About the Author

Fernando Portes, MBA/MEng/MPS/PMP/CQE, Principal and Owner, Best Project Management (www.bestpjm.com) , is an experienced project/program manager, engineer, and educator, who has published more than ten managerial and technical publications (available at <http://www.bestpjm.com/our-staff.html>). He managed projects and programs for MTV Networks, Schering-Plough, Merck, Johnson & Johnson, Wyeth, Baxter, Actavis, and Mayne Pharma. He is listed in Who is Who in Science and Engineering, in Who is Who in the US, and in Who is Who in the World. He has taught at the graduate and undergraduate levels in three universities, and was rated as one of the best project management professors at the Howe School of Stevens Institute of Technology. Portes is a member of the Project Management Institute (PMI) and of the Cornell Engineering Alumni Association (CEAA). He has MEng and MPS degrees from Cornell University and an MBA from Catholic University (Santo Domingo). He speaks Spanish and French and can be reached at portes@bestpjm.com.