

Managing Complex Projects

By Dick Billows

Eighth Edition

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Published by The Hampton Group, Inc.

For credit card orders: The Hampton Group, Inc. <http://www.4pm.com>

3547 South Ivanhoe Street
Denver, Colorado 80237-1122
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303 756-4247

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Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

Library of Congress Catalog Card Number: 94-96302

ISBN: 0-9679761-5-4

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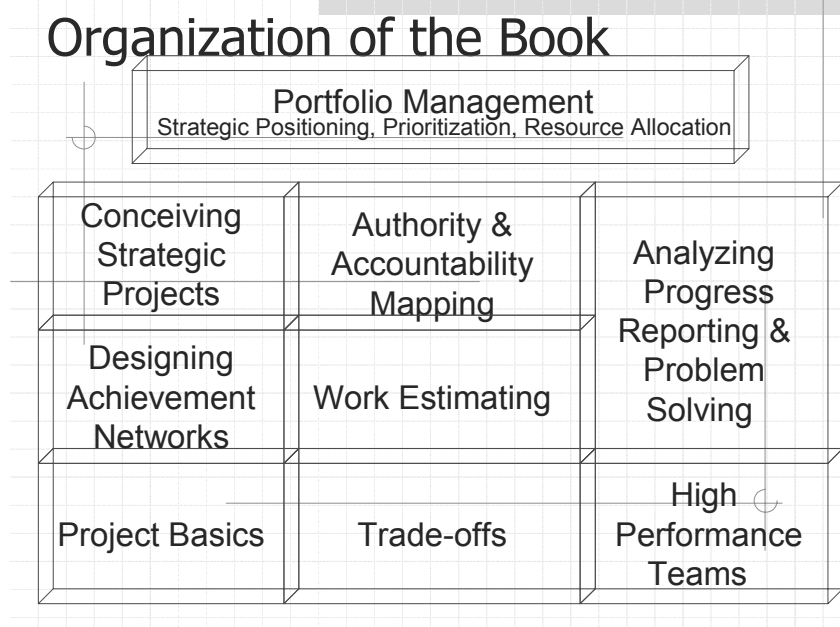
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Preface

Overview



These days, project management is a lot more complicated for everyone; project executives, program managers, users and clients, and especially for project managers. In most organizations, the project density has increased four or five-fold. That is, the proportion of people working on several projects is much higher than it was even a few years ago. In some organizations, the number of projects equals or exceeds the number of professional and managerial personnel. Market and competitive demands have also sharply increased the number of cross-functional and cross-organizational projects. Those cozy little projects where the entire team is from our department are now less and less relevant for an organization's success. These changes affect everybody in the pipeline:

- *For executives, the challenge is in ensuring that the investments made in a portfolio of projects yield business-relevant outcomes for the organization.*
- *For program managers and account executives, the challenge is in properly conceiving and selling strategic projects to accounts (I'll refer to clients or users as accounts).*
- *For project managers, the challenge comes in assembling and directing cross-functional teams whose members are working on other projects and have "real" jobs. We need to tell our project team members what we expect of them before they start work. In addition, the PM must deal with the boss or user/client who expects information upon which they can make strategic decisions.*

Preface Overview

This book is designed to address the issues at each of these three levels. It will provide executives and project managers with the tools and techniques necessary to consistently deliver their projects' business relevant outcomes within budget and on time. To that end, the book has the following sections:

- ❑ *Overview of Achievement-driven Project Management (AdPM™) - we'll start with a review of how the whole process has to work for consistent organizational success. We'll discuss the foundation necessary for controlling a portfolio of projects, techniques for strategic planning with accounts and the process for managing cross-functional projects for users or clients.*
- ❑ *Project management basics - we quickly review the project management basics of planning, using project management software to build a project, scheduling and budgeting, assigning work to project team members and tracking actual results.*
- ❑ *Conceiving strategic projects - we delve into more advanced techniques for analyzing the business situations, quantifying and measuring the business outcomes our account wants and building a high-level achievement network to reach that outcome.*
- ❑ *High-level achievement networks - we'll explore the design of projects down to the level of clear and unambiguous assignments for each team member. We'll map the authority and accountability relationships across departmental and organizational lines, including the project manager's authority to assign work and reward exceptional performance.*
- ❑ *Work estimating & risk assessment - we'll focus on the mechanics of developing accurate work estimates for each assignment in the project plan. We'll use this work estimating process as a foundation for team member commitment to their assignments. Additionally, we'll use these work estimates as our platform for assessing risk in each assignment and the project as a whole.*
- ❑ *Trade-offs – with the foundation of the preceding chapters, we'll discuss the techniques for quantifying trade-offs between the "4-Corners" of a project. We'll use the software to quantify the alternatives for shortening the duration, decreasing the budget and lowering the project's achievements. These processes support effective executive-level decision-making during the approval process as well as the day-to-day operation of the project.*
- ❑ *Developing high-performance teams - we'll discuss building high-performance team cultures with effective assignment and reward processes. Our focus will be on letting each project team member know exactly what end result we expect them to deliver and how we will measure and reward their success.*
- ❑ *Reporting and problem-solving - we'll explore the techniques for reporting progress, identifying problems early and performing variance and earned value analyses. We'll learn to model solutions, providing the account with detailed alternatives for recovering from problems and taking advantage of opportunities.*
- ❑ *Portfolio management – the book concludes with a chapter on managing a portfolio of projects. We will cover project office functions,*

Preface/Overview

allocating resources, managing resource pools, prioritizing projects and achieving strategic balance in the project portfolio.

- *Software Appendix - Instructions for easily finding the Microsoft Project® 4.0, 98 and 2000 software techniques you need to use.*

WWW.4PM.com Interactive Supplements

At the end of each chapter, we'll invite you to visit our website to access project plans, supplemental reading and to ask questions of our staff. Use the password on your invoice for additional information and to take advantage of our "Quick Look" program.

Chapter #1: AdPM™ Overview

Summary

This book is intended for people who have mastered the basics of project management and now face operating in "project-dense" organizations where many projects are underway simultaneously and a relatively high proportion of people are working on multiple projects. In this environment, executives must manage portfolios of projects, allocating from resource pools based on priorities and the strategic results the projects will produce. Project managers (PMs) must work cross-functionally with clients, users or project sponsors (we'll call these accounts) and deliver business results from their projects. Project team members are working with multiple project managers and balancing the conflicting time demands put on them by each one. In this overview, we'll discuss how we supplement the basics of project management to cope with the unique world of complex, cross-functional projects.

Chapter One:

Achievement-driven Project Management (AdPM)™

- ◆ Cross-functional projects are different
 - Multiple projects with multiple stakeholders
 - Business-relevant outcomes not just technology
 - Lack of formal authority over team members
 - Need to achieve strategic business results
- ◆ The AdPM™ Adds to the PMBOK™
 - Strategic project planning of business results
 - Measured achievement orientation
 - Effective portfolio & account management
 - High performance cross-functional teams
 - Data-driven plans with trade-offs

Our methodology for these processes is called Achievement-driven Project Management (AdPM™) and it builds on the traditional project management tools in the PMBOK™. It provides additional tools and techniques for strategic planning with users and clients that

reach beyond the delivery of technology to business relevant outcomes. The methodology supports more effective decision-making and communication between users/clients, portfolio executives and project managers. AdPM™ fosters strategic level control over portfolios of projects, as well as the traditional tactical control over individual projects. Our methodology fosters small project plans based on data rather than monstrous “to do” lists based on guesses. As a result, we can develop quantified trade-offs between the “4-Corners” of a project and support effective executive decision-making. Last, AdPM™ provides techniques for crafting effective assignments for cross-functional team members and developing high-performance team cultures in cross-functional and cross-organizational projects.

Cross-functional Projects

The signs that project management techniques and processes need updating will be familiar. As the density of projects in organizations increases, we often see the failure rate of projects climb. We also see the symptoms at many levels. Let’s take a look at an example.

The World of Cross-functional Projects

- ◆ User/client executives
- ◆ Portfolio managers
- ◆ Project managers
- ◆ Project team members

All squeezed by an increasing number of projects, scarce resources and competitive pressures

An executive, a project manager and a project team member trudge down the company hallway. Each silently asks, “Am I poised for success on this project?” Each cringes at their answer.

Two passersby see the tormented looks on the three faces and one says, “Oh they're working on a project.” The other understands instantly, nods and says, “Those poor devils.”

The trio continues down the hall, each mumbling about the project’s problems.

Project executive's thoughts:

Chapter #1: AdPM™ Overview / Skills for Cross-functional Project Management

"I have no idea what they are actually doing. Sure, I can look at the 1,357 tasks in the project plan but it's a techno-geek maze of acronyms and things I don't even want to understand."

"They tell me things are going fine but if that's true, why do they keep asking for more people and extending the completion date?"

"Well, I can't spend forever on this project. I've got others that are in the same shape and the pressure for better and better performance never ends. I don't really know what any of them are going to do for the organization. The best I can do is hope they all fit together to impact the business in a positive way."

"I guess I'll keep shouting the completion date, June 30th, and maybe they'll be done by October."

Project manager's thoughts:

"My executive changes this project's goal and scope every time the political winds shift, which is twice a week."

"Some of the project team members think they were assigned to the project as punishment for their offensive behavior at the company picnic. Others think the project is a battleground for inter-departmental wars. Several were sent to the team because their home departments are more productive without them."

"Everyone sees my project budget as a grab bag they can dip into whenever they need funds for a new toy. But when the scope changes, the budget is cut and the completion date suddenly become sacrosanct and cannot be altered."

Project team member's thoughts:

"I'm on five different projects and spend most of my time guessing about what each of the PM's wants. I don't think they really know."

"One thing's certain, if this project goes down the tubes, I'll be the one left holding the bag."

"Don't they realize I've got a real job besides working on all these projects?"

All too often, that's the real world of today's corporate projects. To compete, organizations must be able to deliver on cross-functional and cross-organizational projects. Project managers, executives and team members all need to function differently to cope with the complexity of today's cross-functional projects. We need to expand upon the classic project management tools and techniques and use methodologies that allow project managers to consistently achieve business-relevant outcomes. We've developed the Achievement-driven Project Management methodology to do that.

Skills for Cross-functional Project Management

Cross-functional projects are not easy, even for experienced managers. The range of skills required for managing these projects is broad and includes the following:

Strategic thinking techniques for "seeing" the business situation

Tactical dexterity in coordinating people's skills, schedules and the task dependencies in the project

Leadership styles appropriate to the task, the people and the PM's ability

Chapter #1: AdPM™ Overview / Strategic Planning & Positioning

Solid financial, statistical and risk management skills

Mastery of the project management software techniques for planning, scheduling, tracking and reporting

Political and communication skills to gain the approval of project plans and the commitment of team members.

Our aim is to develop your skills in all of these areas and to integrate them into a project management approach that leads to consistent project success.

AdPM™ Focus on Measured Business Results

- ◆ Work with client user to conceive a network of measured achievements for the project
- ◆ Techniques for building project “blueprints” that tie every assignment to a business relevant outcome
- ◆ Tracking is against measured results not just dates
- ◆ Team members know what’s expected of them before they start work

Strategic Planning & Positioning

Managing cross-functional corporate projects is very different from managing projects in the construction or other industries where the project result is a tangible, visible object like a building or a space shuttle circling the Earth. Very often the result of a cross-functional corporate project is an intangible like; improved customer service, reduced operating expenses or improvement in employee productivity. We’ll build on the basic PMBOK™ concepts and add tools to cope with the world of corporate projects. First, we need to recognize the important differences between construction projects, where project management got its start, and projects in a corporate setting.

The big difference between a construction project and a cross-functional corporate project is that in the construction project, we receive a blueprint which tells us where every nut and bolt is supposed to go in the high-rise building. In cross-functional corporate projects, we don't get this kind of blueprint so we have to make our own. Why make our own? Because we want to plan a project and track progress on it the same way the construction project manager tracks progress on a high-rise building. The construction project manager can measure progress and results by going out and looking at the third-floor of a building to measure whether it's done. Then he or she can compare

how long it took to complete the third-floor versus the plan and how much it cost versus the plan. Everyone knows the exact status because everything is measurable. In cross-functional projects this is not so easy because many of the elements of our project are creative outputs from individuals and they are not tangible, visible things.

To give ourselves this same measurability in cross-functional corporate projects, we need to create a blueprint. We don't have beams, bricks and banisters to count so we build our blueprint with measured business achievements instead. To build a plan like this requires project managers to do the kind of conceptual thinking that engineers and architects do in designing a building. They must use equal parts of creative thinking and hard-edged quantification. When the strategic planning is done, the project manager has identified the measured outcome against which the sponsor will compare the actual results.

When we fail to develop strategic project blueprints with our user/client, sponsor or boss, we wind up with projects where we argue about whether or not we were successful. We also wind up with projects that drift from objective to objective as the weeks go by. Possibly worst of all, the people working on these projects are uncertain about what they're expected to achieve. Let's look at this strategic blueprint a bit more closely because conceiving it is always the most difficult part of the planning process.

We drive the entire project from measured achievements

They define:

- The project's end result - MOS™
- The "spine" of the project - HLA™'s
- The accountability & authority mapping
- The assignments for each team member
- The basis for quantifying trade-offs

This is very different from the "Fast Food" project management we see so frequently

The development of measured achievements is not just a "fill-in the blanks" technique. We need to ask the user/client the right questions so we can see the business situation through the user/client's eyes. Doing this strategic planning with the account is the way we make a contribution to their business results and develop partnerships with them. We'll discuss this in great depth later.

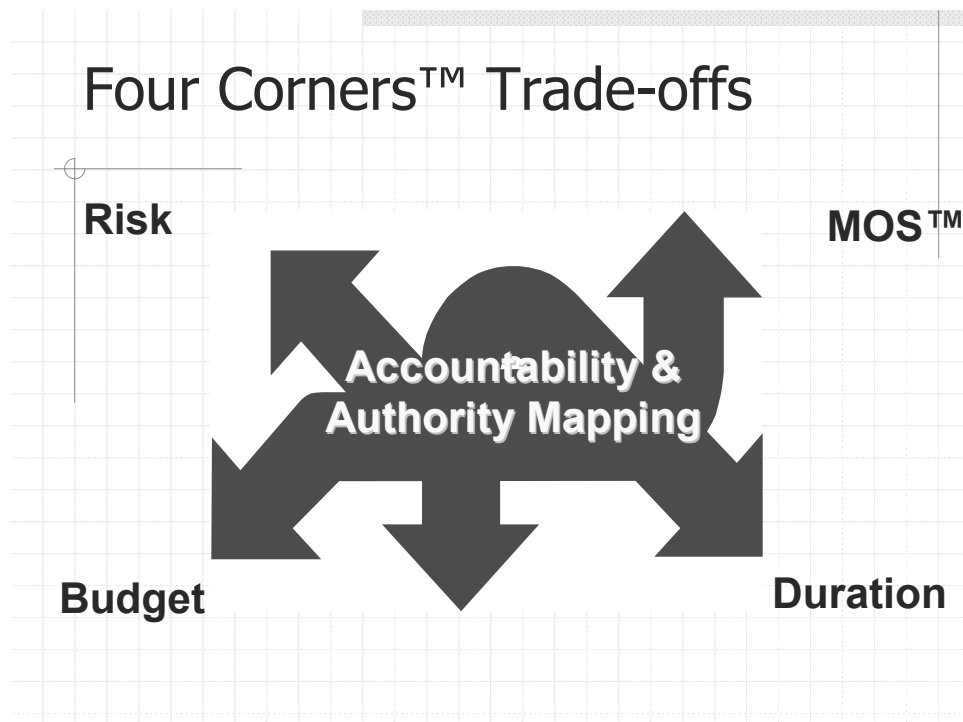
In other words, we won't be taking the usual "fast food" approach to project planning where the project manager is an order-taker. There, the user/client pulls up to the drive-in window and says, "I'm hungry."

Chapter #1: AdPM™ Overview / Achievement-driven Project Management

are part of a portfolio of projects for a user/client or our organization. Project executives allocate resources across the projects in these portfolios and assign priorities. In the portfolio management process, we treat each project as an investment, carefully tracking its “yield” for the account’s organization and balancing the overall portfolio to achieve strategic business results (value) for the account. When we consistently give our users or clients business value from their projects, our firm or department is successful.

Consistent success requires project executives and project managers who think strategically and develop projects aimed at the user/client’s business results, not our technology. The project team members, whether they’re borrowed across departmental lines or our subordinates, must clearly understand what is expected of them and how their work will be measured before they begin.

All the processes in AdPM™ are based on measured achievements. They drive the entire project and are the heart of an effective assignment process. Because we build projects from a "spine" of objectively measured business results, we have the ability to exercise much better control over the scope of a project. As importantly, these measured results give users/clients and portfolio executives the ability to consider the quantified trade-offs between the project’s business results, it's budget, it's duration and the odds of delivering the first three as planned (confidence level). These trade-offs are crucial components in improving the yield of the portfolio of projects and increasing the level of user/client control and satisfaction.



Usually, users/clients or sponsors are presented with only one plan for doing a project, with one duration, one budget and one objective. They also hear this “one best way” project plan presented by a PM who’s there to “fight” for his or her plan, not offer options and alternatives. Is it any wonder that executives don’t feel in control of the project strategy or that they often make arbitrary cuts in the budget and duration?

Chapter #1: AdPM™ Overview / Achievement-driven Project Management

AdPM™ lets PMs plan projects with four quantified corners: the MOST™, budget, duration and risk. Using the “4-Corners” trade-offs, we plan and manage projects with the ability to constantly consider quantified trade-offs between these four dimensions. If we change one of the 4-Corners, it has an impact on at least one of the other corners and we can quantify that impact.

Using the 4-Corners technique, we might describe a project as follows: “We have a 70 percent chance of achieving the following: improve the percentage of customers who rate our service as excellent to 50 percent, for a budget of \$1.5 million and a duration of 230 days.” While developing these four corners takes some effort, the end result gives portfolio executives and our accounts (users/clients) a very convenient way to assess what they're getting from a project. They can also work with us to explore options for modifying any of these 4-Corners.

As an example, if we cut the project budget, either the MOST™ goes down or the level of risk (the odds of delivering the MOST™ for the budget and duration) goes up. We might have started with a 70 percent chance of delivering the MOST™ on time and on budget but after the budget is cut, those odds drop to 40 percent. The power in this approach comes from being able to quantify the effects of every change we make in the project.

Quantifying these trade-offs is far superior to project management styles where only one or two of the dimensions of a project are measurable (usually due date and budget). Changes in cost or duration will impact how much the project achieves for the business and/or the odds of achieving it. But if we haven't quantified these trade-offs, no one knows the impact of cutting the due date or budget.

AdPM™ Allows Strategic Control

- ◆ Sponsors see the project manager as providing data for decision-making rather than “selling” one solution
- ◆ Executives make decisions about and adjust verifiable business outcomes
- ◆ Most importantly, with “4 corners” data they can set priorities and allocate resources within their project portfolios

By planning projects strategically and quantifying alternatives, project managers lay the foundation for users/clients and executives to exercise strategic control over the project. This positions the PM as much more than a scheduling clerk or technical expert. It is also the foundation for a strategic partnership with the account, which dramatically increases the odds of project success.

This AdPM™ process also provides the portfolio executives and accounts with a very powerful method of tracking the project's progress. Because the entire structure is built on measured achievements, there's little ambiguity about whether or not we have succeeded. Our status reporting also takes the form of 4-Corners trade-offs where we quantify alternative solutions to problems we are encountering or opportunities that arise. Everyone clearly understands how we're going to measure success and they also understand, in quantified terms, the impact of every change made to the project. In a

AdPM™ Lets Us Avoid

- ◆ Scope changes that:
 - Bust budgets
 - Blow completion dates
 - Confuse the team
 - Change expectations
- ◆ Sponsors who have:
 - Unrealistic hopes
 - Unclear authority
 - Murky roles
- ◆ Projects that:
 - Drift from goal to goal
 - Are arbitrarily cut
- ◆ PM's who
 - Cannot effectively lead
 - Are schedule clerks
 - Have no clear assignment or reward authority

sense, everyone is in the same small box together.

The AdPM™ methodology lets us avoid many of the problems that plague cross-functional projects. Portfolio executives and users/clients can always make changes to projects but they do so with the full knowledge of the impact those changes will have on the four corners of the plan. Because of the tight focus on measurability, everyone understands precisely what they are "buying" before work starts, which is the best way to meet their expectations. Every member of the project team has a clear understanding of the measured results they are expected to produce. They also understand the relationship between their assignment and the higher-level achievements.

The PMBOK® and Beyond

The AdPM™ methodology we have discussed and what we'll detail in the chapters that follow, relies heavily on the Project Management Body of Knowledge (PMBOK®™) as developed by the Project Management Institute, Inc. But as you've read, we will extend these basics to provide a set of skills appropriate for today's project management environment.

Chapter #1: ADPM™ Overview / The PMBOK® and Beyond

As we reach “beyond the PMBOK®” we’ll build project plans in PM software, calculate the budget and schedule as well as track progress toward business relevant outcomes, budget and duration. We’ll use the PERT, CPM and Gantt tools but we’ll build project plans for managing professional people who are making complex business judgments and decisions. Where we enhance the traditional knowledge most is in our heavy focus on the measured approach to strategic analysis, goal setting and assignments. We’ll place very heavy emphasis on crafting project team member assignments where people know what a “good job” is before they start work.

Beyond the PMBOK®

- ◆ Building on the PMBOK® and project software basics
- ◆ Adding tools and techniques for conceiving
 - Conceiving and selling Strategic projects
 - Estimating work
 - Modeling project alternatives
 - Motivating high performance teams
 - managing portfolios of projects

With this general overview in mind, let's get started on reviewing the basics of project management.

WWW.4PM.com Interactive Supplements

Use the password on your invoice to access sample project plans, supplemental reading and to take advantage of our “Quick Look” program where our staff answers your questions.

Chapter #2: Dynamic Models

Overview

Chapter Two: Basic Tools

- ◆ Project Planning
- ◆ Work Breakdown Structure
- ◆ Predecessor networks
- ◆ Resource Scheduling
- ◆ Analysis Tools
- ◆ Tracking

We'll discuss building dynamic rather than static project plans using Microsoft Project® software. This chapter is intended as merely a review because the book's focus is on advanced project management topics. Our intermediate textbook, People, Budgets & Software, is devoted entirely to these dynamic models, tools and techniques. We'll simply review them so they're fresh in your mind before we launch into the more complex topics. The appendix of this book provides software instructions at the level of all the "clicks and keystrokes." You may wish to review that appendix after you read this chapter.

We'll begin by developing a project plan with

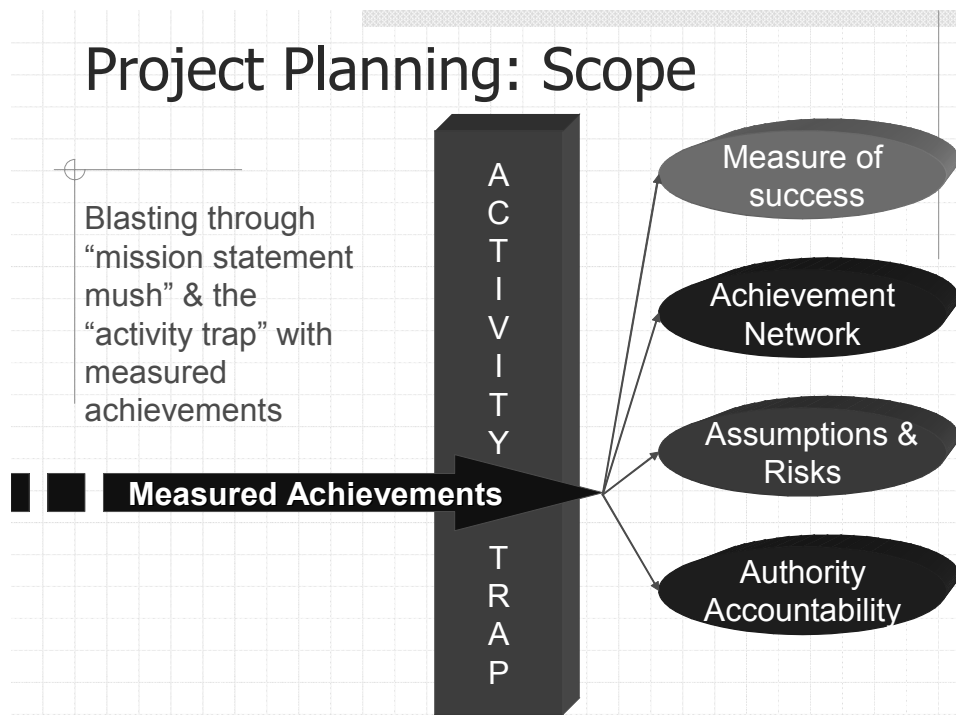
- *A scope (Measure of Success and High-level achievement network), assumptions and the start of a plan for how we'll lead the project team and the authorities we'll use to do so.*

Chapter #2: Dynamic Models / Broadbrush Project Planning

- ❑ *We'll use an achievement-based approach in developing this Broadbrush plan and use that as the basis for our work breakdown structure (WBS) and predecessor relationships.*
- ❑ *Then we'll set up the project resources in the software and assign these people to individual achievements with agreed upon work estimates.*
- ❑ *Next, we'll analyze the resulting project plan in terms of its critical path as well as slack, delay, budget and the resource utilization. We'll review the software mechanics for updating the project plan based on team status reports.*
- ❑ *Last, we'll report progress to the user/client or sponsor.*

This review will set us up for exploring advanced topics in account management, strategic planning, work estimating, modeling trade-offs and portfolio management.

Broadbrush Project Planning



When we begin defining the scope during project planning there are a number of traps we must avoid. One trap is to dodge the difficult process of deciding exactly what the project will produce. PM's avoid this difficult "end results" thinking by focusing on what needs to be done, the activities to be completed. This is much easier but it leads us into the activity trap. It's a temptation any PM can fall into. We receive a project assignment, think about the first thing that has to be done and start work, figuring that we'll talk about the next step when we come to it.

Sometimes, we cloak our descent into the activity trap by writing a long and flowery mission statement for the project. This does no harm unless it is a substitute for making