



**Everyone's Smart
University**

Project Communications

Lecture 9

PMG 201

MONITORING AND CONTROLLING THE PROJECT

Objective

- **The Plan-Monitor-Control Cycle**
- **Data Collection and Reporting**
- **Earned Value**
- **Project Control**
- **Designing the Control System**
- **Scope Creep and Change Control**

Introduction

- **Project monitoring and control are, in some ways, simply the opposite sides of project selection and planning. The bases for selection as described in other Chapter dictate what to monitor and the details of planning identify the elements to be controlled.**
- **Monitoring is the collection, recording, and reporting of project information that is of importance to the project manager and other relevant stakeholders.**

Introduction

- **Control uses the monitored data and information to bring actual performance into agreement with the plan. Clearly, the need to exert proper control mandates the need to monitor the proper activities and elements of the project. Frequently, the distinction between monitoring and control is blurred, and their interaction often makes us think we are working on a single task, but they are quite distinct.**

The Plan-Monitor-Control Cycle

- **Managing a project involves continually planning what to do, checking on progress, comparing progress to plan, taking corrective action to bring progress into agreement with the plan if it is not, and re planning when needed. As noted previously, the fundamental items to be planned, monitored, and controlled are time, cost, and scope so that the project stays on schedule, does not exceed its budget, and meets its specifications.**

Designing the Monitoring System

- The key to setting up a monitoring system is to identify the special characteristics of scope, cost, and time that need to be controlled in order to achieve the project goals as stated in the project plan.
- The exact boundaries within which these characteristics should be controlled must be determined, as well as the specified performance characteristics for each level of detail in the project activities.
- In order to manage for overall project success, control must be exercised at the detailed work level for each aspect of project performance or there is no guarantee that the desired changes will result.

The Plan-Monitor-Control Cycle cont. ...

- **It is essential to spend time up front designing the planning – monitoring controlling process, especially for more challenging projects. The project plan is the primary document to guide the design of the monitoring system in terms of the detailed tasks and resources that need to be controlled in order for the project to achieve its time, cost, and output goals.**
- **Common errors in setting up monitoring systems are monitoring easy measures instead of relevant measures, monitoring activity in place of results, monitoring inputs as surrogates for outputs, and monitoring measures that don't change from one period to the next.**

Getting the Project Plan Approved

- **Review the plan with key stakeholders**
- **Project Plan must be approved**
- **Must get Sign-off to get from Plan to Action**

Data Collection and Reporting

- **Once we have decided on the type of data we want to monitor, the next question is how to collect these data and turn them into information useful for controlling the project. This is the activity of data collection and reporting.**

Data Collecting

- The majority of data to be collected will eventually exist in one of the following five formats:

1. Frequency counts A simple tally of the occurrence of an event is common — for example, days without an accident. Often a count of events per time period or as a fraction of some standard number is used, such as complaints per month, defects per thousand products, and fraction of luggage lost.

Data Collecting

2. Raw numbers Actual amounts are used, usually in comparison to some expected or planned amount, such as dollars spent, hours required, and pounds consumed. The comparison to plan may take the form of variances, that is, differences between planned and actual, or ratios of one to the other. The ratio format is particularly appealing for reporting on a control chart with predetermined limits, as is described later in the chapter. When collecting raw amounts it is important that the basis, time period, and collection process always be the same.

Data Collecting

3. Subjective numeric ratings These are usually subjective estimates of some quality offered by specialists in the topic, such as ordinal “rankings” of performance. They can be reported in the same ways as raw numbers, but they often cannot be mathematically processed in the same ways raw numbers can.

Data Collecting

4. Indicators and surrogates When it is especially difficult to find a direct measure of a variable, indicators or surrogates are frequently used instead. If this approach is taken, it is important that the indicator or surrogate be as directly related to the variable as possible.

Data Collecting

5. Verbal characterizations Other variables that are difficult to measure, such as team spirit or client – supplier cooperation, may take the form of verbal characterizations. These forms of data are acceptable and useful as long as the terminology is limited and is uniformly understood by all parties.

Reporting and Report Types

- ❑ For projects, there are primarily three distinct types of reports: routine exception , and special analysis:
 - Exception reports are primarily intended for special decisions or unexpected situations in which affected team members and outside managers need to be made aware of a change, and the change itself needs to be documented.
 - Special analysis reports are prepared to disseminate the results of a special study in a project concerning a particular opportunity or problem for the project. They may be distributed to top management, other project managers who would benefit from the knowledge, functional managers, or anyone who might be affected or interested. Typical subjects might include studies of new materials, capabilities of new software, and descriptions of the impact of new government regulations.

Reporting and Report Types

- **In addition to the benefits of reports for the purposes of control, they offer these benefits.**
1. They provide the mutual understanding between stakeholders in a project regarding the goals, progress, difficulties, successes, and other ongoing events of importance to the project.
 2. They help communicate the need for coordination among those working on the tasks and subtasks of the project.
 3. They establish and maintain a communication network for global projects.

Reporting and Report Types

4. There are often changes to the goals and functioning of projects. Reports can communicate this information in a timely and appropriate fashion, thus minimizing the confusion often encountered during such changes.
5. They help maintain the visibility of the project, and the project team, to top
6. management, functional managers, colleagues, and clients.
7. Finally, unless the project is a disaster, status reports help keep the project team motivated.

Meetings

- such meetings are usually dreaded because of their length, lack of actionable conclusions, and general waste of time, this need not be the case. The following guidelines should help avoid the problems with such meetings:
 1. Some meetings, such as the Weekly Progress Report (also known as “ show and tell ”), should rarely be held at all.
 2. Distribute a written agenda in advance of the meetings.
 3. If homework needs to be done before the meeting by the attendees, check to be sure they will be prepared, and above all make sure you are prepared.

Meetings

4. If you chair the meeting, you should take your own minutes.
5. Avoid attributing remarks to individuals in the minutes. Remarks are meant to foster group process, not to be documented for eternity and for all to see.
6. Although courtesy is always in order, excessive formality at project meetings is not. Robert ' s Rules of Order can safely be left at the door.

Virtual Meetings, Reports, and Project Management

- **Virtual meetings are now commonplace. Microsoft Live meeting is one of several packages that allows any number of people to meet, hear, view, and discuss presentations or training sessions on conference call telephone lines and computers. Multiway voice and data communication allows questions and answers, either live (interrupting the meeting) or submitted via the computer. Multiperson conversations are quite possible.**

Earned Value

- So far, we have discussed monitoring segments of a project — tasks, subtasks, and such. Of primary importance, however, is deriving some measure of overall project progress in terms of performance, budget, and schedule. Such a measure is “earned value.”

Earned Value

- **Earned value represents a way to capture both in - process performance and cost on a certain date as measured against budget or schedule. Including the planned costs and actual costs allows the calculation of spending and schedule variances, where negative values are undesirable. a projection can be made of costs to completion and total cost for the task or project under consideration.**

Earned Value

- Although percentage completion makes limited sense for individual tasks and work elements, it has little meaning for the project as a whole. Nonetheless, one can aggregate the individual task earned values and variances to make reasonable estimates of project completion costs.

Earned Value

EV= Earned Value (Value of work completed)

PV= Planned Value (Value of work as planned)

AC= Actual Costs (Costs billed to the project)

Project Control

- **Control, the act of reducing differences between plan and actuality, is the final element in the planning - monitoring - controlling cycle. Monitoring and comparing activities with plan, and reporting these findings is to no avail if actions are not taken when reality deviates significantly from what was planned.**

Project Control

- **Control is one of the PM ' s most difficult tasks, invariably involving both mechanistic and human elements. Sometimes humans, through action or inaction, set in motion a chain of events that eventually results in a discrepancy between actuality and plan.**
- **It is over this welter of confusion, emotion, inertia, and fallibility that the PM tries to intervene and exert control.**

Purposes of Control

- There are two primary purposes of control: the stewardship of organizational assets and the regulation of results through the alteration of activities. So far in this chapter we have primarily discussed the latter in terms of the plan - monitor - control cycle, and we will spend the majority of the rest of the chapter on this purpose also. Thus, we take a moment to discuss the first purpose, conserving the organization ' s three primary assets: physical, human, and financial.

Purposes of Control

- ❑ **Project control, the final activity in the planning - monitoring - control cycle, involves taking action when reality deviates from plan. It includes both mechanistic and human elements, and because it is closely concerned with human behavior, is one of the most difficult tasks of the PM. It includes two seemingly antithetical purposes:**

Purposes of Control

- (1) stewardship of the organization ' s and the client ' s physical, human, and financial assets**
- (2) the use of these assets to bring project actuality into conformance with the plan. Somehow, the PM must meld these two purposes into a uniform focus of activity.**

Controlling

- Use the project plan as a guide
- Monitor and update plan regularly
- Adapt project schedule, budget and work plan as needed
- Document progress and changes, communicate them to the team
- Communicate actions taken to Key Stakeholders

How to Control?

Techniques to compress the schedule:

- **Crashing**
 - Focused on critical path
 - Generate multiple alternatives
 - Add additional resources to the project
- **Fast tracking**
 - Overlap sequential activities

DESIGNING THE CONTROL SYSTEM

- When designing the control system, there are certain helpful guidelines to keep in mind. For instance, the primary purpose of the control system is to correct error, not to identify and punish the guilty. Managers must realize that the past cannot be changed, no matter how loudly they yell. Moreover, investment in the control system is subject to sharply diminishing returns. The cost of control increases faster and faster while the degree of control — and its value — increases more and more slowly.

Types of Control Systems

- Before discussing the nature and use of these control systems, it is important to note that every control system must contain certain elements if it is to be useful. Any project (or production system) can be described in terms of its inputs, the process by which it works on the inputs, and the outputs that result. To control a project (or any production system) requires the following components:

Types of Control Systems

1. Each control must have a *sensor* , the duty of which is to measure any aspect of the project ' s output that one wishes to control. For instance, it must be able to measure the length of the yardstick we mentioned earlier.

Types of Control Systems

2. The control system must have a *standard* for each thing measured. For the yardstick, the standard is 36 inches.
3. Next, the control system needs a *comparator* , a mechanism that compares the output of the sensor with the standard.
4. Given the results of the comparison, the control system needs a *decision maker* to decide if the difference between what the sensor measured and the standard is large enough to warrant attention.
5. The final piece required in a control system is an *effector* .

SCOPE CREEP AND CHANGE CONTROL

- ❑ This process is known as the change control system . The purpose of this system is to:
- review all requested changes (either content or procedural changes)
 - identify all impacts the change may have on other project tasks
 - translate these impacts into alterations of project performance, schedule, and cost
 - evaluate the benefits and disadvantages of the requested changes
 - identify and evaluate alternative changes that might accomplish the same ends

SCOPE CREEP AND CHANGE CONTROL cont. ...

- with greater benefits and/or fewer disadvantages
- install a process so that individuals with appropriate authority may accept or reject the proposed changes
- communicate accepted changes to all concerned parties
- ensure that the changes are implemented properly
- prepare reports that summarize all changes to date and their impacts

SCOPE CREEP AND CHANGE CONTROL cont. ...

❑ Avoiding scope creep is not possible. Controlling it, and thereby reducing some of the pain, is possible if the PM follows a few rules:

1. Every project charter must include a *change control system* by which requests for changes in the project 's plan, processes, budget, schedule, or deliverables are evaluated.
2. Every project change must be introduced by a *change order* that includes a description of the agreed - upon change together with any resulting changes in the plan, processes, budget, schedule, or deliverables.

SCOPE CREEP AND CHANGE CONTROL cont. ...

- 3. Changes must be approved in writing by the client ' s agent as well as by a representative of senior management of the firm conducting the project.**
- 4. The project manager must be consulted on all proposed changes prior to the preparation and approval of the change order. (The PM ' s approval is not required.)**

SCOPE CREEP AND CHANGE CONTROL cont. ...

5. Once the change order has been approved, the project master plan must be amended to reflect the change and the change order becomes a part of that plan.