

MANAGING WORK & COSTS

Lecture 2 – Managing Progress

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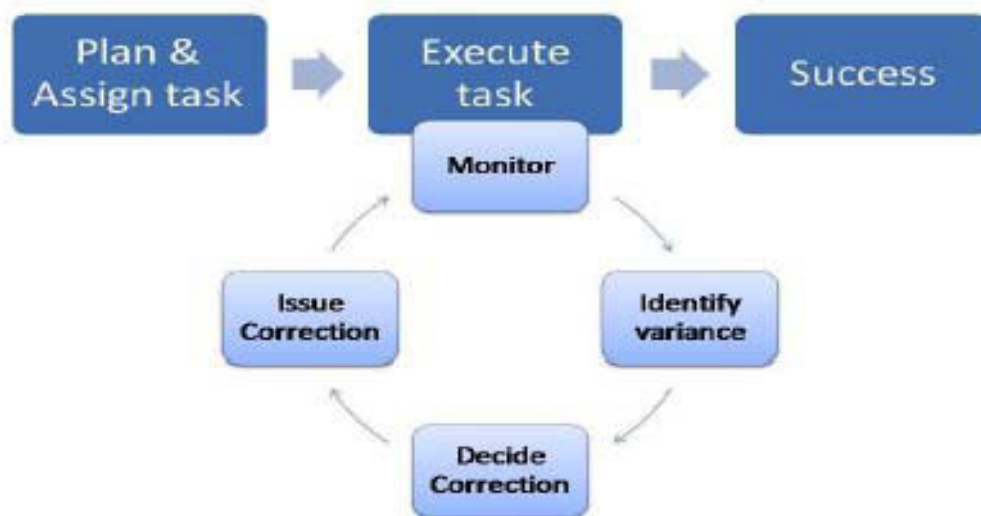
1 Assumptions

- An effective schedule has been produced
- Everyone knows their role & responsibilities

2 Control Systems: - Open vs. Closed loops

Open loop – makes no use of feedback / error signals.

Closed loop – An instruction is met with corresponding feedback – preferable



3 Management by exception vs. management by surprise

3.1 Management by Exception

Error signals generate corrective action – errors from divergences are called variances or, alternatively ex captions. Concentrating on exceptions is known as management by exception

3.2 Management by surprise

No explanation needed – no feedback or error signals are gathered or analyses.

4 Progress Data

4.1 Planning what to measure

Measurement of variance requires a fixed baseline (no moving goalposts!) –You should work from the base lined project documentation. This represents the agreed direction of the project (If you don't know where you are going – you will never know when you get there!)

Measure the right thing! - Gain agreement and make sure it is related to the objectives of the project.

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Measure at the right time – Question the value of the measurement if it is always going to be too late to analyze and control any issues identified by the measurement.

Standard parameters to measure are Cost, Time and Quality. Information may also be gathered on risk, resource utilization and actual activity

Remember – high levels of “busyness” do not always indicated a high rate of progress. Measurements of output are usually more valuable than measurements of activity (presuming you are also measuring the performance)

Question the value of gathering significant amounts of data that is unlikely to change throughout the life of the project. This provides very little information.

Management by exception - Ensure you can clearly identify exceptional events which indicate potential problems

4.2 Designing how to gather information

Be aware: The Uncertainty Principle applies to projects – i.e. the observation of a system affects how the system performs ... the act of gathering information tends to distort the process being monitored and the information produced!!

Build a culture of open and transparent reporting – Ensure that the monitoring system works equally well for detecting bad news as good. The project manager needs to be tuned to detecting and fixing problems before they become significant.

Following on from the point abovedon't shoot the messenger! Encourage the identification of potential issues within the project team.

Information gathering forms should as simple and unambiguous as possible. Structure your capturing of data in line with the baseline estimates- same format, same measures etc

Method of Communication – Written is best, but don't underestimate the value of formal meetings and on-site walkabouts.

Specific project objectives are contained in documents such as the three described in table 1 in the Appendix below. The table also shows the relevant triple objective – managing cost, time quality.

4.3 Project Budget

This document defines the total budget for the project. This budget is normally allocated across some convenient categories in order to assist in measurement and control. A common method is to subdivide the work of the project into a hierarchy of convenient work packages. Such a hierarchy is called a Work Breakdown Structure (WBS). When costs are allocated across the packages this becomes a Cost Breakdown Structure. When ongoing cost information is to be gathered it can be measured with reference to this baseline breakdown structure. The numbering system used for the classification can also be reflected in the project accounting systems. The figure below shows a simple example based on a project to construct a wooden sundeck consisting of a concrete foundation and a wooden deck structure finished with appropriate wood treatments and landscaping.

4.4 The Project Schedule

This is a list of activities and planned dates for performing them. A simple table can be used in cases where the number of tasks is relatively small and the dependencies between them are clearly understood. Appendix 1 shows an example of such a schedule used for a software deployment project. A more common method is the Schedule Bar chart (or Gantt chart). This consists of a list of activities down the left hand side of the chart set against a time scale on the top. The figure below shows a simple Gantt chart for the sundeck project.

5 Capturing Progress

Methods of data capture include:

- Progress Return Forms
- Task/milestone status reports

Both types can be captured using standard forms based on the project schedule. Alternatively, the information can be entered directly into a project management system by the person responsible for completion of the task.

See the example in Appendix 1 below of a simple Progress Return. It is set up to calculate the percentage completion based on the amount of expected work done on a given day.

6 Progress Meetings

It is possible that project team meetings could be enjoyable but only after they have served their primary purpose, which is to review progress of the project and address any issues that require addressing at the meeting. As well as being a useful method for gathering progress information the meeting can also be used by the project manager to provide direction. They are an important addition to the distribution of written reports.

There are a number of issues that the PM should be aware of:

6.1 The Chairperson

The project manager should chair the meeting (in the absence of the project sponsor).

6.2 Timing of the Meeting

In most circumstances a weekly meeting is sufficient. However the frequency should be adjusted to suit the timescales of the project or even the current phase. A daily meeting may be more appropriate in the final stages of some projects where the level or intensity of the activity is high. For example in the final days leading to live deployment of a software system it may be necessary to monitor multiple tasks which are a very short duration and are performed by multiple functional areas or personnel. Similarly in the final phase leading up to handover of a new building there will be multiple small items (snag list), which must be addressed, in a compressed period of time.

6.3 Purpose

Be absolutely clear about the purpose of the meeting.

Is it to:

- Review and record progress alone? (Do you really need a meeting to do that?)
- Identify and resolve cross project issues? (More useful!)
- Reinforce the team's common objectives (Always a good thing to do!)

And allow some time to reflect on some success? (This is also a good thing but would never be the sole reason for a weekly meeting!)

6.4 The Agenda

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The agenda should be used to clarify the purpose of the meeting and guide its progress. There should always be an agenda and it should be issued in advance of the meeting. This should allow all participants to prepare required material or responses to issue.

6.5 The Minutes

A standard minutes template should be used and the minutes issued immediately after the meeting. They should be concise and reflect the agenda. Action points should clearly identify the action owner and a precise date for completion of the action.

A Meetings control form is included in the Appendix. This can be used to quickly distribute the main agreed points and actions ahead of the minutes being issued.

7 Reaction to Project Reports – Analysis

Having reviewed progress reports the project manager will need to determine what action, if any, is required. If the progress reports indicate that all tasks are starting and completing exactly on time then he should count himself lucky and take no action. If he continues to receive similar reports for every week of the project, then he would be advised to dig a little deeper!

It is possible that some tasks may start or complete earlier than planned. This is welcome but the PM must be happy that nothing has been neglected or that quality has not been sacrificed for speed.

The more likely scenario the project manager will encounter is that jobs will begin to take longer than planned and will possibly end up completing late. If this happens the PM must assess the impact. He can do this by first understanding the impact on the start or end time of other activities or on the overall end date. This type of analysis will be covered in detail later in the course when you look at the Critical Path Method. Here is a brief introduction to the terms used:

Float is a measure of the flexibility of task. In other words it measures how late it can be delayed before it will affect the completion of the project.

Total float is the total amount of time that a task can be delayed without delaying the project finish date.

Free float measures the amount of float that an activity can be delayed without affecting the start of another activity (i.e. without affecting the float of another activity).

Zero float. A task with zero float cannot be delayed without affecting the end date of the project. Such tasks are called critical tasks and all such tasks in a project are said to be on the **critical path**.

Negative float - In this scenario, an activity has fallen behind its planned progress and needs to start before the previous ones have finished.

7.1 Possible float scenarios

Scenario 1 – There are late jobs but they have some free float. No action required other than to monitor closely to ensure that it completes within its free float period.

Scenario 2 – There are jobs late and some total float available. The PM should be careful about using up total float early in the project. The first action should be to try and expedite the task itself and bring it back within the planned schedule.

Scenario 3- there are late jobs which have zero or negative float. Such tasks require urgent attention in order to try and eliminate or mitigate impact on the end date. This may require investment of further resources or money.

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8 Correcting Progress Problems – Approaches

Having an effective reporting system will allow the project manager to monitor and adjust the progress of the project. When variances are detected she has a number of options. In general, the earlier the variance is detected, the greater will be the available corrective options. Options may include:

8.1 CRASHING

Get the team to work overtime over a number of evenings or weekends until the schedule is recovered: Useful in small doses but can be counter productive in the long run. Should be reserved for emergency situations. (It's costly as well!)

Secure additional resources: the project manager is unlikely to secure good resources quickly particularly if already using external resources or subcontractors. (Can be even costlier)

8.2 FASTTRACKING

Examine the sequencing of tasks with a view to eliminating or tasks or performing some tasks in parallel, which would normally be done, in sequence. For example - you may decide to start your building work before all of the design work is completely finished. There are risks associated with this approach. Sometimes it is just not feasible.

8.3 COMBINATION

In some cases the answer is to use a combination of additional resources and some skilful juggling of the task schedule. Some ingenuity and imagination from the project manager (and his team) also helps. Lock provides a number of non-standard approaches!

8.4 RE-BASELINING

The last resort is to investigate if the client may agree to an extension to the delivery date. Depending on the commercial arrangement this will involve a cost on the client or the contractor (or both) Above all else, make sure that the customer or sponsor is aware of the problems and is party to any hard decisions.

9 Immediate Action Orders

Lock outlines this particular procedure and a document template, which can be used to gain the attention of the relevant parties and ensure that required corrective actions get absolute priority in the organization. The purpose and operation of the order is outlined clearly in the text. You should note, in particular, the circumstances in which it should be used- as excess usage can devalue its effectiveness (...the boy who cried Wolf?)

10 Correcting Progress Problems – Keeping the Balance

When determining the appropriate action to take in response to delays, the project manager has to maintain the balance of triple objectives – Cost, Time and Quality. We have seen above that any corrective action is likely to add costs to the project. However there is a risk also that the quality may suffer because of:

- Reducing time to test and prototype designs
- Increased workload leading to reduced quality of work
- Excessive hours worked leading to loss of concentration and reduces quality of work
- Using “best available now” resources rather than “best fit”
- Using additional temporary resources without time for adequate training

Note: Lock makes the point that management of quality can be compromised even when project is on schedule and gives the example where pressure is applied to complete paperwork for a task before the deliverable itself was tested.

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This could possibly be viewed as a professional ethics issue rather than a progress management issue!

11 Issues With External Resources

Lock identifies some particular issues to be aware of when managing external resources. These are people who are contracted to the project but are not permanent employees of the project organization. They can be referred to as subcontractors, temps, agency staff etc. The use of external resources is common practice and any major project can have a large number of such people. They are commonly used to complete specialist work, which is not within the normal capability of the organization. Alternatively they can be used to supplement the existing staff.

The main issues associated with such resources are:

- a) Unfamiliarity with the organization
- b) Lead time to secure additional staff
- c) Supervision
- d) Monitoring progress and quality from remote staff
- e) Release of project information

11.1 Unfamiliarity with the organization

External staff will require a period of time to tune themselves to your organization. It is recommended that you provide some form of induction course to accelerate this process. It can take some time to make such people fully productive. Even the simplest things such as securing temporary security passes and access to email systems need to be catered for. Make sure to plan in advance for this to avoid unnecessary delays. Even when fully installed on the team, lack of experience can make these resources less productive, particularly when they are required to interact with people within the organization. You should allow for this when estimating work rates. Ideally you will be able to identify and secure proven staff or subcontractors who may have worked with you already on previous projects.

11.2 Lead time to secure additional staff

When the need for external resources is identified, the project manager must move swiftly to identify and secure competent people. A last minute search for necessary temporary resources is unlikely to result in a bargain price.

11.3 Supervision

Apart from the induction and supervision required because of unfamiliarity with the organization, there is the added overhead of the invoicing for hours worked. Appropriate arrangements need to be in place for returning and authorizing timesheets and recording on the cost system for payment to the subcontractor or agency.

11.4 Measuring progress and quality from remote staff

Staff who work offsite or in the subcontractors premises will not benefit from the normal supervision provided by your organization. It will be difficult for the project manager to get a full sense of progress or attention to quality. One possible solution is to get agreement from the subcontractor to allow access to some form of liaison person either permanently on site or as a frequent visitor. (Possibly the project manager herself)

11.5 Release of project information

The subcontractor's liaison or project lead is likely to want to understand the amount of slack available in the time allotted to their tasks. Your own organization may have a protocol for how much to reveal. There is a case to be made for being completely transparent with the subcontractor in order to allow full sharing of any risk involved. At the other extreme there is a view that the subcontractor should focus only on the task at hand and their given end date.

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It is rarely necessary to reveal the full extent of a subcontractor's project budget.

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	Cost	Time	Quality	Description
Project Budget	X			Approved estimate, detailed and classified
Project Schedule		X		List of activities, start & finish time, milestones, float and resources to complete
Project Specifications			X	Drawings, specific requirements

Table 1 – Project Budget, Project Schedule & Project Specification

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Project: garage		Garage Project Activity progress update			Report date: 19/05/10		
ID	Description	Orig. Duration	Start	Finish	Rem. Duration	% Complete	Comment
1	Project Start	0	13/05/10	13/05/10	0	100	
2	Dig Foundations	4	14/05/10	14/05/10	0	100	All foundations complete & checked by engineer
3	Position steel frame	4	15/05/10	19/05/10	3	75%	Awaiting additional members from fabricators
4	Steel Cladding	5	19/05/10	24/05/10	5	0	Manufacture complete & awaiting delivery & installation

Table 2 – Progress Report

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Meeting Action Sheet		
Reference Number		
Date, time & place		
Those to attend		
Purpose of meeting & agenda		
Decisions agreed	1. 2. 3. 4.	
Actions agreed	By Whom	By when?
1.		
2.		
3.		
4.		
5.		
6.		

Table 3 - Meetings Control Form