

Introduction:

Once work schedules have been published and the project is under way, attention must be focused on ensuring progress. This is where monitoring and controlling comes up.

monitoring

Project monitoring is defined as "a process by which is performed to track the progress of the project execution with real schedule so that the potential problems (if exist) can be identified in time and can be solved by taking corrective actions"

It is an ongoing process by which mgt. gets regular feedback on the progress being made towards achieving goals and objectives of project.

project control

It is a "project mgt. function that involves in helping to keep the project on (tools) schedule". It is combined with people's skills and project experience in order to deliver information that enables accurate decision making.

↳ Mainly focuses on: (Both)

- * Measuring planned performance vs actual performance
- * Identify ongoing projects performance and prevent if any problems exists.
- * Keeps timely accurate information based on projects progress
- * Deliver forecasts that update current costs and project schedule (etc.)

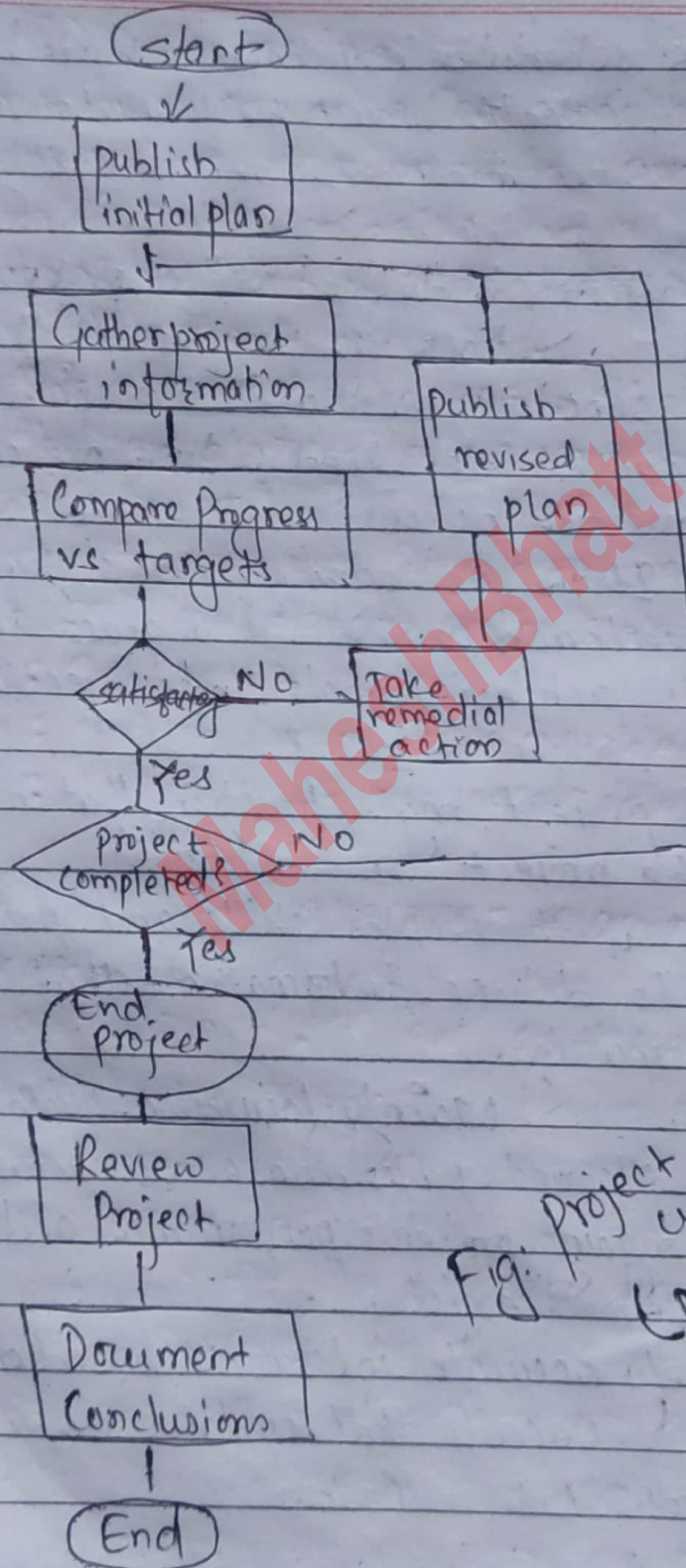


Fig: Project Control cycle (Monitoring and control)

Eg:

Collecting Data:

As a rule, the managers will try to breakdown long activities into more controllable tasks of one or two weeks duration. But it is still necessary to gather information about ~~part~~ partially completed activities and in particular forecasts, of how much work is left to be completed.

Where there is a series of product, partial completion of activities is easier to estimate by counting the no. of records specification or screen layouts produced.

Eg: It can provide reasonable measure of progress.

We can do Partial Completion Reporting and Risk Reporting during this:

(A) Partial Completion Reporting:

Generally, weekly time sheets are used to represent partial completion reports as they provide good information about what has been achieved.

Eg:

Project	Activity Code	Description	Hours this week	Complete	Scheduled completion	Estimated Completion
A1	A425	Cod Mod A25	15	20	24/4/22	24/4/22
P55	011F	Develop new logo	20	80	1/2/22	25/1/22

(B) Risks Reporting:

A popular way to overcome the objections of the partial completion reposition is to avoid asking for estimated completion dates but ask for the estimate of likelihood of meeting the planned target date insted to the team members.

To do this, we use traffic light method:

- ① Identify the key element for assessment in piece of work (1st level)
- ② Break these key elements into constituent elements (2nd level)
- ③ Assess each 2nd level elements on the scale as:
 - Green : On target
 - Amber : Not on target but recoverable
 - Red : Not on target and recoverable with difficulty
- ④ Review all 2nd level assessment to arrive at 1st level assessment.
- ⑤ Review all 1st and 2nd level assessment to produce an overall assessment.

Visualing Progress:

As the manager has collected data about project process, he/she needs some way of representing that data to greatest effect. Here, we will discuss about some of those data representing methods:

- ① Gantt Chart
- ② Slip chart
- ③ Ball charts

① Gantt Chart :

One of the oldest and simplest technique for tracking project progress. It is an activity bar chart indicating scheduled activity dates.

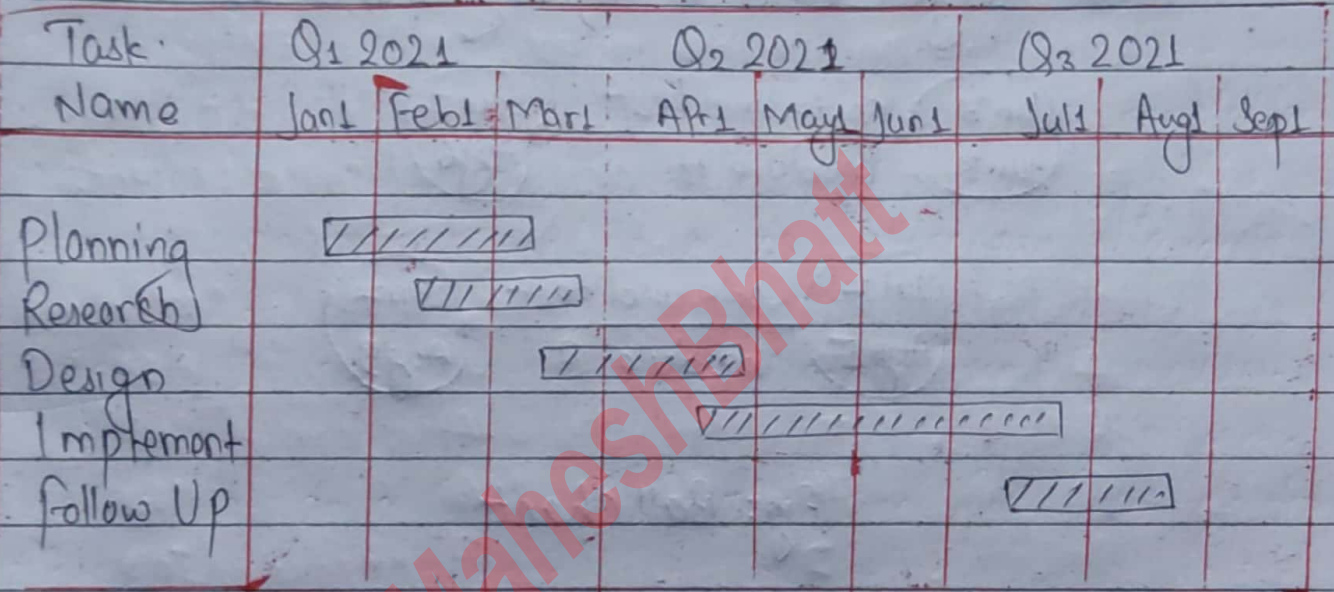


Fig: Gantt chart

② Slip chart :

- ① Provides more striking visual indication of those activities that are not progressing to schedule.
- ② The more the slip line bends, the greater the variation from the plan.

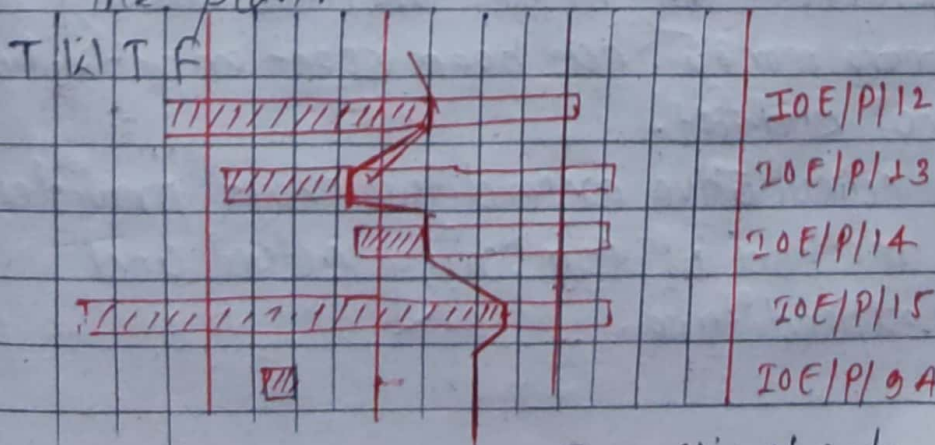


Fig: Slip chart

③ Ball Charts:

- ⊗ Even more striking way of showing whether or not the targets have met.
- ⊗ Circles only contains two dates: The original and most recent target dates or the original and actual dates.

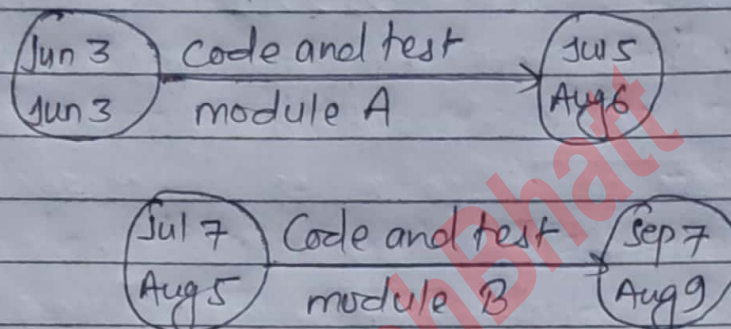


Fig: Ball chart

Cost (Expenditure) Monitoring:

Cost monitoring is an important component of a project control. Not only for help but also because it provides an indication of the effort that has gone into a project.

A project might be on time but only because more money has been spent on activities than original budget.

A cumulative expenditure chart provides a simple method of comparing actual and planned expenditure.

Eg: Illustrate a project running late or one that is on time, but has shown substantial costs saving.

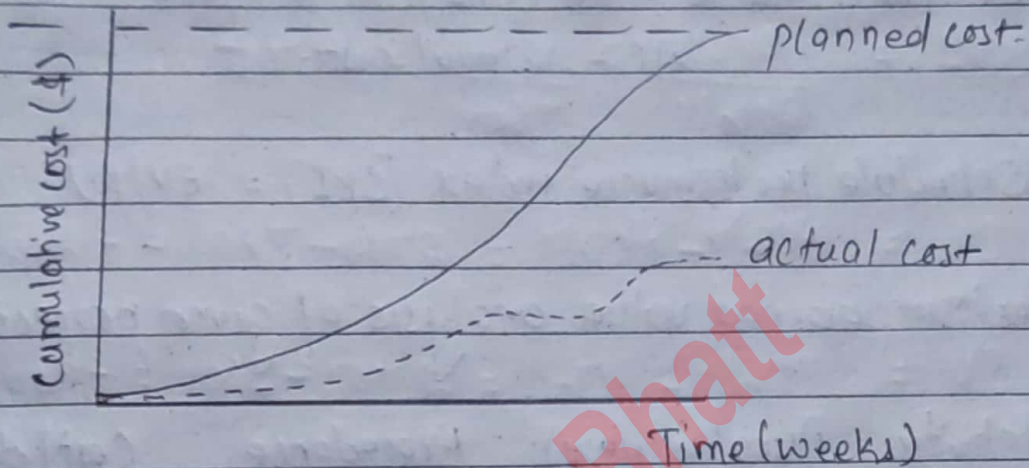


Fig: Tracking Cumulative Expenditure

Earned Value Analysis:

It is based on assigning a value to each other task or work package based on original expenditure forecasts.

One way of looking at this is as the equivalent of the price that might be agreed by a contractor to do the unit of work.

The assigned value is original budget cost for the item and also known as planned value (PV) or budget cost of work schedule (BCWS).

Total value to any project at any point is known as (credit) earned value (EV) or budgeted cost of work performed (BCWP) and this can be represented as a money value, an amount of staff time on a

percentage of PV.

$$\text{Cost Performance Index (CPI)} = \text{EV} / \text{AC}$$

AC = actual cost

$$\text{Schedule performance index (SPI)} = \text{EV} / \text{PV}$$

Eg Perform earned value analysis of given project:

Activity	Duration(days)	Precedence	Cost/day
A	3	—	500
B	3	A	100
C	4	B	400
D	2	B	500
E	3	D	500

The progress after end of 8th day is:

Activity	% Completion	Incurred cost
A	100	2000
B	100	500
C	25	500
D	50	500
E	0	0

Calculate SV, SPI, CV and CPI respectively

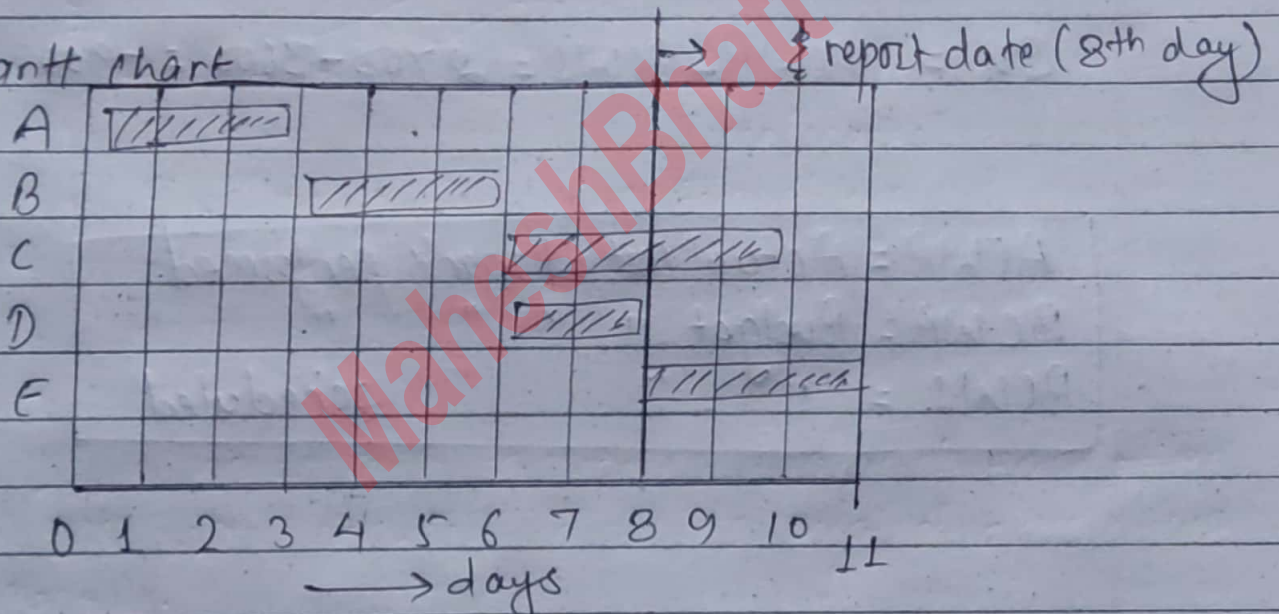
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Activity Duration Precedence cos/day total cost

A	3	-	500	1500
B	3	A	100	300
C	4	B	400	1600
D	2	B	500	1000
E	3	D	500	1500

Now,

Gantt chart



Then,

Activity	ACWP	BCWP	BCWS	CPI	CV	SPI	SV
A	2000	1500	1500				
B	500	300	300				
C	500	400	800				
D	500	500	1000				
E	0	0	0				

Total to date 3500 2700 3600 0.77 -200 0.75 -900

$$CPI = \frac{BCWP}{ACWP} = \frac{2700}{3500} = 0.771$$

$$SPI = \frac{BCWP}{BCWS} = \frac{2700}{3600} = 0.75$$

$$CV = BCWP - ACWP = 2700 - 3500 = -800$$

$$SV = BCWP - BCWS = 2700 - 3600 = -900$$

ACWP	=	Actual cost of work performed
BCWP	=	Budget " " "
BCWS	=	" " " scheduled

END