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Project Schedule Management

Project Schedule Management

- *After this session you will be able to:*

- **Identify** the 6 Project Schedule Management Processes.
- **Understand** the Terminologies used for Schedule Development.
- **Use** the Critical Path Method of Schedule Development.
- **Use** the MS Project Software to develop Project Schedule
- **Explain** the Inputs, Tools & Techniques that are required for the 6 Project Schedule Management Processes

Project Schedule Management

Project **Schedule** Management includes the **processes** required to manage the **timely completion** of the project.

The various processes under this Knowledge Area are conducted according to how they are described in the Schedule Management Plan, an output of the Plan Schedule Management Process.

PLAN SCHEDULE MANAGEMENT

DEFINE ACTIVITIES

SEQUENCE ACTIVITIES

ESTIMATE ACTIVITY DURATIONS

DEVELOP SCHEDULE

CONTROL SCHEDULE

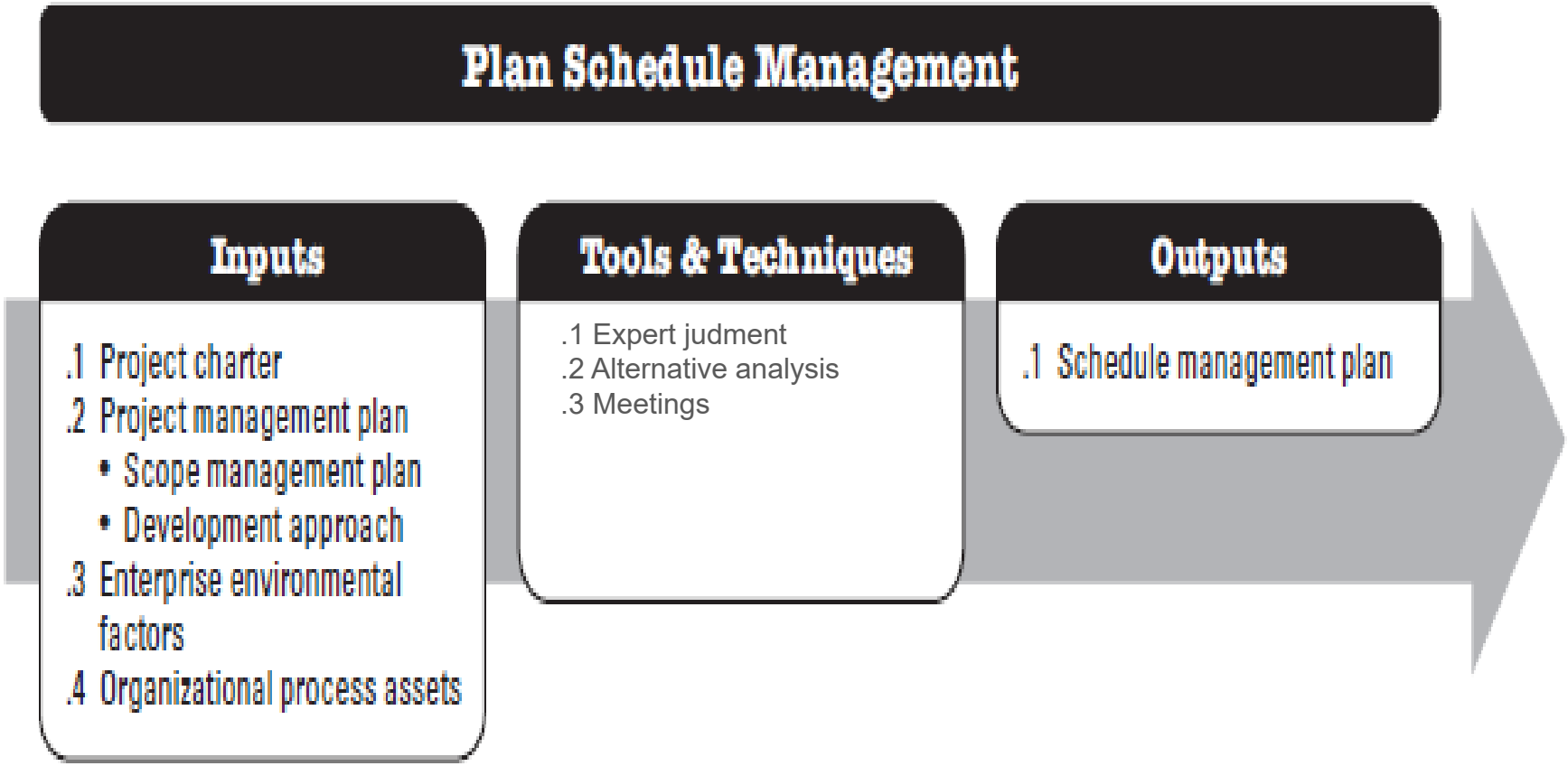
Project Schedule Management

Plan Schedule Management

Plan Schedule Management is the process of establishing the policies, procedures and documentations for planning, developing, managing, executing and controlling the project schedule.

The output of this process is the **Schedule Management Plan**, which is part of the project management plan and it provides guidance and direction on how the project schedule will be managed throughout the project. This document could be formal or informal, detailed or broadly framed depending on the needs of the project.

Project Schedule Management



Project Schedule Management

Plan Schedule Management

INPUTS

Project Management Plan

- The Project Management Plan contains information required to develop the schedule management plan. Information in the scope baseline are the INPUTS required to develop the schedule.

Project Charter

- This document provide the high-level summary milestone schedule that will influence the management of the project schedule.

Enterprise Environmental Factors (EEF)

- The EEF that can Influence this process are: Organization's culture, structure, project management software, published commercial information, etc.

Organizational Process Assets (OPA)

- The organization's existing formal or informal policies and procedures, historical information, templates, monitoring and reporting tools used, etc are part of the OPA that can influence this process.

Project Schedule Management

Plan Schedule Management

TOOLS&TECHNIQUES

1. Expert Judgment

Requisite judgment from experts in an application area, knowledge area, discipline, industry, etc for the activity being performed should be used in developing the schedule management plan.

2. Alternative Analysis.

Alternative analysis is the evaluation of the different choices available to achieve a particular project management objective

Other techniques such as **rolling wave planning** will be involved in choosing the strategic options for the scheduling methodology to be adopted, estimating approaches, formats and the kind of project management software to use.

3. Meetings

The project team members MEET to deliberate, brainstorm and develop the schedule management plan.

Project Schedule Management

Plan Schedule Management

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OUTPUTS

Schedule Management Plan

- This is a component of the Project Management Plan that establishes the criteria and activities for developing, monitoring and controlling project schedule. It could establish the followings:

- 1. Project Schedule Model Development: This specifies the scheduling methodology and tool to be used
- 2. Level of Accuracy: The acceptable range used for determining realistic activity duration estimates, amount for time contingencies, etc.
- 3. Units of Measure: The units used for measurement (staff days, hours, weeks for time measures). And meters, litres, tons, etc for material resources.
- 4.Organizational Procedure Links
- 5. Control Thresholds
- 6. Rules of Performance Measurement
- 7. Reporting Formats.

Project Schedule Management

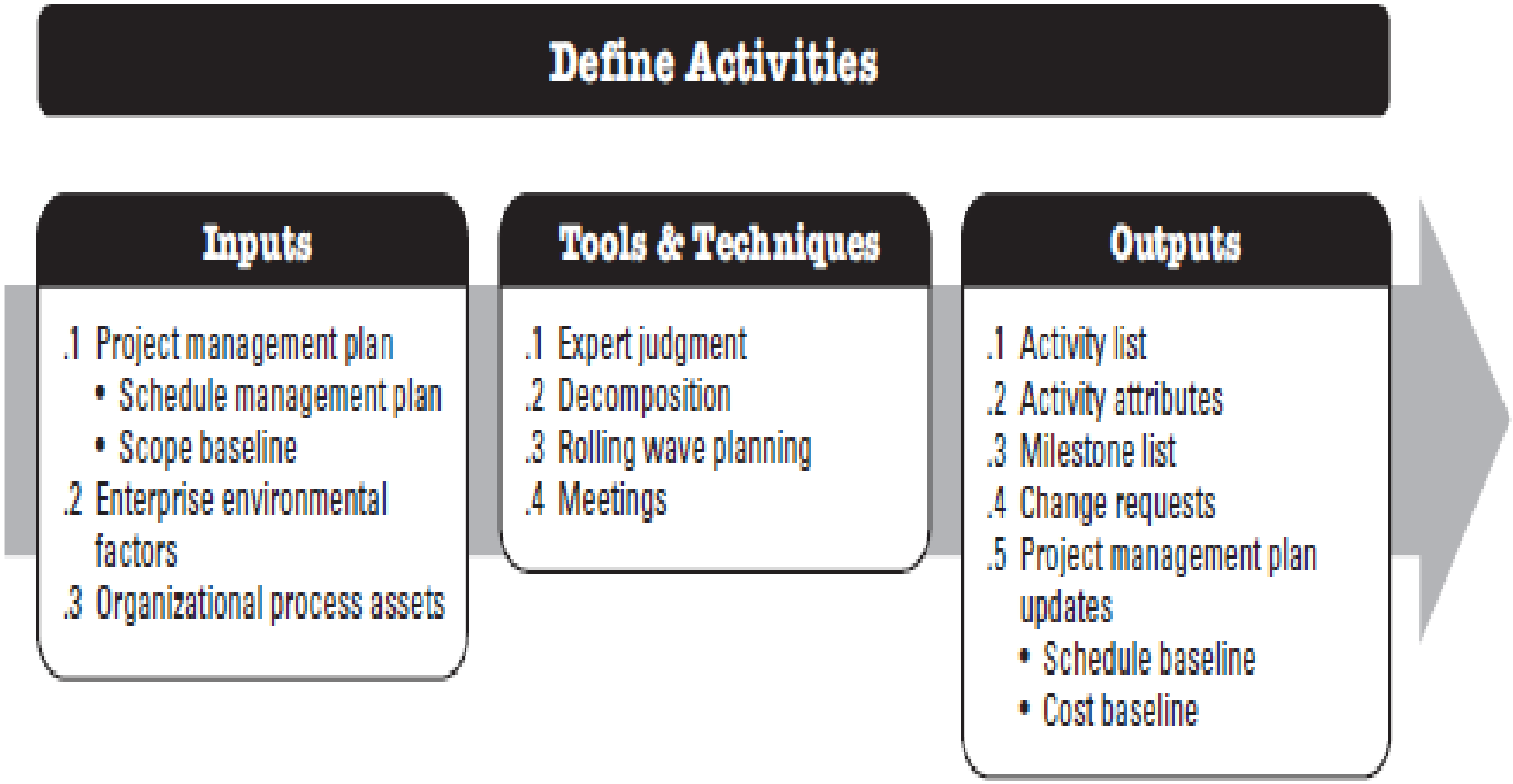
Define Activities

Define activities is the process of **identifying** and **documenting** the specific actions (**activities)** to be performed to produce the project deliverables. Under the Define Activities Process, you simply take the Work Package created in the WBS and breaking them down (Decompose) to the activity level.

Project **work packages** are planned (decomposed) into **smaller components** called **activities** to provide a basis for estimating, scheduling, executing, monitoring and controlling the project work.

The Project Manager would usually involve his Project Team Members in defining the activities that are needed to produce the Work Package level.

Project Schedule Management



Project Schedule Management

Define Activities

INPUTS

Project Management Plan

- This document contains the Schedule Management Plan and the Scope baseline that prescribed the level of detail necessary to define and manage the project activities or work. Including the project WBS, constraints and assumptions documented in this document are considered explicitly when defining project activities.

Enterprise Environmental Factors (EEF)

- The EEF that can Influence this process are: Organization's culture, structure, project management information system, published commercial information, etc.

Organizational Process Assets (OPA)

- The organization's existing standardized processes, templates of standard activity list or from previous project, formal or informal activity planning-related policies, guidelines, etc are part of the OPA that can influence this process.

Project Schedule Management

Define Activities

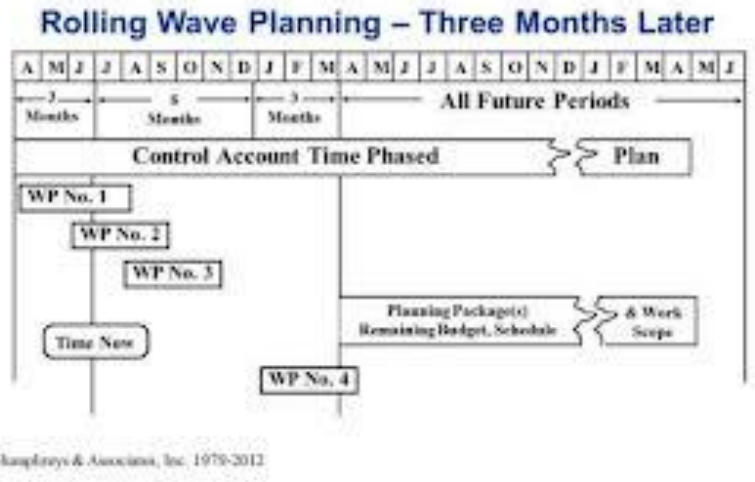
TOOLS & TECHNIQUES

1. Decomposition

Decomposition, as applied to defining activities, involves subdividing the project **work packages** into smaller, more manageable components called **activities**. Activities represent the effort needed to complete a work package.

2. Rolling Wave Planning

It is an iterative planning technique that involves planning near-term work in more detail than future-term work that is planned at a higher level. It simply means " **Plan as you Go"**



Project Schedule Management

Define Activities

TOOLS&TECHNIQUES

3. Expert Judgment

Knowledge area expert or project team who are experienced and skilled in developing detailed WBS and project schedule can provide expertise in defining project activities.

4. Meetings

Meetings is used during this process to define the project activities. It could be face-to-face, virtual, formal or informal.

Project Schedule Management

Define Activities

OUTPUTS

Activity List	• The activity list is a comprehensive list of all schedule activities required to be performed for the project. It also has an activity identifier (such as a code or number) with a scope of work description of each activity so that team members understand what the work is and how it is to be completed.
Activity Attributes	• Activity attributes describe the characteristics of the schedule activities. Activity attributes for each schedule activity include the activity identifier, activity codes, activity description, predecessor activities, successor activities, logical relationships, leads and lags, etc.
Milestone List	Milestone is a significant point or event in a project. This list identifies all project milestones and indicates whether the milestone is mandatory or not. They are not work activities and they usually have zero durations.
Change Request	Request for change(s) may result during this process, which will be subjected to the change control procedure.
Project Management Plan Update	Components of the Project Management Plan that can be updated from this process are Schedule baseline, Cost baseline, etc

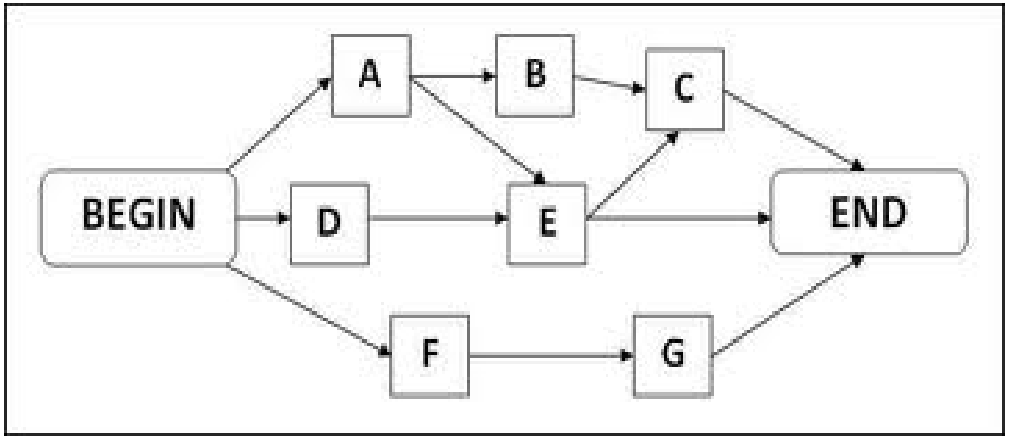
Project Schedule Management

Sequence Activities

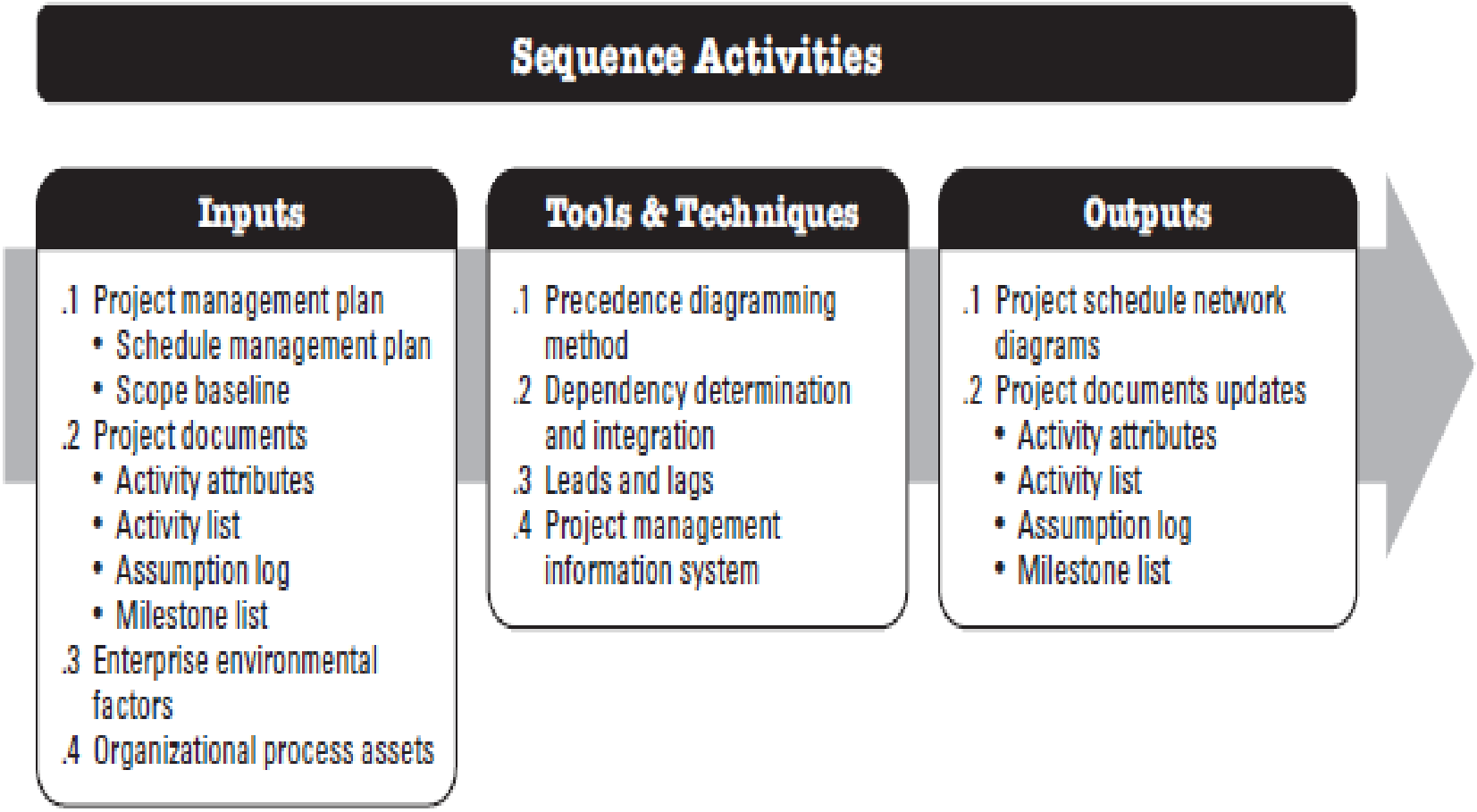
Sequence Activities involves **identifying** and **documenting** the **logical relationships** among **activities**. Every activity and milestone except the first and last are connected to at least one **predecessor** and one **successor.**

Schedule activities can be logically sequenced with proper precedence relationships, as well as **leads** and **lags** to support later development of a realistic and achievable project schedule.

Every activity except the first and last should be connected to at least one predecessor and at least one successor activity with an appropriate logical relationship.



Project Schedule Management



Project Schedule Management

Sequence Activities

INPUTS

Project Management Plan

- This document contains the Schedule Management Plan and the Scope baseline that prescribed the level of detail necessary to define and manage the project activities or work. Including the project WBS, constraints and assumptions documented in this document are considered explicitly when defining project activities.

Project Documents

- The needed project documents for this process are; Activity List, Attribute, Assumption log, Milestone list, etc.

Enterprise Environmental Factors (EEF)

- The EEF that can Influence this process are: Organization's work authorization system, project management information system, published commercial information, etc.

Organizational Process Assets (OPA)

- The organization's existing standardized processes, templates of standard activity list or from previous project, formal or informal activity planning-related policies, guidelines, etc. are part of the OPA that can influence this process.

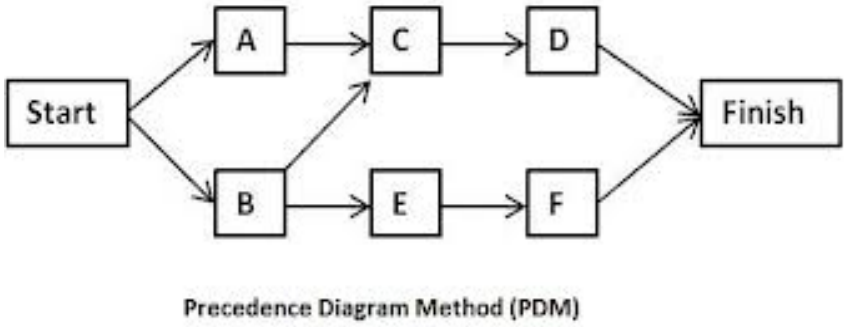
Project Schedule Management

Sequence Activities

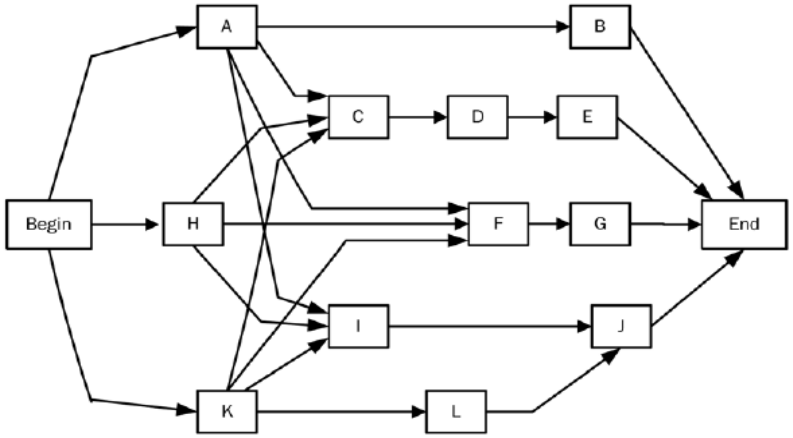
TOOLS&TECHNIQUES

1. **Precedence Diagramming Method (PDM)**

PDM is a technique for constructing a **project schedule network** diagram *(A core output of the Sequence Activities Process)* that uses boxes or rectangles, referred to as **nodes**, to represent activities and connects them with arrows that show their **dependencies**. This technique is also called Activity - on-Node (AON). This is the method used by most project management software packages.



Precedence Diagram Method (PDM)



12 Activities 23 Logic Dependencies

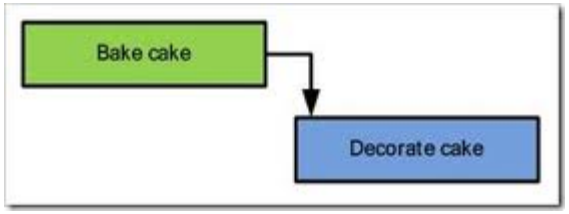
Project Schedule Management

Sequence Activities

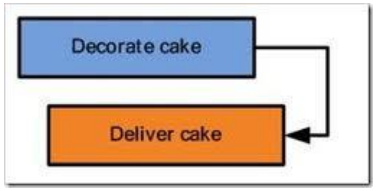
TOOLS&TECHNIQUES

PDM includes four types of dependencies or logical relationships:

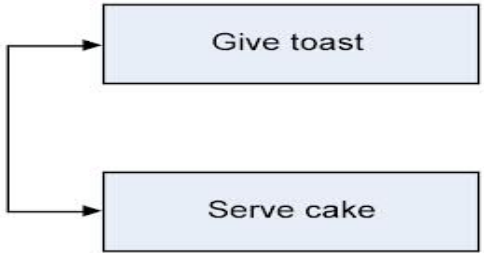
A. Finish-to-Start (FS). The ***initiation*** of the successor activity depends upon the ***completion*** of the predecessor activity. *It is commonly used.*



B. Finish-to-Finish (FF). The ***completion*** of the successor activity depends upon the ***completion*** of the predecessor activity.



C. Start-to-Start (SS). The ***initiation*** of the successor activity depends upon the ***initiation*** of the predecessor activity.



D. Start-to-Finish (SF). The ***completion*** of the successor activity depends upon the ***initiation*** of the predecessor activity. *It is rarely used.*

Project Schedule Management

Sequence Activities

TOOLS & TECHNIQUES

2. Dependency Determination

Dependencies are relationships between the activities in which one activity is dependent on another to complete an action.
Dependency has 4 attributes and only 2 can be applicable at the same time as follows:

I. *Mandatory Dependencies*: Are those that are legally required or inherent in the nature of work. Eg. You must finish the substructure before you start the superstructure. Mandatory dependencies are also sometimes referred to as **hard logic.**

II. *Discretionary Dependencies*: Sometimes referred to as **Soft or Preferential logic,** are established based on knowledge of best practice or where a specific sequence is desired.

III. *External Dependencies*: External dependencies are those that involve a relationship between project activities and non-project activities. Eg. Site preparation cannot commence until approval from Development Control in the FCT is got.

IV. *Internal Dependencies*: This involves precedence relationship between project activities inside the project team's control. Eg. If the team cannot test a machine until they assemble it, it is an internal dependency

Project Schedule Management

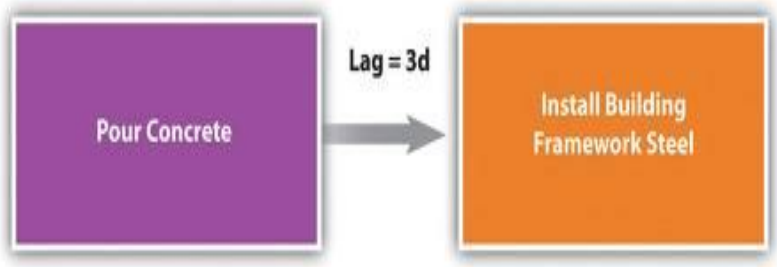
Sequence Activities

TOOLS&TECHNIQUES

3. Leads and Lags

•A **lead** is the amount of time whereby a **successor activity** can be **advanced** with respect to a predecessor activity. For example, a technical writing team can begin writing the second draft of a large document (the successor activity) fifteen days before they finish writing the entire first draft (the predecessor activity).

- A **lag** is the amount of time whereby a **successor activity** will be **delayed** with respect to a predecessor activity. For example, to account for a ten-day curing period for concrete, a ten-day lag on a finish-to-start relationship could be used, which means the successor activity cannot start until ten days after the predecessor is completed.



Project Schedule Management

Sequence Activities

TOOLS&TECHNIQUES

4. Project Management Information System (PMIS)

•PMIS includes scheduling software that has the capacity to help plan, organize, and adjust the sequence of activities, insert the logical relationships, etc

Project Schedule Management

Sequence Activities

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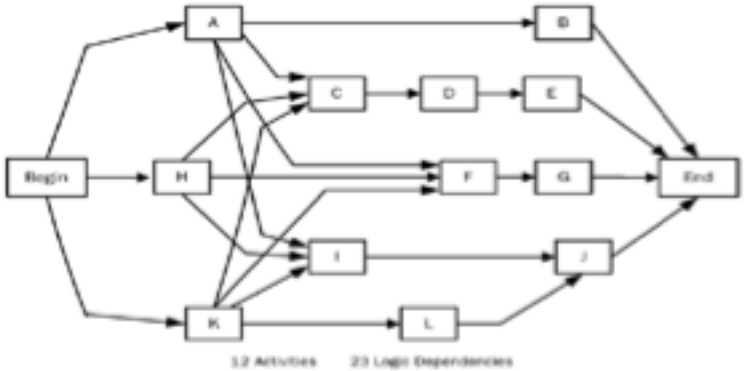
OUTPUTS

Project Schedule Network Diagrams	• Project schedule network diagrams are graphical representation of the dependencies and logical relationships of project schedule activities. A project schedule network diagram can be produced manually or by using project management software. It can include full project details, or have one or more summary activities.



Project Documents Update	• The project document that may be updated could include: Activity list, activity attributes, Milestone list, etc.

Project Schedule Management

Estimate Activity Durations

Estimate Activity Durations is the process of estimating the number of work periods or time it will take to complete individual activities with estimated resources. Estimating activity durations uses information on activity scope of work, required resource types, estimated resource quantities, and resource calendars.

The Activity Duration Estimating process requires that the amount of work effort required to complete the activity is estimated, the assumed amount of resources to be applied to complete the activity is estimated, and these are then used to approximate the number of work periods (activity duration) needed to complete the activity.

Project Schedule Management

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Estimate Activity Durations

Inputs

.1 Project management plan
- Schedule management plan
- Scope baseline

.2 Project documents
- Activity attributes
- Activity list
- Assumption log
- Lessons learned register
- Milestone list
- Project team assignments
- Resource breakdown structure
- Resource calendars
- Resource requirements
- Risk register

.3 Enterprise environmental factors

.4 Organizational process assets

Tools & Techniques

.1 Expert judgment
.2 Analogous estimating
.3 Parametric estimating
.4 Three-point estimate
.5 Bottom-up estimate
.6 Story Points
.7 Estimating using fibonacci sequences
.8 T-shirt sizing

Outputs

.1 Duration estimates
.2 Basis of estimates
.3 Project documents updates
- Activity attributes
- Assumption log
- Lessons learned register

Project Schedule Management

Estimate Activity Durations

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INPUTS

Project Management Plan

- The Schedule Management Plan which is a component of the Project Management Plan defines the method to be used and the level of accuracy required to estimate activity durations.

Project Documents

- The needed project documents for this process are; Activity List, Attribute, Assumption log, Milestone list, etc

Enterprise Environmental Factors (EEF)

- The EEF that can influence this process are: Duration estimates databases, location of team members, published commercial information.

Organizational Process Assets (OPA)

- The OPA that can influence this process are: Historical duration information, project calendar, scheduling methodology, lesson learned, etc.

Project Schedule Management

Estimate Activity Durations

TOOLS&TECHNIQUES

1. **Expert Judgment**

Expert judgment, guided by historical information, can provide duration estimate information or recommended maximum activity durations from prior similar projects.

2. **Analogous Estimating**

Analogous duration estimating means using the **actual duration of a previous**, similar activity as the basis for estimating the duration of a **future activity**. It is used when there is limited amount of detailed information about the project.

Project Schedule Management

Estimate Activity Durations

TOOLS&TECHNIQUES

3. <u>Parametric Estimating</u>

Estimating the basis for activity durations can be **<u>quantitatively determined</u>** by multiplying the quantity of work to be performed by the productivity rate (Quantity * Rate). For example, suppose you have 10,000 meters of new cable to run. And you know from past experience it takes one hour to install 100 meters. How many hours will it take to run the 10,000meters? 100 hours

4. <u>Three-Point Estimates</u>

Three-point estimates helps to improve the accuracy of a single-point activity duration estimates by considering estimation uncertainty and risk. Three-point estimates are based on determining three types of estimates:

- **Most likely (M).** The most likely estimate assumes there are no disasters and the activity can be completed as planned.

- **Optimistic (O).** The optimistic estimate is the fastest time frame in which a resource can complete the activity (best-case scenario).

- **Pessimistic (P).** Assumes it takes much longer than planned to get the activity completed (worst-case scenario).

Project Schedule Management

Estimate Activity Durations

TOOLS & TECHNIQUES

The expected duration tE can be calculated using 2 formulas:

1. Triangular Distribution:

$$tE = \frac{O + M + P}{3}$$

2. Beta Distribution(PERT TECHNIQUE):

$$tE = \frac{O + 4M + P}{6}$$

For example, if you had an optimistic estimate of 3 days, a most likely estimate of 6 days,

and a pessimistic estimate of 10 days and put these estimates into the three-point estimating

formula, your three-point estimate for this activity is 6.2 days.

$$\frac{3+(6x4)+10}{6} = \sim 6.2 \text{ days}$$

***Standard Deviation* and Variance**.

The standard deviation is a calculation of how far away from the expected duration using the three-point estimating formula your data is spread. A smaller standard deviation means that the data is tightly grouped, while a larger standard deviation means that the data is more widely spread.

The standard deviation calculation used in the three-point estimating technique is essentially a heuristic or (**rule-of-thumb**), way of calculating standard deviation.

$$\text{Standard deviation} = \frac{P - O}{6}$$

$$SD = \frac{10-3}{6} = 1.17$$

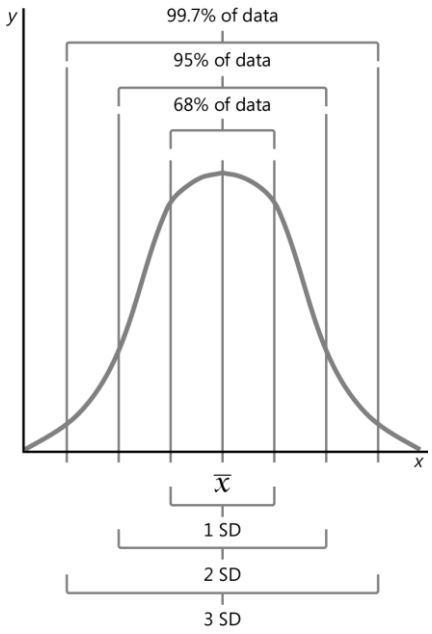
Project Schedule Management

Estimate Activity Durations

TOOLS&TECHNIQUES

4. Three-Point Estimates

The Figure below shows a normal distribution and the range of a population you would expect to find with either 1, 2, or 3 standard deviations (SD) either side of the mean.



$$Variance = \left(\frac{P - O}{6}\right)^2$$

For example, in the previous scenario, you could say that you have a 95% degree of certainty that the estimate for the activity duration is between 6± 2.34 days. This is calculated by realizing that 95% certainty will reflect two standard deviations either side of the mean. The standard deviation, as already calculated, equals 1.17 days; therefore, two standard deviations equals 2.34 days.

{EXAM TIPS} – In the exam, you may be asked a question about a range of estimates of which you are either 68%, 95%, or 99.7% certain, which means that the question is asking you to calculate 1, 2, or 3 standard deviations either side of the mean or average.

Variance.

Variance is calculated by multiplying the standard deviation by itself. Using the previous example, the variance is the standard deviation squared, which equals $1.17 \times 1.17 = 1.37$

Project Schedule Management

Estimate Activity Durations

TOOLS&TECHNIQUES

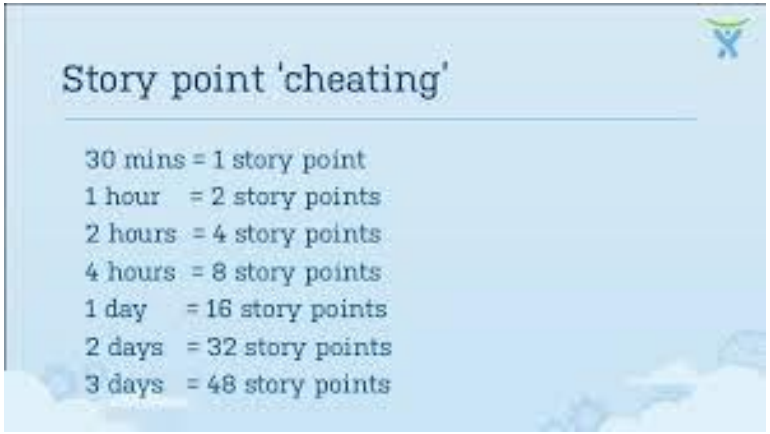
5. Bottom-Up Estimating

This is a method of estimating project duration or cost by aggregating the estimates of lower-level components of the WBS. When an activity's duration cannot be estimated with a reasonable degree of confidence, the work within the activity is decomposed into more detail.

6. Story Points

Story points are units of measure for expressing an estimate of the overall effort required to fully implement a product backlog item or any other piece of work. Teams assign story points relative to work complexity, the amount of work, etc.

Some teams try to map the story points to duration of tasks in hours.



Project Schedule Management

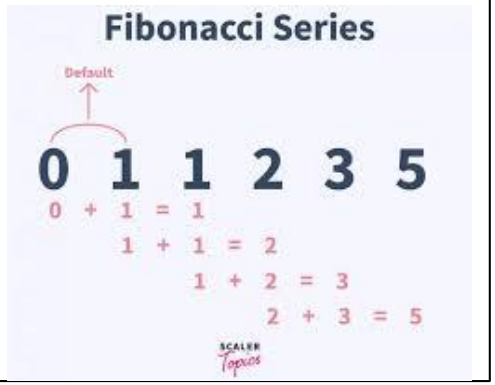
Estimate Activity Durations

TOOLS&TECHNIQUES

7. Estimating using fibonacci sequences

The Fibonacci sequence is a series of numbers. They grow exponentially because each number is the sum of the previous two numbers: 1, 2, 3, 5, 8, 13, 21 and so on.

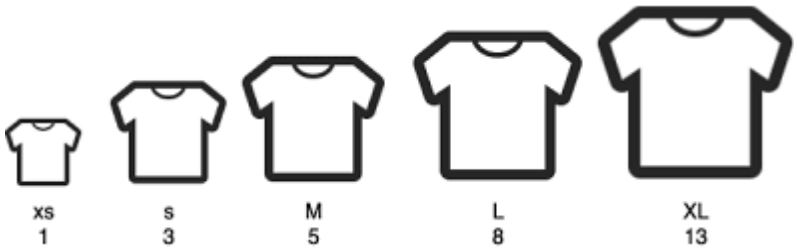
•teams can sit around a table, walk through the product backlog, and name or write down a number from the Fibonacci sequence that reflects their estimate for the task being discussed. In reality, such an approach is cumbersome because you need to manually check if the correct numbers were used, add them up, and calculate averages.



8. T-Shirt Sizing

T-shirt Sizing is one of the Story points sizing technique to estimate user story usually used in agile projects. It's a relative Estimation Technique. Here, durations are classified into t-shirt sizes: XS, S, M, L, XL

For example:
1.Small = 1–3 days.
2.Medium = 4–5 days.
3.Large = 6–8 days.



Project Schedule Management

Estimate Activity Durations

OUTPUTS

Duration Estimates

- Duration estimates are quantitative assessment of the likely number of work / time periods that will be required to complete a schedule activity. It can be expressed in hours, weeks, days, or months. It may also include some indications of range of possible results. Eg
- 2 weeks ± 3 days to indicate that the activity will take at least seven days and no more than thirteen days (assuming a five-day work/week).

Basis of Estimates

The amount and type of additional details supporting the duration estimate vary by application area. The supporting documentation is the basis of estimate which should provide a clear and complete understanding of how the estimates were derived

Project Documents Updates

- The project documents that may be updated during this process are: Activity attributes and assumptions made while developing the activity durations like skill levels and availability, basis of estimates, etc.

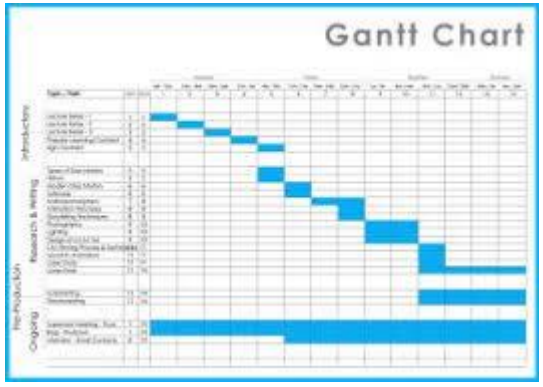
Project Schedule Management

Develop Schedule

The ***Develop Schedule*** process is the heart of the Planning process group. This is where you lay out the schedule for your project activities, determine their start and finish dates, and finalize activity sequences and durations. Schedule Development, along with Activity Resource Estimating and Activity Duration Estimating, is repeated several times before you actually come up with the project schedule. The project schedule, once it's approved, serves as the ***Schedule Baseline*** for the project that you can track against in later processes.

Developing the project schedule uses the outputs from the processes of **Define Activities**, **Sequence Activities**, and **Estimate Activity Durations**.

To develop the Project Schedule, you first need to define the activities, sequence them in the right order, and estimate the time or duration it will take to complete the listed tasks or activities. The primary output of Develop Schedule is the **PROJECT SCHEDULE**



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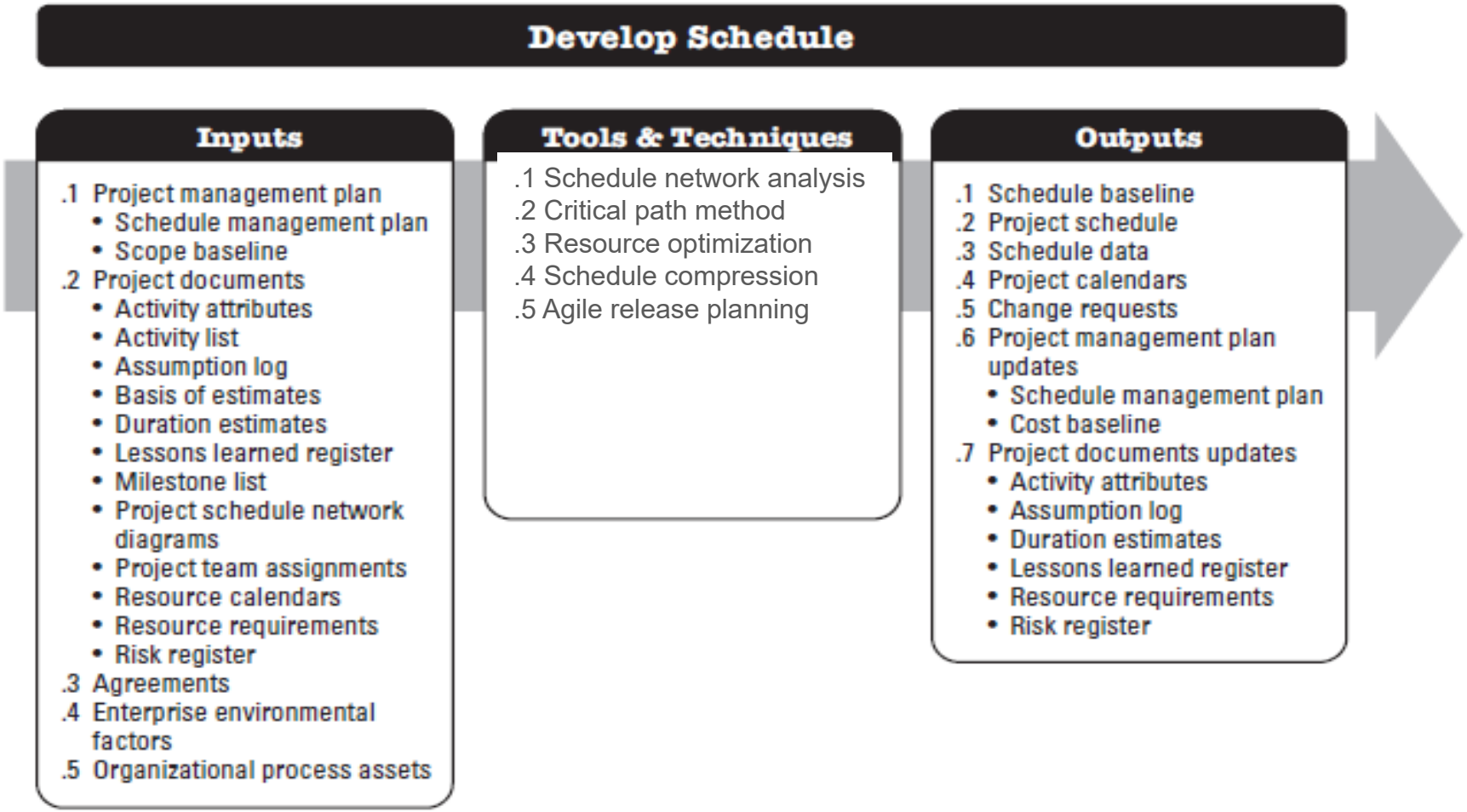


Project Schedule Management

Develop Schedule

INPUTS

Project Management Plan

- The Scope baseline, and the Schedule Management Plan which are components of the Project Management Plan identifies the scheduling method and tools to use to create the schedule, and how it will be calculated.

Project Documents

- The needed project documents for this process are; Activity List, Attribute, Assumption log, Milestone list, etc.

Agreements

- Engaged vendors may have input to the project schedule as they develop the details of how they will perform the project work to meet contractual commitments

Enterprise Environmental Factors (EEF)

- The EEF that can influence this process are: Government or industry Standards, communication channels, scheduling tools used for the schedule model, etc.

Organizational Process Assets (OPA)

- The OPA that can influence this process are: Scheduling methodology, project calendars, etc.

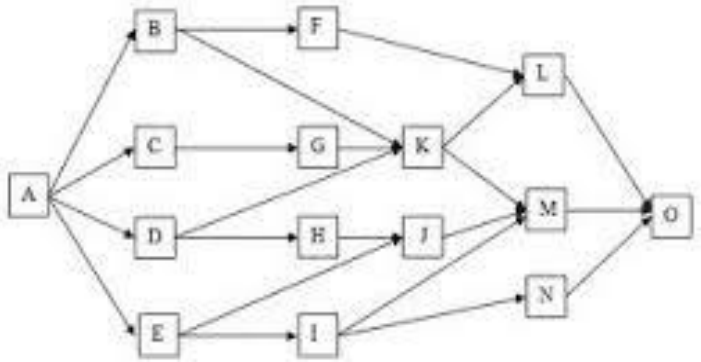
Project Schedule Management

Develop Schedule

TOOLS&TECHNIQUES

1. Schedule Network Analysis

Schedule network analysis is a technique that generates the project schedule model. It employs various analytical techniques, such as **critical path method**, **critical chain method**, **what-if analysis**, and **resource optimization** to calculate the early and late start dates and early and late finish dates for project activities.



2. Critical Path Method

Is a method used to estimate the minimum project duration and determine the amount of scheduling flexibility on the logical network paths. The critical path method **calculates the early start** and **finish dates**, and **late start** and **finish dates**, for all schedule activities without regard for any resource limitations, by performing a forward pass analysis and a backward pass analysis through the project schedule network paths.

Project Schedule Management

Develop Schedule

TOOLS&TECHNIQUES

3. <u>Resource Optimization Techniques</u>

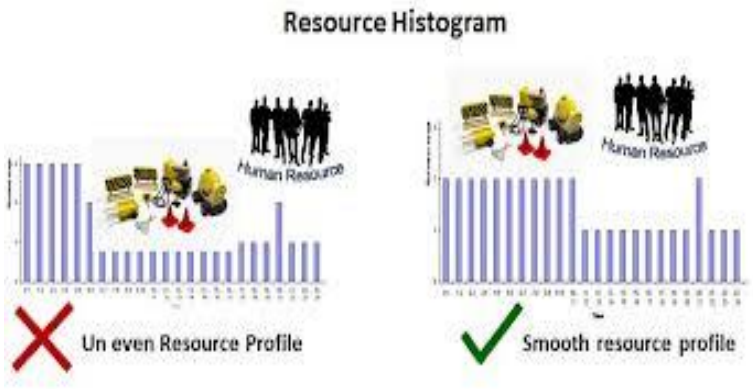
Two examples of this techniques that can used to adjust schedule model due to demand and supply of resources are:

A. <u>Resource Leveling</u>

This is a technique in which the start & finish dates are adjusted based on resource constraints with the goal of balancing demand for resources with the available supply. Resource leveling can be used when shared or critical required resources are only available at certain times, are only available in limited quantities, or to keep resource usage at a constant level.

B. <u>Resource Smoothing</u>

This is a technique that adjusts the activities of a schedule model such that the requirements for resources on the project do not exceed certain predefined resource limits.



EXTENDED BY NORMAL SLACK in green

	DAYS									
	1	2	3	4	5	6	7	8	9	10
A	10									
B	5	5								
C	8	8								
D		4	4	4						
E			8							
F			4	4	4	4				
G							12	12		
H					4	4	4	4	4	4
Requirements	23	17	16	8	8	8	16	16	4	4
Availability	12	12	12	12	12	12	12	12	12	12
Mis-Match	11	5	4	-4	-4	-4	4	4	-8	-8

Project Schedule Management

Develop Schedule

TOOLS&TECHNIQUES

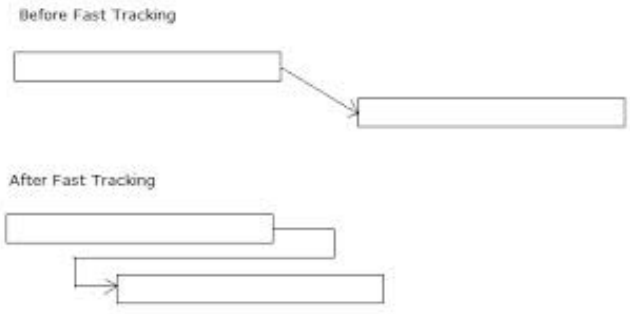
4. Schedule Compression
simply means shortening the project schedule *without* changing the project scope, to meet schedule constraints, imposed dates, or other schedule objectives sooner than estimated.

There are 2 ways to compress project schedules:

A. Crashing
A technique used to shorten schedule duration for the least **incremental cost** by adding resources. Eg. Approving overtime, paying for & bringing in additional resources, etc. Crashing does not always produce a viable alternative and can result in increased cost and / or risk.

Activity	Precedes	Normal Time (wks)	Crashing Cost (1st week)	(2nd week)
Start	A, B	-	-	-
A	C, D	6	8	-
B	G	4	5	6
C	E	4	-	-
D	F	5	6	6
E	H	6	8	8
F	H	6	7	10
G	I	8	3	5
H	End	5	12	15
I	End	6	5	-

A. Fast tracking
A technique used to shorten schedule duration by doing in parallel the activities that should have been done in sequence. It may result in rework and increased risk.



Project Schedule Management

Develop Schedule

TOOLS&TECHNIQUES

5. <u>Agile Release Planning</u>

Agile Release Planning provides a high-level summary timeline of the release schedule typically 3 -6 months based on the product roadmap and the product vision for the product's evolution. It also determines the number of iterations or sprints in the release. It allows the product owner and team to decide how much needs to be developed and how long it will take to have a releasable product based on business goals, dependencies and impediments.

Project Schedule Management

Develop Schedule

OUTPUTS

Schedule Data	• The schedule data for the project schedule model is the collection of information for describing and controlling the schedule. It includes at least the schedule milestones, schedule activities, activity attributes, and documentation of all identified assumptions and constraints.
Project Calendars	• It identifies working days and shifts that are available for schedule activities.
Schedule Baseline	•The schedule baseline is a concretized version of the project schedule developed from the schedule network analysis. It is accepted and approved by the appropriate stakeholders as the schedule baseline with baseline start & finish dates. The schedule baseline is a component of the project management plan.
Project Schedule	•The project schedule is often presented graphically using one or more of the following formats. •1. Bar Charts: Also known as Gantt Charts where activities are listed on the vertical axis, dates are shown on horizontal axis. •2. Milestone Charts: They are similar to bar charts, but only identify the schedule start or completion of major deliverables and key external interfaces. •3. Project Schedule Network Diagram: Are presented in the activity-on-node diagram format showing activities and relationships without a time -scale.
Project Management Plan & Documents (Artifact) Updates	Elements of the Project Artifact that may be updated are: Schedule baseline, schedule management plan. Activity resource requirements, activity attributes, etc

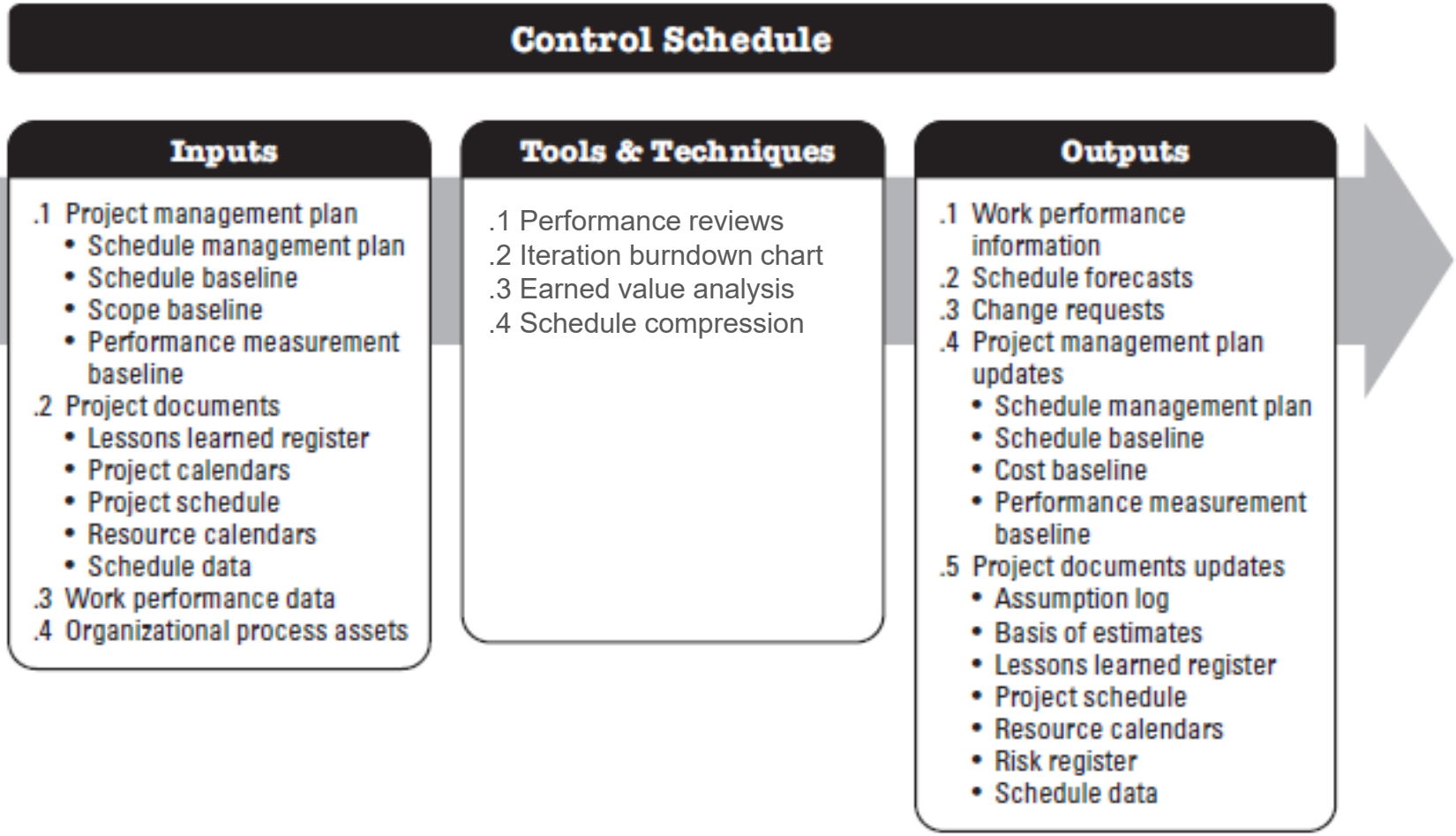
Project Schedule Management

Control Schedule

Control Schedule is the process of monitoring the status of the project to update project progress and manage changes to the schedule baseline to achieve the plan. This process is a component of the Perform Integrated Change Control Process and is concerned with:

- **Determining** the **current status** of the project schedule
- **Influencing** the factors that create schedule changes
- **Determining** that the project schedule has changed
- **Managing** the actual changes as they occur.

Project Schedule Management



Project Schedule Management

Control Schedule

INPUTS

Project Management Plan

- This document contains the Schedule Management Plan which describes how the schedule will be managed and controlled, and the Schedule and Scope Baseline that is used as reference to compare with actual performance..

Project Documents

- Lesson learned register, Project calendars, project schedule, etc. are some of the project documents that may be updated during this process.

Work Performance Data

- This refers to the data about project progress such as which activities have started, their progress, those finished, etc..

Organizational Process Assets (OPA)

- The OPA that can influence this process are: Existing formal and informal schedule control-related policies, procedures, Monitoring and reporting methods, etc

Project Schedule Management

Control Schedule

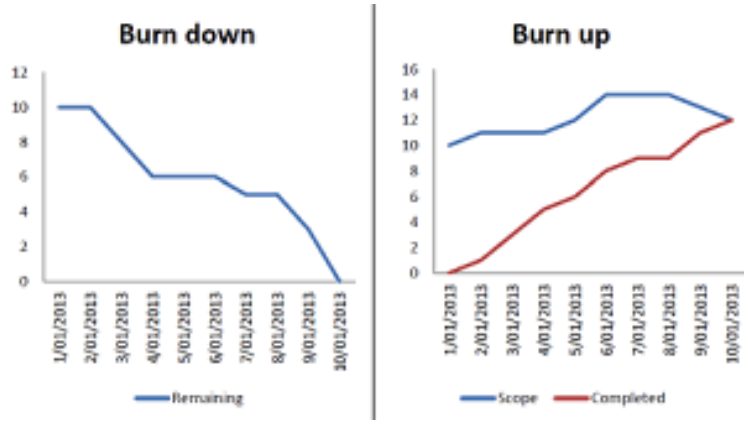
TOOLS & TECHNIQUES

1. Performance Reviews

Performance reviews measure, compare, and analyze schedule performance such as actual start and finish dates, percent complete, and remaining duration for work in progress.

2. Iteration Burndown Chart

The Iteration Burndown Chart is a graphical representation and projection of remaining unfinished work in that Iteration. In an Iteration, the Burndown Chart is located in the Reports tab of the Iteration Detail Page.



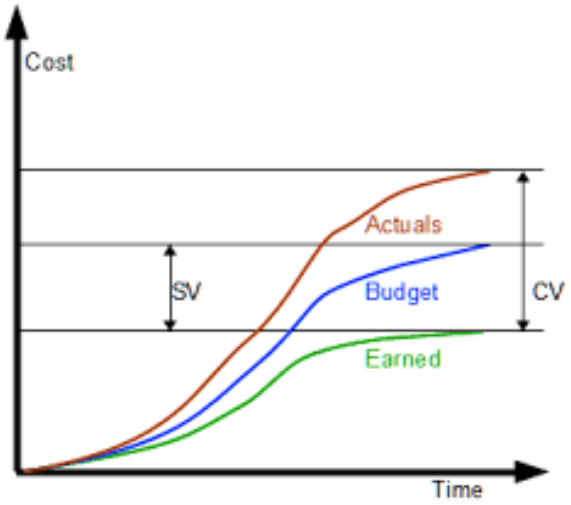
Project Schedule Management

Control Schedule

TOOLS&TECHNIQUES

3. Earned Value Analysis

Schedule performance measurements (SV, SPI) are used to assess the magnitude of variation to the original schedule baseline.



4.Schedule Compression

Crashing or **Fast tracking** can help to bring the remaining project activities that are behind into alignment with the plan.

Project Schedule Management

Control Schedule

Eco-Ways LIMITED

OUTPUTS

Work Performance Information	• The calculated SV and SPI performance indicators for WBS components are documented and communicated to relevant stakeholders.
Schedule Forecasts	• These are estimates or predictions of conditions and events in the project's future based on information available at the time of the forecast.
Change Request	• Schedule variance analysis along with review of progress report may result in change request to the schedule baseline and / or other project documents.
Project Management Plan & Document (Artifacts) Updates	Project Management Plan that may be updated are: Schedule Baseline, schedule management plan, cost baseline. Others are Assumption log, Project schedule, lesson learned register, risk register, etc

Project Schedule Management