

Project Management

Topic 4.3 Network

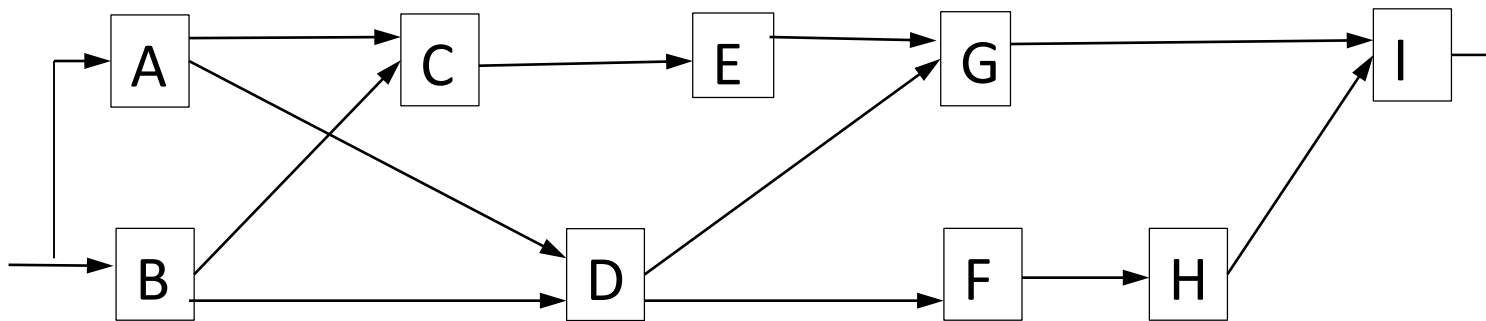


Developing the Network

- Activity = piece of work that consumes time
- After all activities are defined, they are graphically portrayed in a *network diagram*
- Network diagram formats:
 - Activity on a Node (AON) [Also known as Precedence Diagram Method (PDM) or Activity in a Box (AIB)]
 - Activity on the Arrow (AOA)

Activity on a Node (AON)

- Each node is represented by a box
- Each activity is assigned to a specific node
- Each node has a *unique* activity number or letter
- Activity description is written in the box
- Activities have a *precedential relationship*
- Some activities may be done concurrently

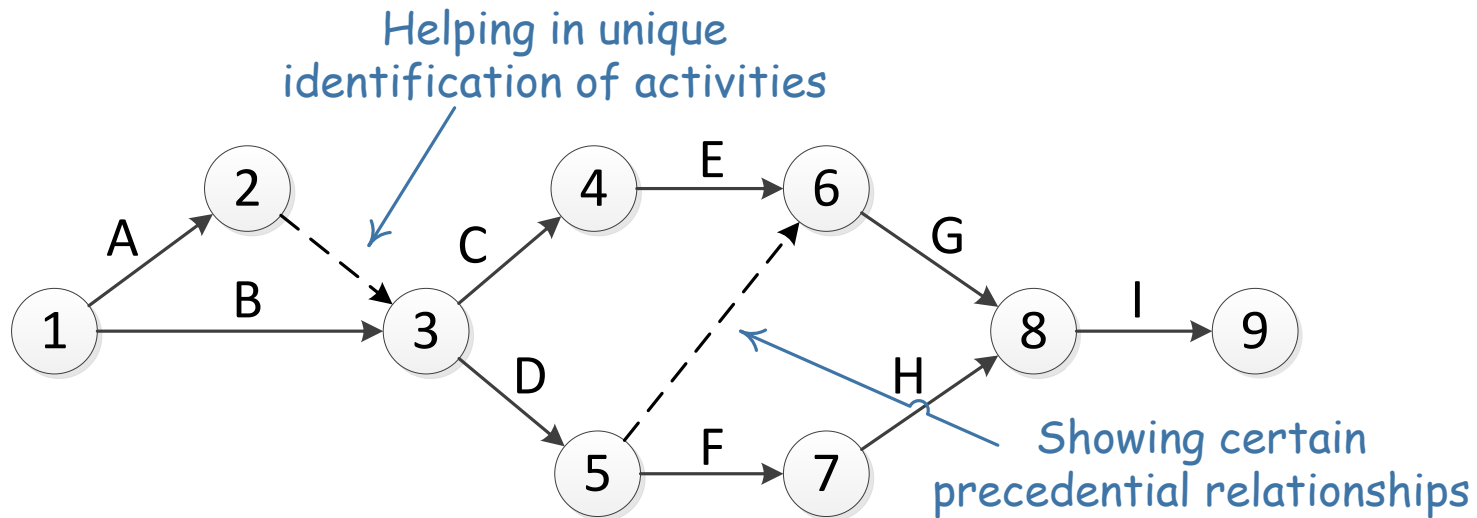


Activity on the Arrow (AOA)

- Each activity represented by an arrow
- Activity description written above the arrow
- Tail of arrow designates activity start
- Head of arrow designates completion of the activity
- Activities linked by circles called *events*
- Event represents the finish of activities entering it and the start of activities leaving it
- Each *event* is assigned a unique number

AOA Dummy Activities

- Used in the AOA format.
- Consumes zero time.
- Represented by a dashed arrow.
- Needed for:



Network Diagramming

- Ask which activities must finish immediately before this activity can start?
- Ask which activities can be done concurrently?
- Ask which activities cannot start until this activity finishes?
- Should flow from left to right.
- *Not* drawn to a time scale.
- Can vary in level of detail.

4.3.1 Class Exercise



Network Diagramming

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Diagramming Worksheet

Activity	Immediate Predecessor
A	-
B	-
C	A,B
D	C
E	C



AON Diagram

AOA Diagram



Raise Projector Screen

4.3.2 Team Exercise



AON – AOA Networks

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Types of Dependencies

- **Mandatory** – physical or contractual constraint
- **Discretionary** – dependency established based on best practice or specific desired sequence that is not mandatory
- **External** – outside of the project (i.e. material delivery)

Note: Missing mandatory or using too many discretionary dependencies results in bad schedules

Lead Lag Dependencies

Typical Examples

- **Lead** – In an FS relationship, used to accelerate a task by allowing it to start at a set time prior to the finish of the predecessor.
- **Lag** - In an FS relationship, used to delay a task by delaying its start at a set time after the finish of the predecessor.

4.3.3 Team Exercise



Kitchen Replacement Network

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