Project Logic Diagrams

Executive Development Ltd © 2005   Project Logic Diagrams
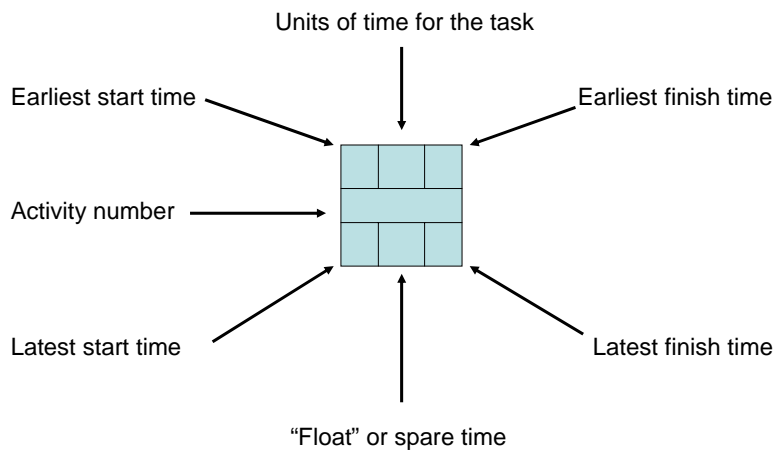
executive
development

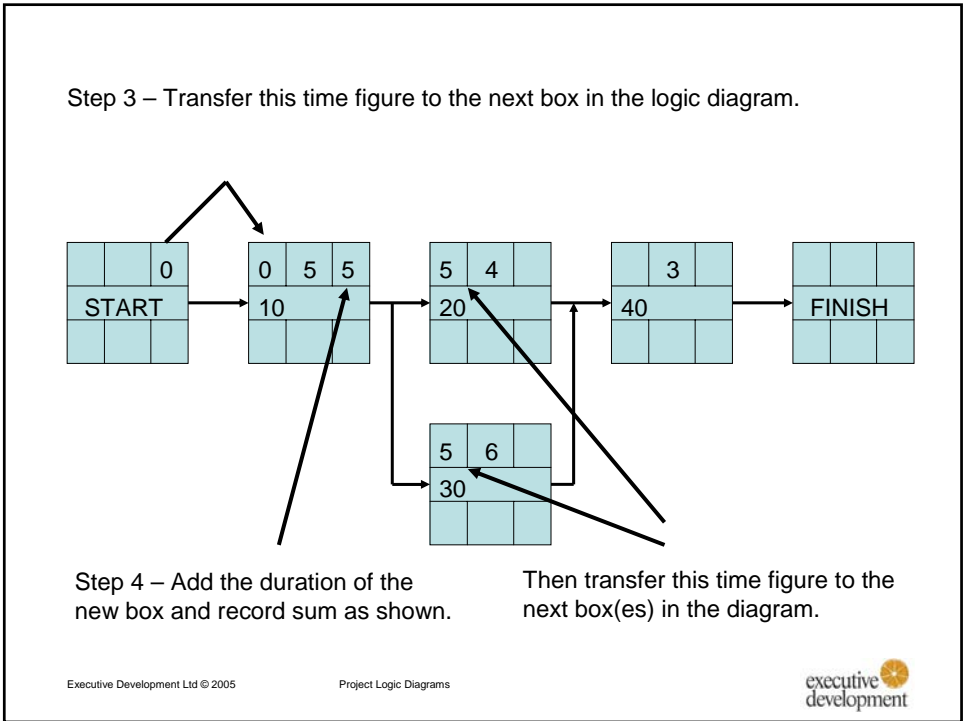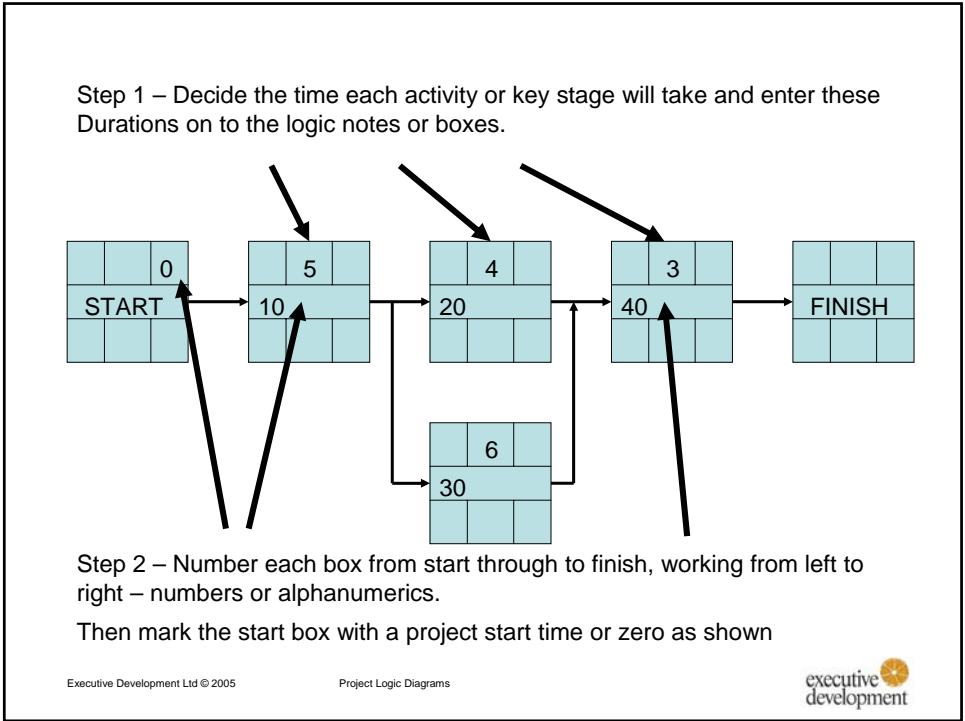
One method of planning projects and identifying the critical path is to use "logic boxes" and project logic diagrams.

Units of time for the task

Earliest start time

Earliest finish time

Activity number

Latest start time

Latest finish time

"Float" or spare time

Executive Development Ltd © 2005   Project Logic Diagrams

executive
development

Step 1 – Decide the time each activity or key stage will take and enter these Durations on to the logic notes or boxes.

		0
START		

	5	
10		

	4	
20		

	3	
40		

FINISH		

	6	
30		

Step 2 – Number each box from start through to finish, working from left to right – numbers or alphanumerics.

Then mark the start box with a project start time or zero as shown

Executive Development Ltd © 2005   Project Logic Diagrams

executive
development

Step 3 – Transfer this time figure to the next box in the logic diagram.

		0
START		

0	5	5
10		

5	4	
20		

	3	
40		

FINISH		

5	6	
30		

Step 4 – Add the duration of the new box and record sum as shown.

Then transfer this time figure to the next box(es) in the diagram.

Executive Development Ltd © 2005   Project Logic Diagrams

executive
development
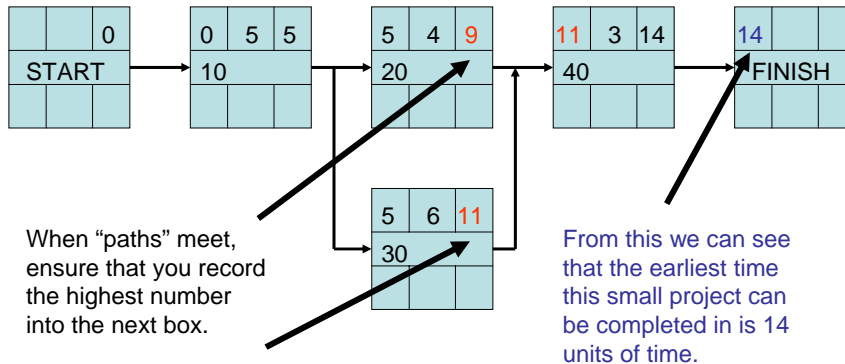
Step 5 – Repeat step 4, working through the logic diagram from left to right.

The completed forward pass analysis now looks like this:

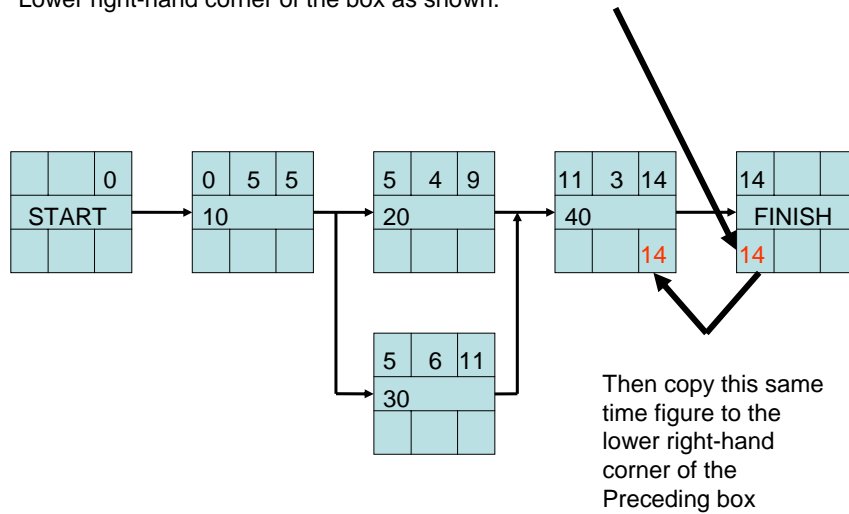|		0		0	5	5		5	4	9		11	3	14		14		
START				10				20				40				FINISH		

	5	6	11
	30		

When "paths" meet, ensure that you record the highest number into the next box.

From this we can see that the earliest time this small project can be completed in is 14 units of time.

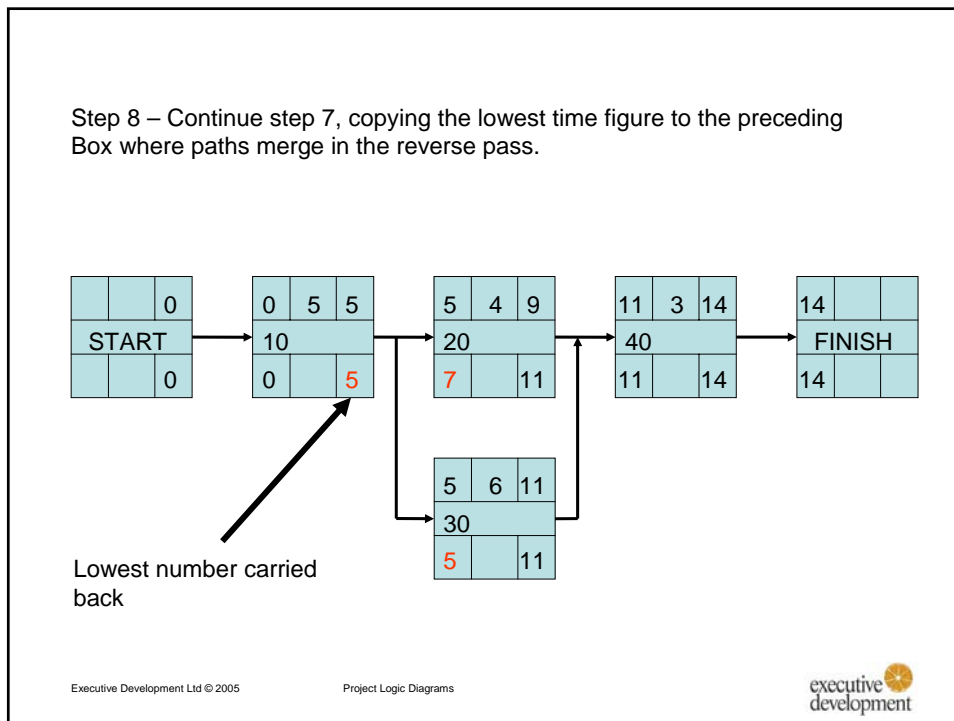Executive Development Ltd © 2005   Project Logic Diagrams

executive development

Step 6 – The whole process is now reversed. Transfer the finish time to the Lower right-hand corner of the box as shown.

		0		0	5	5		5	4	9		11	3	14		14		
START				10				20				40				FINISH		
													14			14		

	5	6	11
	30		

Then copy this same time figure to the lower right-hand corner of the Preceding box

Executive Development Ltd © 2005   Project Logic Diagrams

executive development

Step 7 – Subtract the activity duration from this time figure.

		0
START		

0	5	5
10		

5	4	9
20		
		11

11	3	14
40		
11		14

14		
FINISH		
14		

5	6	11
30		
		11

Then copy the result time figure to the lower right-hand corner of any Preceding boxes as shown.

Then enter the result in the lower left-hand corner of the same box.

Executive Development Ltd © 2005   Project Logic Diagrams

executive
development

Step 8 – Continue step 7, copying the lowest time figure to the preceding Box where paths merge in the reverse pass.

		0
START		
0		

0	5	5
10		
0		5

5	4	9
20		
7		11

11	3	14
40		
11		14

14		
FINISH		
14		

5	6	11
30		
5		11

Lowest number carried back

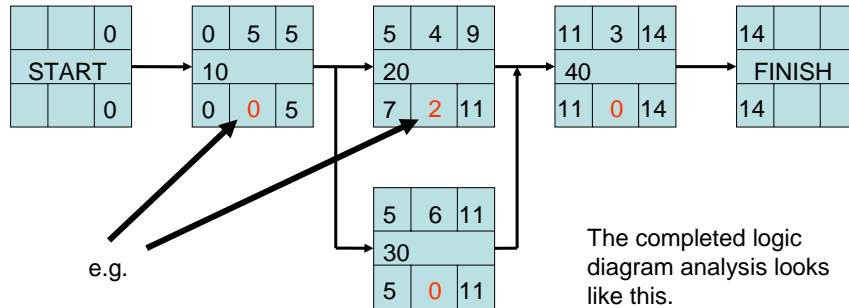Executive Development Ltd © 2005   Project Logic Diagrams
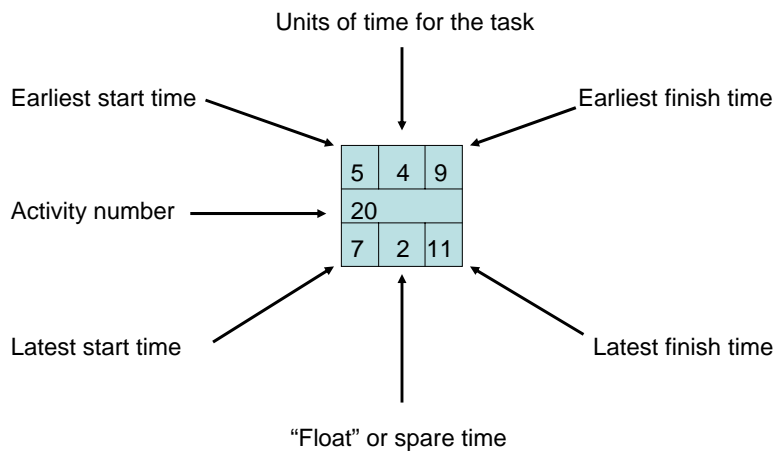
executive
development

Step 9 – Calculate the "float" or spare time for each task.

Look at each box and record the difference between the figures in the upper and lower left-hand corners and the figures in the upper and lower right-hand corners, using the lower middle part of the box.

		0
START		
		0

0	5	5
10		
0	0	5

5	4	9
20		
7	2	11

11	3	14
40		
11	0	14

14		
FINISH		
14		

5	6	11
30		
5	0	11

e.g.

The completed logic diagram analysis looks like this.

executive development

Each box now contains information about each activity or key stage of the Project.

Units of time for the task

Earliest start time

Earliest finish time

5	4	9
20		
7	2	11

Activity number

Latest start time

Latest finish time

"Float" or spare time

executive development

Step 10 – The Critical Path.

The activities that have zero float time form the critical path through the Project.

		0		0	5	5		5	4	9		11	3	14		14		
START			10				20				40				FINISH		
		0		0	0	5		7	2	11		11	0	14		14		

	5	6	11
	30		
	5	0	11

executive
development