

Timed Phased Budgeting

From PMGT501

By

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PMGT 690

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Timed Phased Budgeting to Develop
Scheduling Resources and Cost

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4) “You have prepared the following schedule (see p283) for a project in which the key resource is a tractor. There are three tractors available to the project. Activities A and D require one tractor to complete the task B, C, E and F require two tractors.

Develop a resource-constrained schedule in the loading chart. Use the parallel method and heuristics given . Be sure to update each period as the computer would do. Record the early start (ES), late finish (LF) and slack (SL) for the new schedule.” (Laron & Grey, 2014)

Given the project schedule on p. 283, develop a resource-constrained schedule.

Notes: The resource is a tractor, and there are 3 available for the project.

A and D require 1 tractor each.

B, C, E, and F require 2 tractors.

User the parallel method.

Use the heuristics 1)Min slack, 2)Smallest duration, 3)Lowest ID number

Record ES, LF, and SL for the new schedule.

Original schedule
Resource-constrained

ID	RES	DUR	ES	LF	SL	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
A	1	4	0	5	1		1	1	1	1												
B	2	5	0	5	0		2	2	2	2	2											
C	2	4	5	9	0						x	2	2	2	2							
D	1	5	5	10	2							1	1	1	1	1						
E	2	3	9	12	0							x	x	x	x	2	2	2				
F	2	2	12	14	0												x	x	2	2		
Resources scheduled							3	3	3	3	2	3	3	3	3	3	2	2	2	2		
Resources available							0	0	0	0	1	0	0	0	0	0	1	1	1	1		

5) “Develop a resource schedule in the loading chart. Using the parallel method and heuristics given. Be sure to update each period as the computer would do. Note: activities 2, 3, 5, and 6 use two of the resource skills. Three of the resources skills are available.” (Laron & Grey, 2014 p 284)

Given the project schedule on p. 284, develop a resource-constrained schedule.

- a) How has slack changed for each activity?
- b) Has the risk of being late changed? How?

Note: Heuristics 1) Min. slack, 2) Smallest duration, 3) Lowest ID numbered.

Record ES, LF, and SL for the new schedule.

Original schedule						Resource-constrained																
ID	RES	DUR	ES	LF	SL	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	1	1	0	3	2		1															
2	2	3	0	3	0		2	2	2													
3	2	4	6	10	0			x	x	x	x	x	2	2	2	2						
4	1	5	3	8	0					1	1	1	1	1								
5	2	3	3	8	2					2	2	2										
6	2	2	10	12	0											x	x	2	2			
Resources scheduled							3	2	2	3	3	3	3	3	2	2	2	2				
Resources available							3	1	1	0	0	0	0	0	1	1	1	1				

10) “Given the time-phased work package and network, complete the baseline budget form for the project.” (Larson & Gray, 2014 p 288)

Cost by week (in \$1000)

A	10	10	10	10	
B	8	4	8	4	8
C	12	12	12	12	
D	6	2	2	2	6
E	8	8	12		
F	20	20			

ID	Budget (in \$1000)	Budget												
		0	1	2	3	4	5	6	7	8	9	10	11	12
A	40	10	10	10	10									
B	32	8	4	8	4	8								
C	48					12	12	12	12					
D	18						6	2	2	2	6			
E	28						8	8	12					
F	40											20	20	
TOTAL	206	18	14	18	14	20	26	22	26	2	6	20	20	
Cumulative		18	32	50	64	84	110	132	158	160	166	186	206	

11) “Given the timed-phased work packages and network, complete the baseline budget from for the project.” (Larson & Gray, 2014 p 289)

Cost per week (\$1000)

← 1 ← 2 ← 3 ← 4 ← 5

Design prototype	12	12												
Build prototype	10	10	10											
Order parts	5													
Prepare production	16	10	22	16										
Prepare marketing	6	6	0	6	12									
Assemble & test	18	18												
Launch	12													

Time-phased budget (\$1000) week
Exercise 11

Budget 0 1 2 3 4 5 6 7 8 9 10 11 12 13

Design prototype	24	12	12											
Build prototype	30			10	10	10								
Order parts	10						5	5						
Prepare prod'n	64						16	10	22	16				
Prepare market.g	30						6	6	0	6	12			
Assemble & test	36											18	18	
Launch	12													12
Total	206	12	12	10	10	10	27	21	22	22	12	18	18	12
Cumulative		12	24	34	44	54	81	102	124	146	158	176	194	206

References

Larson, E. W., & Gray, C. F. (2014). *Project Management: The managerial process*. (6th ed.). New York, NY: McGraw-Hill Education.