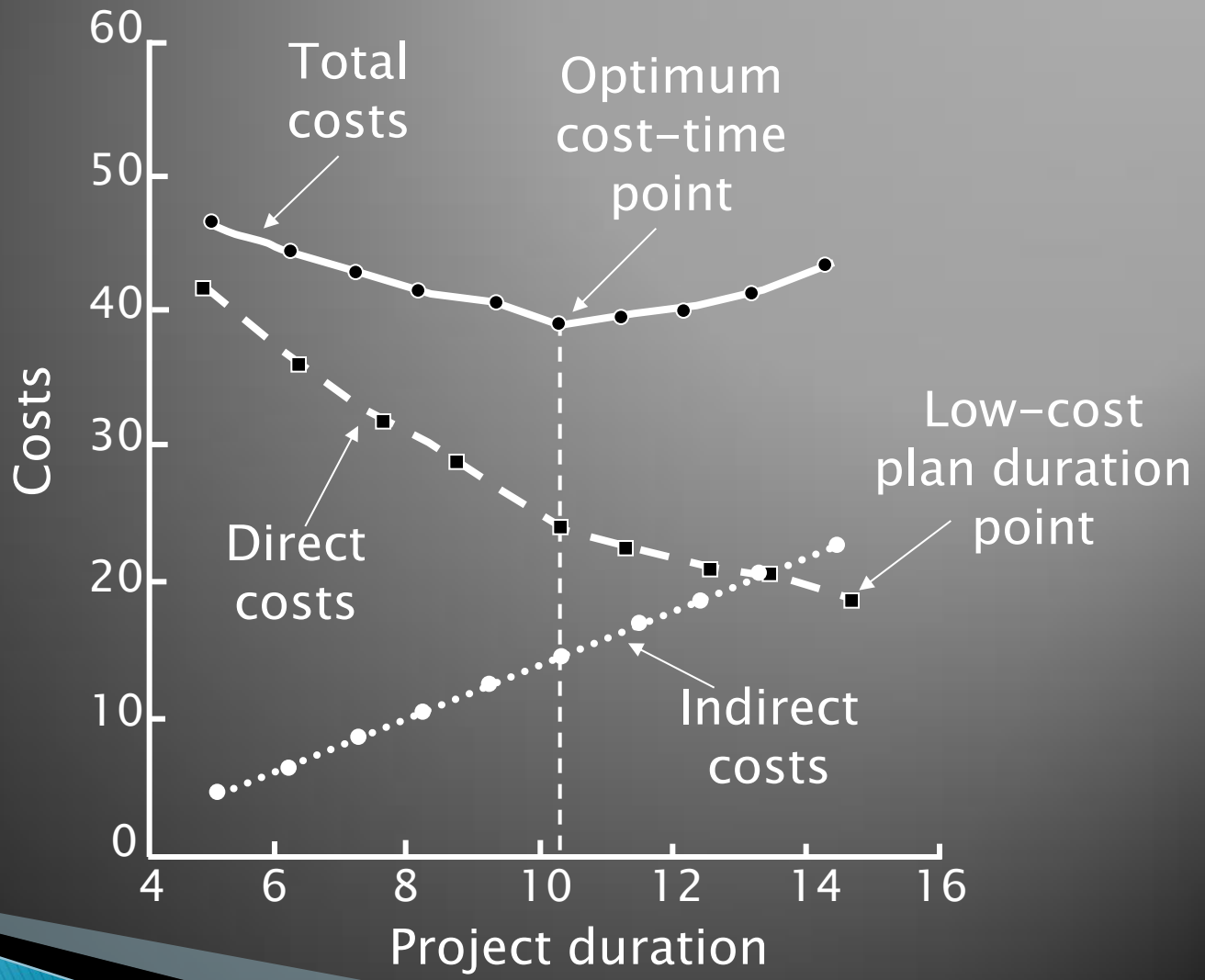
Percepatan Waktu Penyelesaian Proyek

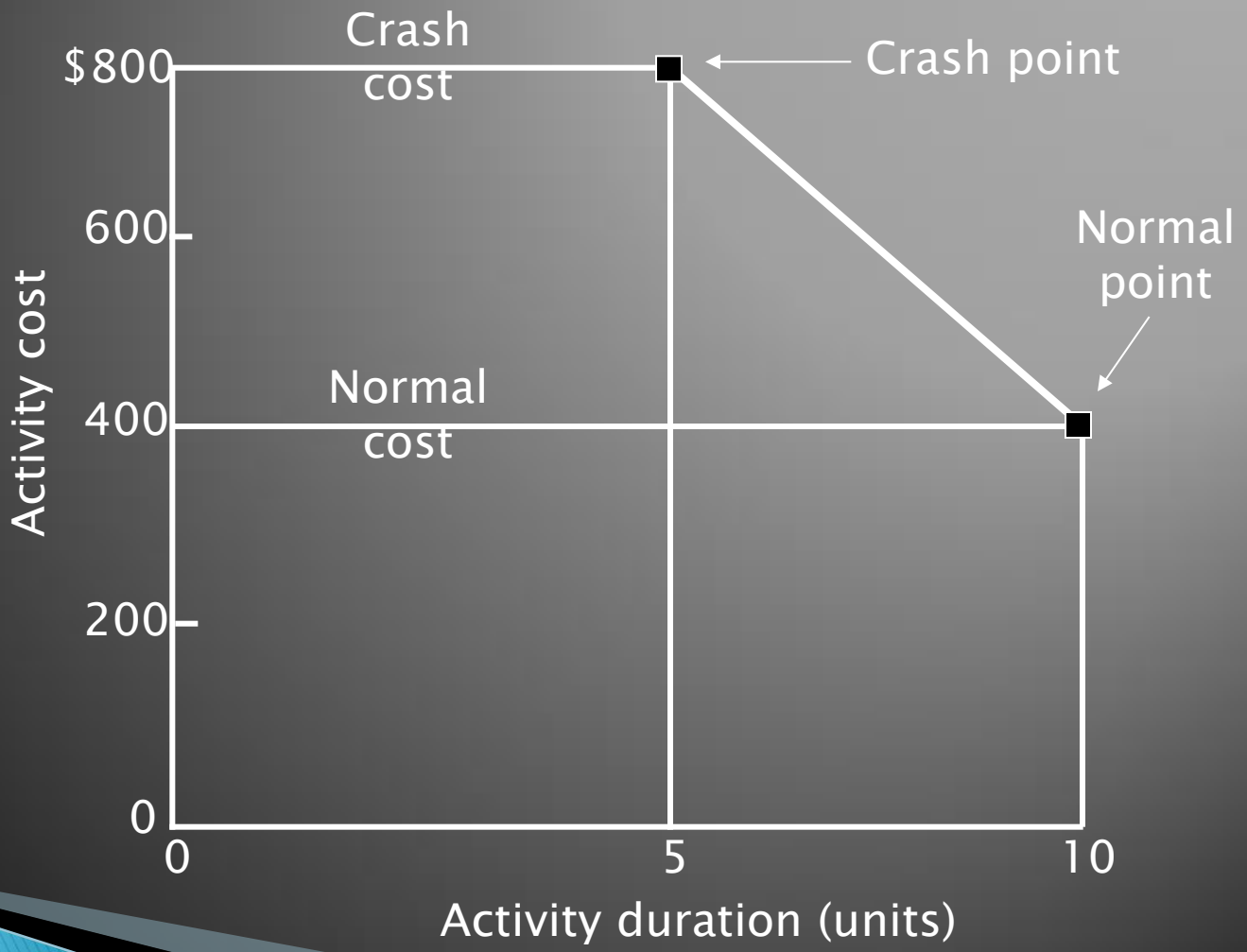
Rationale for Reducing Project Duration

- Imposed project duration date
- Time to market
- Incentive contracts
- Delays
- Reassign key equipment and/or people to new projects

Project Cost–Duration Graph



Activity Graph



Assumptions

- The cost-duration relationship is linear
- Normal time assumes low cost, efficient methods to complete the activity
- Crash time represents a limit – the greatest time reduction possible under realistic conditions.
- Slope represents cost per unit of time
- All accelerations must occur within the normal and crash time

Rumus

$$\text{Cost Slope} = \frac{\text{Rise}}{\text{Run}}$$

$$= \frac{\text{Crash cost - Normal cost}}{\text{Normal time - Crash time}}$$

Contoh sebelumnya :

$$\text{Cost slope} = \frac{\$800 - \$400}{10 - 5}$$

$$\text{Cost slope} = \frac{\$400}{5}$$

$$\text{Cost slope} = \$80 \text{ per unit of time}$$

Options for Accelerating Project Completion

- Adding Resources
- Outsourcing Project Works
- Scheduling Overtime
- Establish a Core Project Team
- Do it Twice – Fast and Correctly
- Fast-Tracking
- Critical Chain
- Brainstorming Time Savers
- Reducing Project Scope
- Phase Project Delivery
- Compromise Quality

Practical Consideration

- Crash time
- Linearity assumptions
- Choice of activities to crash
- Time reduction decision and sensitivity

Constructing a Project Cost-Duration Graph

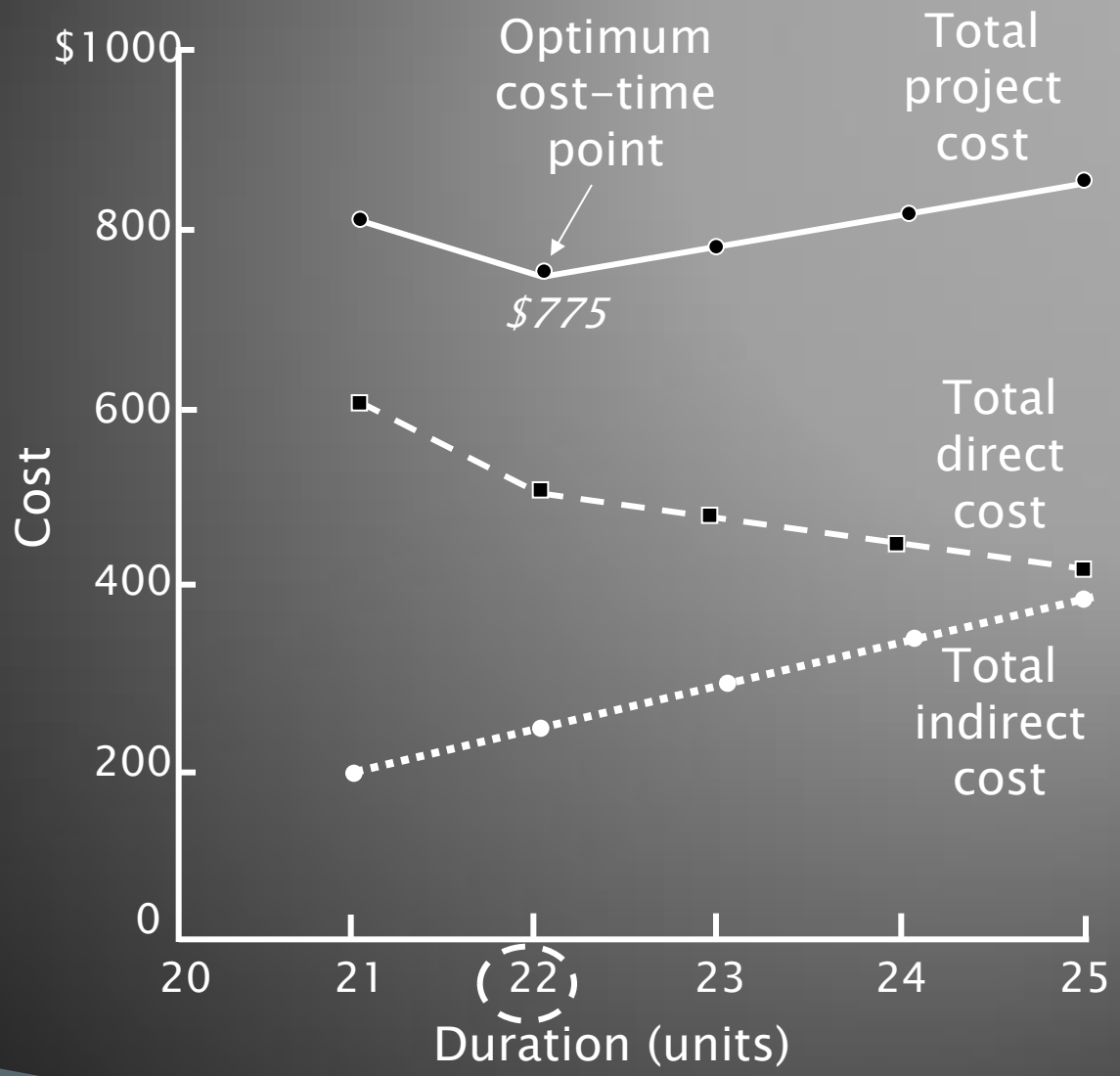
- Find total direct costs for selected project durations
- Find total indirect costs for selected project durations
- Sum direct and indirect costs for these selected durations

Cost-Time Trade-Off Example

Activity ID	Slope	Maximum crash time	Direct costs			
			Normal		Crash	
			Time	Cost	Time	Cost
A	20	1	3	$50	2	$70
B	40	2	6	80	4	160
C	30	1	10	60	9	90
D	25	4	11	50	7	150
E	30	2	8	100	6	160
F	30	1	5	40	4	70
G	0	0	6	70	6	70

Total direct cost $450

Summary Costs by Duration

Project duration	Direct costs	+	Indirect costs	=	Total costs
25	450		400		$850
24	470		350		820
23	495		300		795
22	525		250		775
21	610		200		810

Project Cost-Time Graph