CHAPTER 9:

REDUCING PROJECT DURATION

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INTRODUCTION

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Rationale for Reducing Project Duration

1. Time Is Money: Cost-Time Tradeoffs
   - Reducing the time of a critical activity usually incurs additional direct costs.
     - Cost-time solutions focus on reducing (crashing) activities on the critical path to shorten overall duration of the project.
   - Reasons for imposed project duration dates:
     - Customer requirements and contract commitments
     - Time-to-market pressures
     - Incentive contracts (bonuses for early completion)
     - Unforeseen delays
     - Overhead and goodwill costs
     - Pressure to move resources to other projects

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Options for Accelerating Project Completion

1. Adding Resources
2. Outsourcing Project Work
3. Scheduling Overtime
4. Establishing a Core Project Team

1. Fast-Tracking
2. Critical-Chain
3. Reducing Project Scope
4. Compromise Quality

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Explanation of Project Costs

1. Project Indirect Costs
   - Costs that cannot be associated with any particular work package or project activity.
     - Supervision, administration, consultants, and interest
   - Costs that vary (increase) with time.
     - Reducing project time directly reduces indirect costs.
2. Direct Costs
   - Normal costs that can be assigned directly to a specific work package or project activity.
     - Labor, materials, equipment, and subcontractors
   - Crashing activities increases direct costs.

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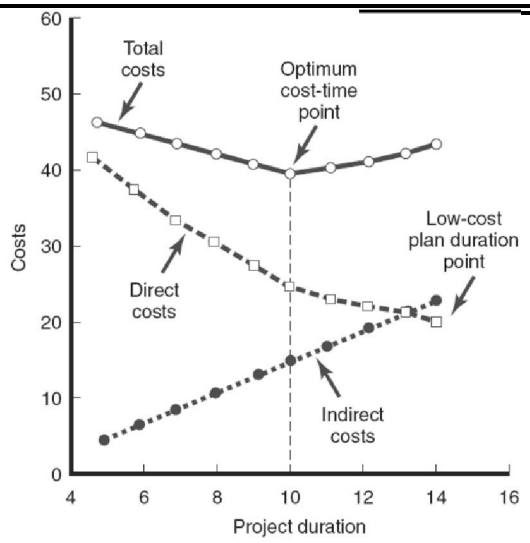
Project Cost—Duration Graph



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Reducing Project Duration to Reduce Project Cost

Identifying direct costs to reduce project time

- **Gather information about direct and indirect costs of specific project durations.**
- **Search critical activities for lowest direct-cost activities to shorten project duration.**
- **Compute total costs for specific durations and compare to benefits of reducing project time.**

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Constructing a Project Cost—Duration Graph

1. Determining Activities to Shorten
   - Shorten the activities with the smallest increase in cost per unit of time.
   - Assumptions:
     - The cost 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 a constant cost *per unit of time*.
     - All accelerations must occur within the normal and crash times.

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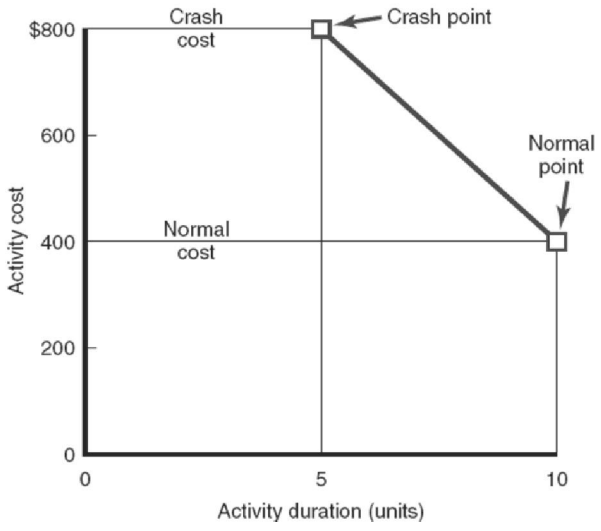
Activity Graph



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EXAMPLES

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