

CHAPTER SIXTEEN

Project Management

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Where We Are Now		Relationships	Sustainability	Globalization	Organizational Culture/Ethics Change	Management	Measurement
Chapter							
Part 1 Supply Chain: A perspective for Operations Management							
	1. Introduction to Managing Operations Across the Supply Chain	X	X	X			
	2. Operations and Supply Chain Strategy	X	X	X	X	X	X
Part 2 Foundations of Operations Management							
	3. Managing Processes and Capabilities	X					X
	4. Product/Process Innovation	X	X	X		X	
	5. Manufacturing and Service Process Structures	X		X	X		X
	6. Managing Quality	X	X	X	X	X	X
	7. Understanding Inventory Fundamentals	X		X			X
	8. Lean Systems	X		X	X	X	X
Part 3 Integrating Relationships Across the Supply Chain							
	9. Customer Management	X					X
	10. Supplier Management	X	X	X	X		X
	11. Logistics Management	X	X	X			
Part 4 Planning of integrated Operations Across the Supply chain							
	12. Demand Planning: Forecasting and Demand Management	X		X			X
	13. Sales and Operations Planning	X		X			X
	14. Independent Demand Inventory Planning	X					X
	15. Materials and Resource Requirements Planning	X		X			X
Part 5 Managing Change in Supply Chain Operations							
	16. Project Management	X	X	X	X	X	X
	17. Evolving Business Models and Change Drivers in the Supply Chain	X	X	X	X	X	

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Learning Objectives

1. Explain difference between projects and other operational processes
2. Describe factors critical for project success
3. Fashion criteria for project selection
4. Choose project organizational structure
5. Develop comprehensive project plan

16-3

Projects and Project Management

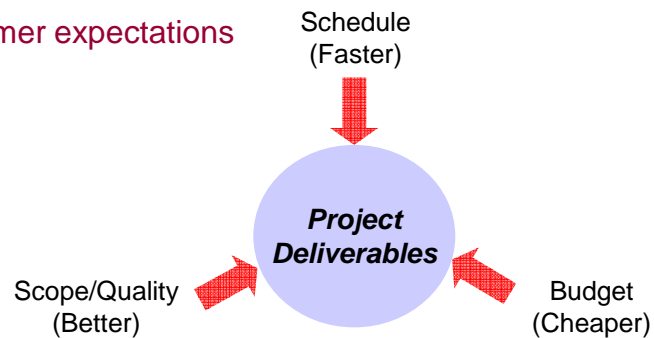
- **Project:** infrequent set of activities with cost and schedule constraints
 - Unique, this a discrete beginning and end
 - Often multidisciplinary
 - Often staffed with people pulled from other tasks
 - Often compete for resources

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How Projects Succeed

A successful project meets objectives of:

1. Within budget
2. On time
3. Customer expectations



<http://www.youtube.com/watch?v=p-H1toqMBIM>

Figure 16-1

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How Projects Succeed

- **Technological Factors:** systems, equipment and processes that define how project work is done
- **Social Factors:** team culture, behaviors, values, etc., including:
 - Vision
 - Leadership
 - Resource support
 - Team spirit

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Project Life Stages

FIGURE 16-2 Stages in a Project's Life



Figure 16-2

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Organizing Projects

- **Functional Project:** managed within a functional department
- **Pure (autonomous) Project:** managed outside functional department with people dedicated to specific projects
- **Matrix Project:** cross-functional team with responsibilities to both home department and project

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Organizing Projects

	Functional	Matrix	Pure
Advantages	<ul style="list-style-type: none"> • Localized control • Work on multiple projects • Team has 'home' after completion • Technical expertise 	<ul style="list-style-type: none"> • More cross-functional communications • Focused responsibility • Minimized duplication of resources • Team has 'home' • Organizational policies are followed 	<ul style="list-style-type: none"> • Project manager has full authority • Single 'boss' • Shorter lines of communication • Team affiliation
Disadvantages	<ul style="list-style-type: none"> • Non-functional needs may be ignored • Less customer focus • Weaker team motivation 	<ul style="list-style-type: none"> • Team members have multiple bosses • Project success depends on leaders negotiation skills 	<ul style="list-style-type: none"> • Duplication of resources • Organizational policies may be ignored • Difficult to transfer knowledge & learning • Team is 'homeless'

Table 16-1

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Selecting a Project Manager

- Leader with influencing skills
- Communication skills
- Time management
- Tolerance for ambiguity
- Politically astute and well-connected
- Technical and cross-functional knowledge
- Ethics

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Organizing Projects

- Divide project into smaller teams
- Team commitment
- Work on project from start to end
- Remove multiple obligations
- Cross-functional representation
- Create supportive, cooperative teams
- Co-locate members, if possible

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Project Planning

- **Project Charter**: establishes initial plan for the project, deliverables, schedule and budget
- **Work Breakdown Structure (WBS)**: detailed hierarchical list of project activities
- WBS can assist in defining resources needed
- Greater effort and expertise at this stage increases likelihood of project success

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Activity

- Create a WBS for a small project
- Write tasks on strips of paper
- Arrange tasks in top-down order
- Are you sure nothing has been forgotten?

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Critical Path Method (CPM)

- **Critical Path Method (CPM):** emphasis on most important activities
 1. Tasks have well-defined start and end
 2. Tasks are independent
 3. Task sequenced can be established
- **Network Diagram:** graphic display of activities and interrelationships

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Critical Path Method of Scheduling

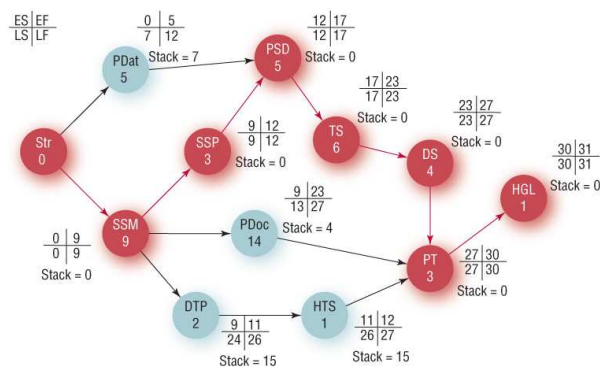
TABLE 16-2 Task Information for the Planning System Implementation Project

Task	Task Label	Estimated Duration (days)	Immediate Predecessors
Start	Str	0	None
Select system modules	SSM	9	Str
Prepare data	PDat	5	Str
Populate system data	PSD	5	PDat, SSM
Test system	TS	6	PSD
Debug system	DS	4	TS
Pilot test	PT	3	DS, PDoc, HTS
Hold "Go Live" meeting	HGL	1	PT
Set system protocols	SSP	3	SSM
Prepare documentation	PDoc	14	SSM
Design training program	DTP	2	SSM
Hold training sessions	HTS	1	DTP

Table 16-2

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Critical Path Method of Scheduling



Red nodes are critical path (zero slack) activities.

FIGURE 16-5 Network Diagram for the Planning System Installation Project

Figure 16-5

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Critical Path Method (CPM)

- **Critical Path:** longest path of activities
- **Earliest Start and Finish:** based on predecessors, earliest start/finish date
- **Latest Start and Finish:** without impacting successors, latest start/finish date
- **Task Slack:** amount of time an activity can be delayed without impacting successors

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Critical Path Method (CPM)

- **Forward Pass:** calculating early start/finish
Earliest Start = Latest early finish for **all** predecessors
Earliest Finish = Early start + task duration
- **Backward Pass:** calculating late start/finish
Latest Finish = Earliest late start of all successor activities
Latest Start = Latest finish – task duration
- **Task Slack:**
Latest Start – Earliest Start OR Latest Finish – Earliest Start

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Analyzing Resources and Trade-offs

- Resource availability and activity allocation are both important
- Consider “faster-better-cheaper” trade-offs
- Activity completion time uncertainty
 - **Probabilistic estimates:** considers ‘best case’, ‘worst case’ and ‘most likely’

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Risk Analysis

1. Team identifies possible risks
2. Establish probability of risks
3. Establish potential impacts of risks
4. Manage risk
 - Preventive measures
 - Contingency plans
 - Emergency funds
 - Time buffers

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Project Execution and Completion

- **Project Execution:** when project work is actually done; monitoring scope, budget and schedule performance
- **Post-project Review:** evaluation of key successes and failures, lessons learned, recognize team contributions

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Project Portfolio Management

- Firms' often have multiple project options
 1. Fit with organizational strategy and existing portfolio of projects
 2. Financial or other benefits
 3. Feasibility and resource availability

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Project Management Summary

1. Projects are important for managing change
2. Project leadership is critical for success
3. Multiple ways to organize projects
4. Multiple tools for managing projects
5. Large organizations have portfolios of projects to manage

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