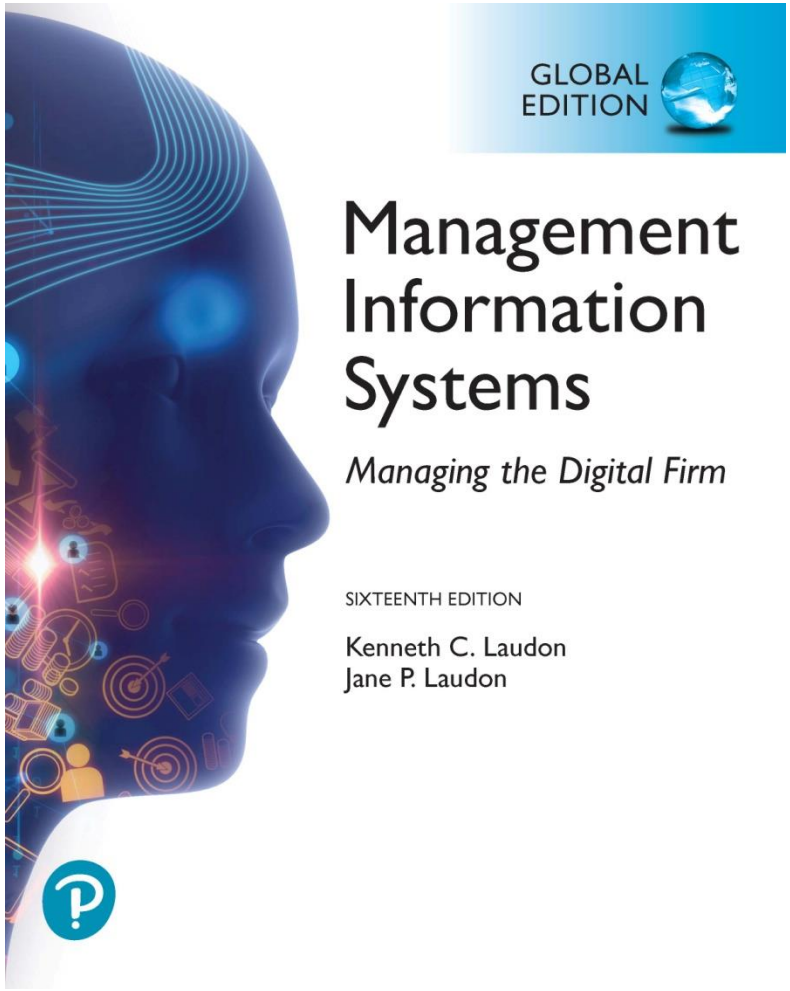
Management Information Systems: Managing the Digital Firm

Sixteenth Edition • Global Edition



Chapter 14

Managing Projects

Pearson

Learning Objectives

14.1 What are the objectives of project management, and why is it so essential in developing information systems?

14.2 What methods can be used for selecting and evaluating information systems projects and aligning them with the firm's business goals?

14.3 How can firms assess the business value of information systems?

14.4 What are the principal risk factors in information systems projects, and how can they be managed?

14.5 How will MIS help my career?

Runaway Projects and System Failure

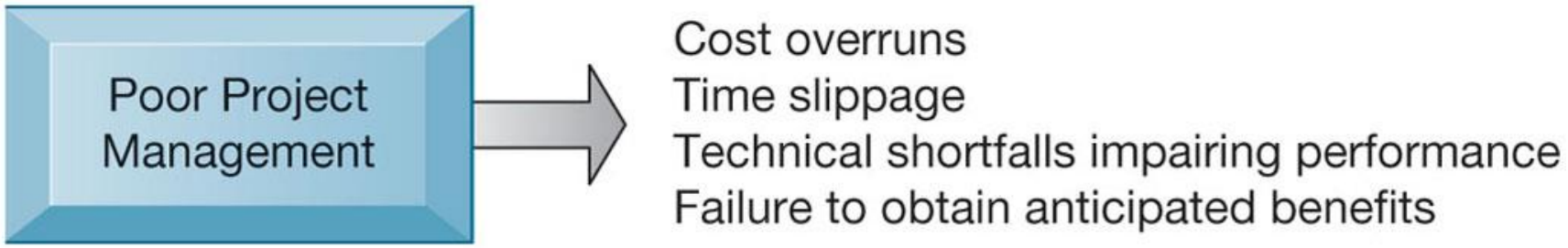
- Runaway projects: 30-40% of IT projects
  - Exceed schedule, budget
  - Fail to perform as specified

- Types of system failure
  - Fail to capture essential business requirements
  - Fail to provide organizational benefits
  - Complicated, poorly organized user interface
  - Inaccurate or inconsistent data

What is Project Management?

- *"Project management is the application of knowledge, skills, tools, and techniques to project activities in order to meet project requirements"* [PMBOK, 2013]
  - PMBOK: Project Management Body of Knowledge

Figure 14.1
Consequences of Poor Project Management



Project Management Objectives

- Project management
  - Activities include planning work, assessing risk, estimating resources required, organizing the work, assigning tasks, controlling project execution, reporting progress, analyzing results

- Five major variables
  - Scope
  - Time
  - Cost
  - Quality
  - Risk

Project Management Processes

- "Project Management is accomplished through the appropriate application of five process groups which are [PMBOK, 2013]:
  - *Initiating, Planning, Executing, Monitoring and Controlling, and Closing."*

- "Managing a project typically includes:
  - *Identifying requirements,*
  - *Addressing the various needs, concerns, and expectations of the stakeholders as the project is planned and carried out,*
  - *Balancing the competing project constraints including (but not limited to):*
    - *Scope, Quality, Schedule, Budget, Resources, and Risk."*

Project Management Processes [PMBOK, 2013]

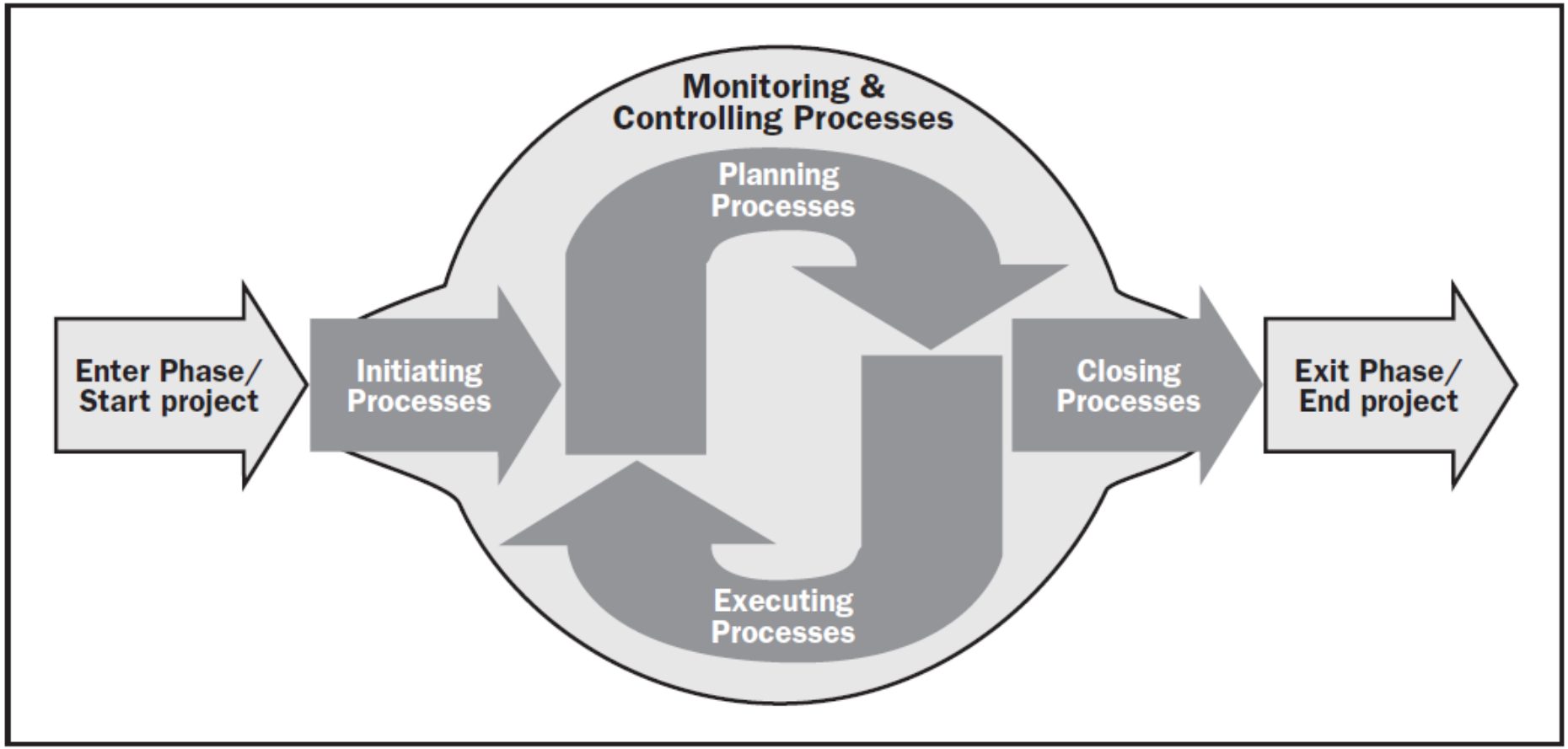


Figure 3-1. Project Management Process Groups

Project Management Processes with respect to Time

[PMBOK, 2013]

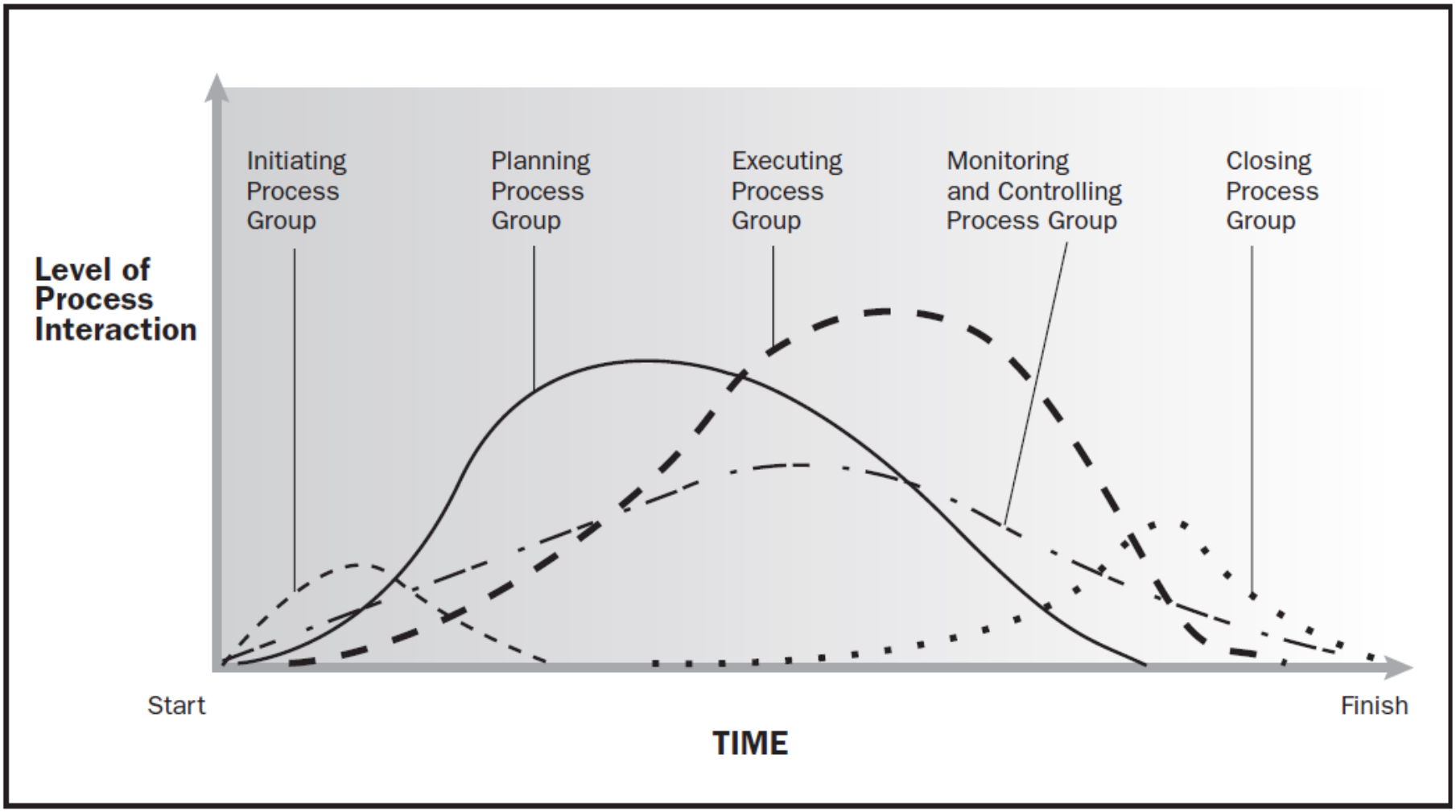
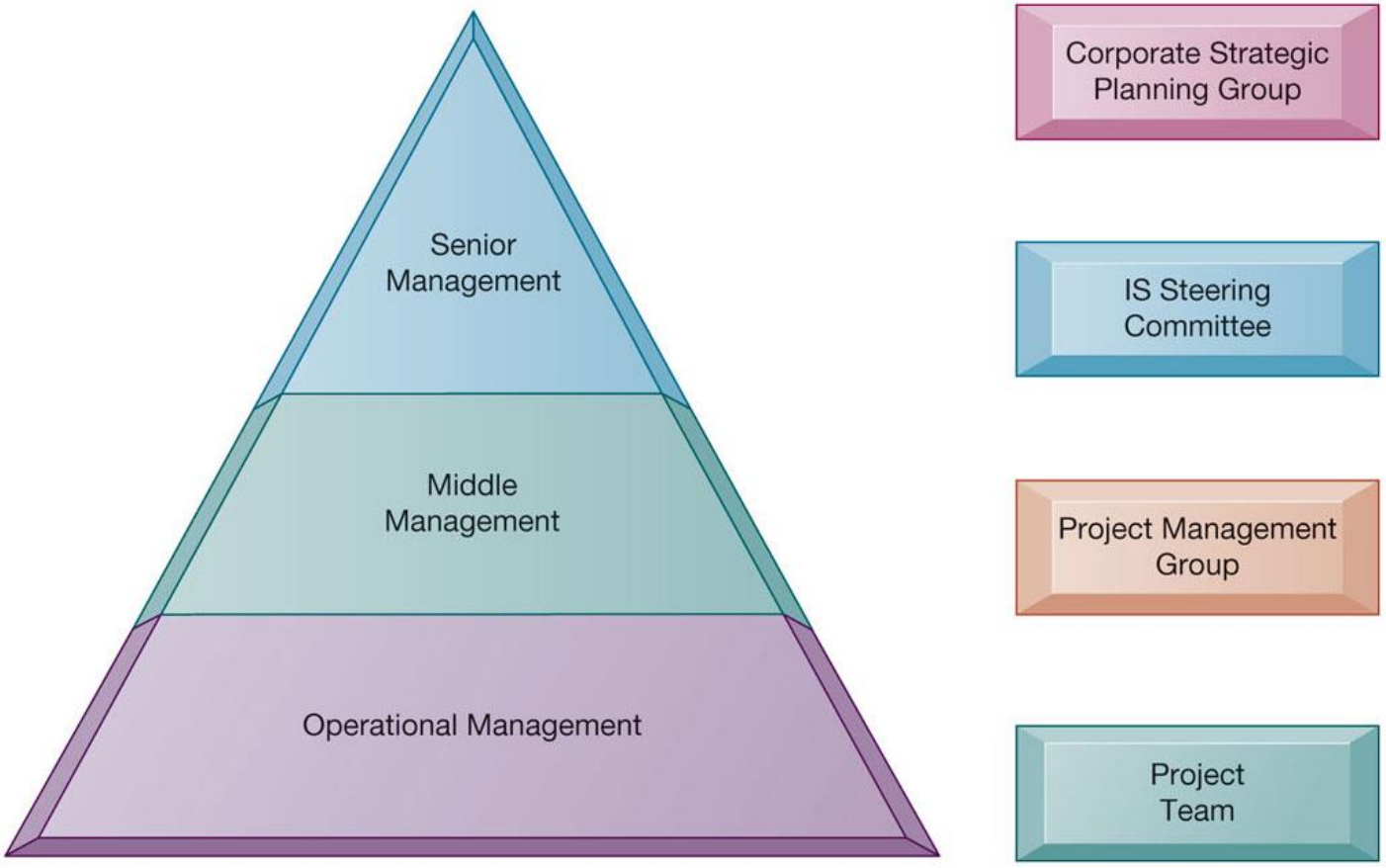


Figure 3-2. Process Groups Interact in a Phase or Project

Management Structure for Information Systems Projects

- Corporate strategic planning group
  - Responsible for firm's strategic plan
- Information systems steering committee
  - Reviews and approves plans for systems in all divisions
- Project management group
  - Responsible for overseeing specific projects
- Project team
  - Responsible for individual systems project

Figure 14.2
Management Control of Systems Projects



Information Systems Plan (1 of 2)

- Identifies systems projects that will deliver most business value
- Links development to business plan
- Road map indicating direction of systems development, includes:
  - Purpose of plan
  - Strategic business plan rationale
  - Current systems/situation
  - New developments
  - Management strategy
  - Implementation plan
  - Budget

Information Systems Plan (2 of 2)

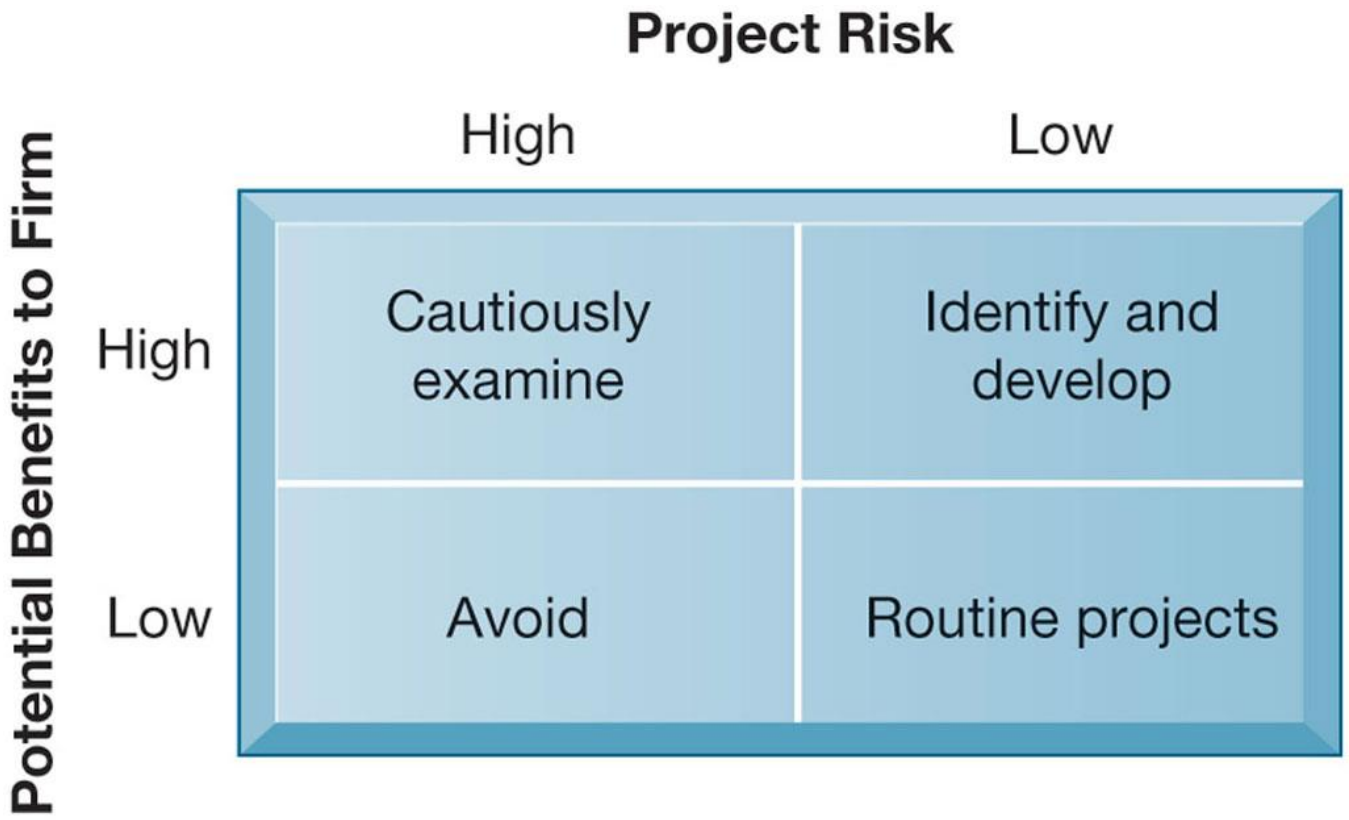
- For effective plan
  - Document existing systems and infrastructure components
  - Identify decision-making improvements
  - Develop metrics established for quantifying values
  - Clear understanding of long-term and short-term information requirements

- Key performance indicators (KPIs)
  - Strategic analysis identifies small number of KPIs, determined by managers

Portfolio Analysis

- Used to evaluate alternative system projects
- Inventories of all the organization's information systems projects and assets
- Each system has profile of risk and benefit
  - High benefit, low risk
  - High benefit, high risk
  - Low benefit, low risk
  - Low benefit, high risk
- To improve return on portfolio, balance risk and return from systems investments

Figure 14.3 A System Portfolio



Scoring Models

- Used to evaluate alternative system projects, especially when many criteria exist
- Assigns weights to various features of system and calculates weighted totals
- Many qualitative judgments involved
- Requires experts who understand the issues and the technology

Table 14.2:
Example of a Scoring Model for an ERP System

Criteria	Weight	E R P System A %	E R P System A Score	E R P System B %	E R P System B Score
1.1 Online order entry	4	67	268	73	292
1.2 Online pricing	4	81	324	87	348
1.3 Inventory check	4	72	288	81	324
1.4 Customer credit check	3	66	198	59	177
1.5 Invoicing	4	73	292	82	328
2.1 Production forecasting	3	72	216	76	228
2.2 Production planning	4	79	316	81	324
(etc.)	(etc.)	(etc.)	(etc.)	(etc.)	(etc.)
Grand Totals			3,128		3,300

Information System Costs and Benefits

- Tangible benefits
  - Can be quantified and assigned monetary value
  - Systems that displace labor and save space:
    - Transaction and clerical systems

- Intangible benefits
  - Cannot be immediately quantified but may lead to quantifiable gains in the long run
    - For example, more efficient customer service, enhanced decision making
  - Systems that influence decision making:
    - ESS, DSS, collaborative work systems

Capital Budgeting for Information Systems

- Capital budgeting models
  - Measure value of long-term capital investment projects
  - Rely on measures of the firm's cash outflows and inflows
- Principle capital budgeting models used to evaluate IT projects
  - Payback method
  - Accounting rate of return on investment (ROI)
  - Net present value
  - Internal rate of return (IRR)
- Limitations of financial models

Dimensions of Project Risk

- Project size
  - Cost
  - Time
  - Number of organizational units affected
  - Organizational complexity
- Project structure
  - Structured, defined requirements run lower risk
- Experience with technology
  - Team familiar with hardware and software

Change Management and the Concept of Implementation (1 of 2)

- Change management
  - Required for successful system building
  - New information systems have powerful behavioral and organizational impact
- Implementation
  - All organizational activities working toward adoption, management, and routinization of an innovation
- Change agent
  - One role of systems analyst
  - Redefines the configurations, interactions, job activities, and power relationships of organizational groups

Change Management and the Concept of Implementation (2 of 2)

- Role of end users
  - With high levels of user involvement
    - System more likely to conform to requirements
    - Users more likely to accept system
- User–designer communication gap
  - Users and information systems specialists
- Management support and commitment
  - Effects positive perception by both users and technical staff
  - Ensures sufficient funding and resources
  - Helps enforce required organizational changes

Change Management Challenges for Business Process Reengineering, Enterprise Applications, and Mergers and Acquisition

- Very high failure rate among enterprise application and BPR projects (up to 70% for BPR)
  - Poor implementation and change management practices
    - Employee concerns about change
    - Resistance by key managers
    - Changing job functions, career paths, recruitment practices
- Mergers and acquisitions
  - Similarly high failure rate of integration projects
  - Merging of systems of two companies requires:
    - Considerable organizational change, complex systems projects

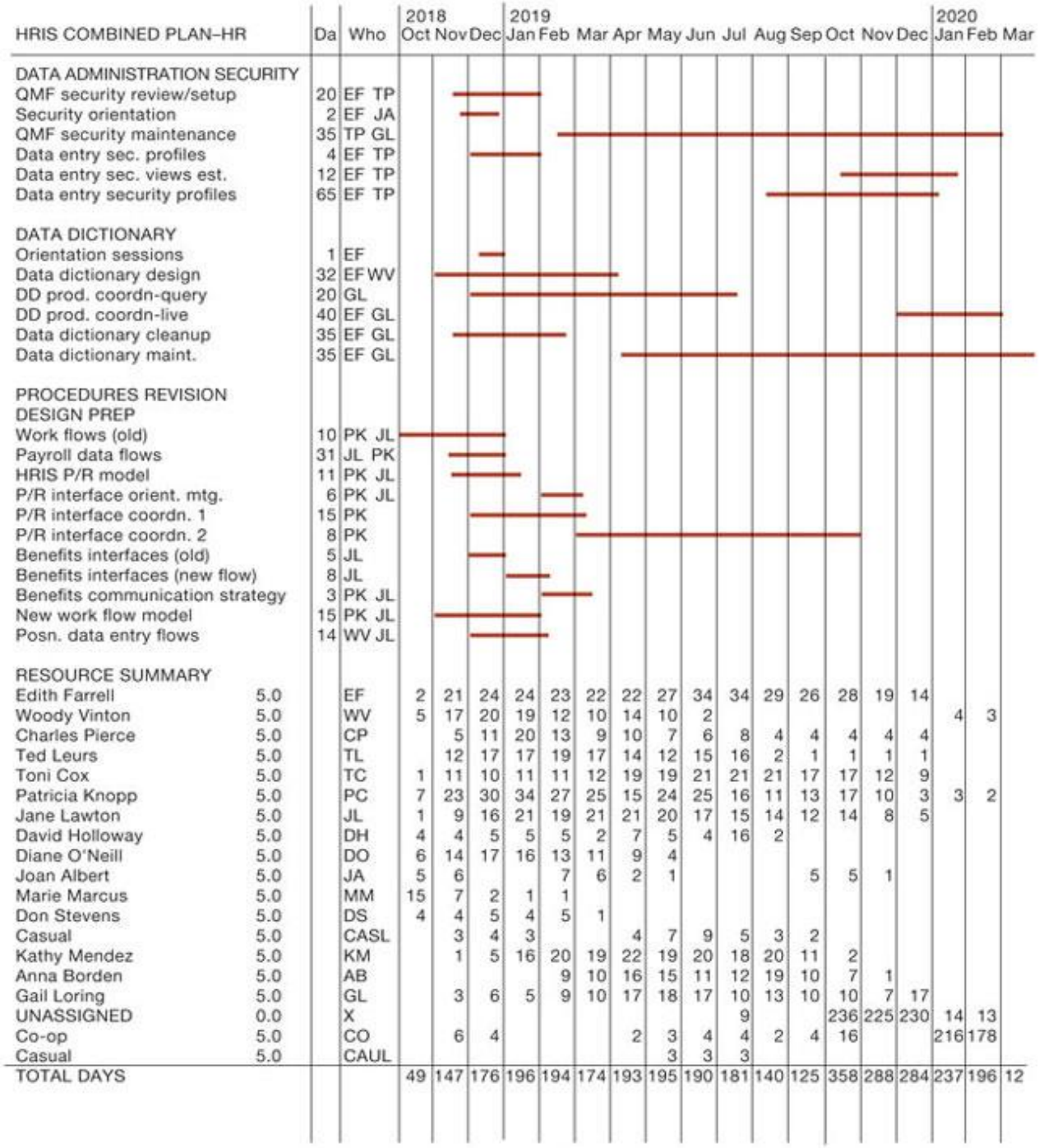
Controlling Risk Factors

- First step in managing project risk involves identifying nature and level of risk of project
- Each project can then be managed with tools and risk-management approaches geared to level of risk
- Managing technical complexity
  - Internal integration tools
    - Project leaders with technical and administrative experience
    - Highly experienced team members
    - Frequent team meetings
    - Securing of technical experience outside firm if necessary

Formal Planning and Control Tools

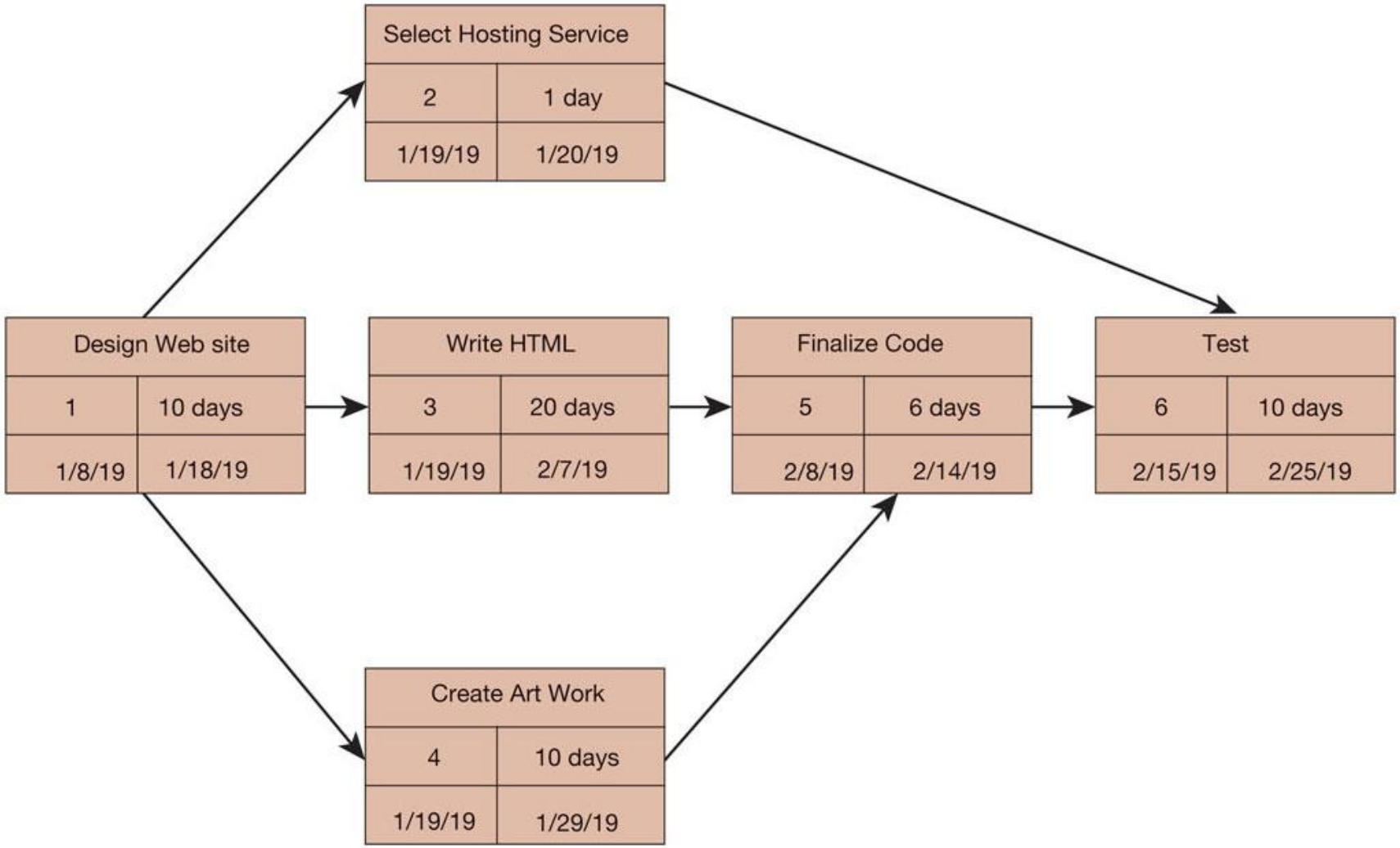
- Used for documenting and monitoring project plans
- Help identify bottlenecks and impact of problems
- Gantt charts
  - Visual representation of timing and duration of tasks
  - Human resource requirements of tasks
- PERT charts
  - Graphically depict tasks and interrelationships
  - Indicate sequence of tasks necessary

Figure 14.4 A Gantt Chart



HRIS COMBINED PLAN–HR	Da	Who	2018 Oct	Nov	Dec	2019 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2020 Jan	Feb	Mar
DATA ADMINISTRATION SECURITY																				
QMF security review/setup	20	EF TP																		
Security orientation	2	EF JA																		
QMF security maintenance	35	TP GL																		
Data entry sec. profiles	4	EF TP																		
Data entry sec. views est.	12	EF TP																		
Data entry security profiles	65	EF TP																		
DATA DICTIONARY																				
Orientation sessions	1	EF																		
Data dictionary design	32	EF WV																		
DD prod. coordn-query	20	GL																		
DD prod. coordn-live	40	EF GL																		
Data dictionary cleanup	35	EF GL																		
Data dictionary maint.	35	EF GL																		
PROCEDURES REVISION																				
DESIGN PREP																				
Work flows (old)	10	PK JL																		
Payroll data flows	31	JL PK																		
HRIS P/R model	11	PK JL																		
P/R interface orient. mtg.	6	PK JL																		
P/R interface coordn. 1	15	PK																		
P/R interface coordn. 2	8	PK																		
Benefits interfaces (old)	5	JL																		
Benefits interfaces (new flow)	8	JL																		
Benefits communication strategy	3	PK JL																		
New work flow model	15	PK JL																		
Posn. data entry flows	14	WV JL																		
RESOURCE SUMMARY																				
Edith Farrell	5.0	EF	2	21	24	24	23	22	22	27	34	34	29	26	28	19	14			
Woody Vinton	5.0	WV	5	17	20	19	12	10	14	10	2							4	3	
Charles Pierce	5.0	CP		5	11	20	13	9	10	7	6	8	4	4	4	4	4			
Ted Leurs	5.0	TL		12	17	17	19	17	14	12	15	16	2	1	1	1	1			
Toni Cox	5.0	TC	1	11	10	11	11	12	19	19	21	21	21	17	17	12	9			
Patricia Knopp	5.0	PC	7	23	30	34	27	25	15	24	25	16	11	13	17	10	3	3	2	
Jane Lawton	5.0	JL	1	9	16	21	19	21	21	20	17	15	14	12	14	8	5			
David Holloway	5.0	DH	4	4	5	5	5	2	7	5	4	16	2							
Diane O'Neill	5.0	DO	6	14	17	16	13	11	9	4										
Joan Albert	5.0	JA	5	6			7	6	2	1				5	5	1				
Marie Marcus	5.0	MM	15	7	2	1	1													
Don Stevens	5.0	DS	4	4	5	4	5	1												
Casual	5.0	CASL		3	4	3			4	7	9	5	3	2						
Kathy Mendez	5.0	KM		1	5	16	20	19	22	19	20	18	20	11	2					
Anna Borden	5.0	AB					9	10	16	15	11	12	19	10	7	1				
Gail Loring	5.0	GL		3	6	5	9	10	17	18	17	10	13	10	10	7	17			
UNASSIGNED	0.0	X										9			236	225	230	14	13	
Co-op	5.0	CO		6	4				2	3	4	4	2	4	16			216	178	
Casual	5.0	CAUL								3	3	3								
TOTAL DAYS			49	147	176	196	194	174	193	195	190	181	140	125	358	288	284	237	196	12

Figure 14.5 A PERT Chart



Increasing User Involvement and Overcoming User Resistance

- External integration tools
  - Link work of implementation team to users at all levels
- User resistance to organizational change
  - Counter-implementation
- Strategies to overcome user resistance
  - User participation, education and training
  - Management edicts and policies
  - Incentives for cooperation
  - Improvement of end-user interface
  - Resolution of organizational problems prior to introduction of new system

Designing for the Organization

- Need to address ways in which organization changes with new system
- Ergonomics
  - Interaction of people and machines in work environment
- Organizational impact analysis
  - How system will affect organizational structure, attitudes, decision making, operations
- Sociotechnical design
  - Addresses human and organizational issues

Project Management Software Tools

- Can automate many aspects of project management
- Capabilities for defining, ordering tasks
  - Assigning resources to tasks, tracking progress
  - Manage very large numbers of tasks and relationships
- Microsoft Project
- Cloud-based software
- Project portfolio management software

Video Case

- NASA Project Management Challenge
  - https://www.youtube.com/watch?v=foj6uiZeIvg

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