Chapter 14

- **Problem:** Coke Bottling's existing project management software unable to deliver needed reports, projects running over budget, past schedule
- **Solutions: Microsoft Office Enterprise Project Management (EPM) Solution,** integrated with existing network and software, to allow online, centralized project management
- Demonstrates use of information systems and accurate data to manage projects effectively
- Illustrates need for organizational and management change to ensure success of new technology

The Importance of Project Management

- **Runaway projects and system failure**
- **Runaway projects: 30% - 40% 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**

CONSEQUENCES OF POOR PROJECT MANAGEMENT

Poor Project Management → Cost overruns
Time slippage
Technical shortfalls impairing performance
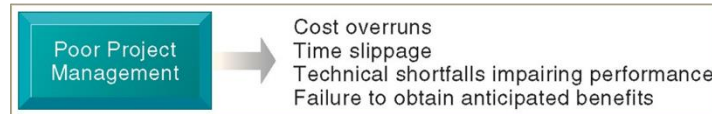Failure to obtain anticipated benefits

FIGURE 14-1   Without proper management, a systems development project takes longer to complete and most often exceeds the allocated budget. The resulting information system most likely is technically inferior and may not be able to demonstrate any benefits to the organization.

- **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**
        1. Scope
        2. Time
        3. Cost
        4. Quality
        5. Risk

## Selecting Projects

- **ActivManagement structure for information systems projects**
    - **Hierarchy in large firms**
        - 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

The Importance of Project Management

MANAGEMENT CONTROL OF SYSTEMS PROJECTS

Each level of management in the hierarchy is responsible for specific aspects of systems projects, and this structure helps give priority to the most important systems projects for the organization.

FIGURE 14-2
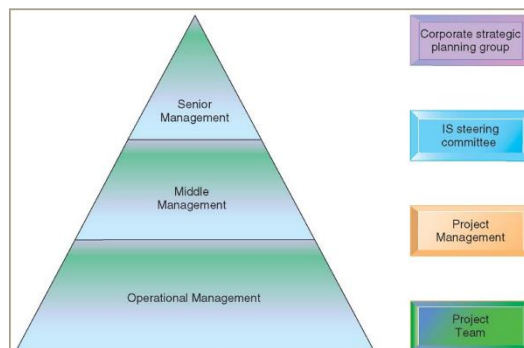
- **Information systems plan:**
  - **Identifies systems projects that will deliver most business value, links development to business plan**
  - **Road map indicating direction of systems development, includes:**
    - Purpose of plan
    - Strategic business plan rationale
    - Current systems/situation
    - New developments to consider.
    - Management strategy
    - Implementation plan
    - Budget

- **In order to plan effectively, firms need to inventory and document existing software, hardware, systems**
- **To develop effective information systems plan, organization must have clear understanding of both long-term and short-term information requirements**
- **Strategic analysis or critical success factors (CSF) approach**
  - Sees information requirements as determined by a small number of critical success factors.
 - Auto industry CSFs might include styling, quality, cost.

- **Critical success factors**
  - **Principal method:**
    - Interviews with 3-4 top managers to identify goals and resulting CSFs
    - Personal CSFs aggregated into small number of firm CSFs
    - Systems built to deliver information on CSFs
  - **Suitable for top management, building DSS and ESS**
  - **Disadvantages:**
    - No clear methods for aggregation of CSFs into firm CSFs
    - Confusion between individual and organizational CSFs
    - Bias towards top managers

USING CSFs TO DEVELOP SYSTEMS

The CSF approach relies on interviews with key managers to identify their CSFs. Individual CSFs are aggregated to develop CSFs for the entire firm. Systems can then be built to deliver information on these CSFs.

FIGURE 14-3
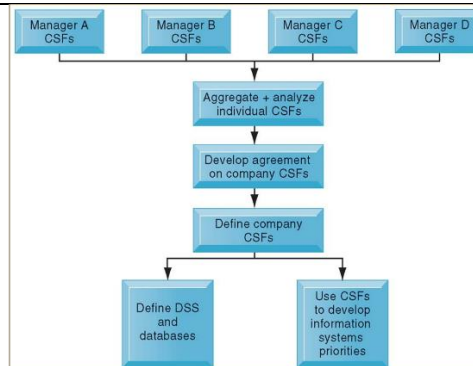
- **Portfolio analysis**
  - **Used to evaluate alternative system projects**
  - **Inventories all of the organization's information systems projects and assets**
  - **Each system has profile of risk and benefit**
    - High-benefit, low risk
    - High-benefit, high risk
    - Low-benefit, low risk
    - Low-benefit, high risk
  - **To improve return on portfolio, balance risk and return from systems investments**

A SYSTEM PORTFOLIO

Companies should examine their portfolio of projects in terms of potential benefits and likely risks. Certain kinds of projects should be avoided altogether and others developed rapidly. There is no ideal mix. Companies in different industries have different profiles.

FIGURE 14-4
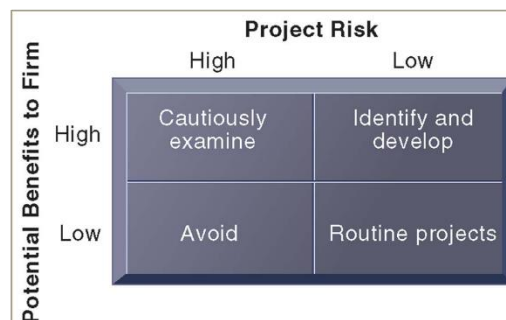
- **Scoring models**
  - **Used to evaluate alternative system projects, especially when many criteria exist**
  - **Assigns weights to various features of system and calculates weighted totals**

CRITERIA	WEIGHT	SYSTEM A %	SYSTEM A SCORE	SYSTEM B %	SYSTEM B SCORE
Online order entry	4	67	268	73	292
Customer credit check	3	66	198	59	177
Inventory check	4	72	288	81	324
Warehouse receiving	2	71	142	75	150
ETC					
GRAND TOTALS			3128		3300

Establishing the Business Value of Information Systems

- **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.
      - E.g., 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 investing in long-term capital investment projects
    - Rely on measures the firm's
      - Cash outflows
        - » Expenditures for hardware, software, labor
      - Cash inflows
        - » Increased sales
        - » Reduced costs.
    - There are various capital budgeting models used for IT projects: Payback method, accounting rate of return on investment, net present value, internal rate of return (IRR)
- **Real options pricing models (ROPM)**
  - Can be used when future revenue streams of IT projects are uncertain and up-front costs are high
  - Use concept of options valuation borrowed from financial industry
  - Gives managers flexibility to stage IT investment or test the waters with small pilot projects or prototypes to gain more knowledge about risks before investing in entire implementation
- **Limitations of financial models**
  - Do not take into account social and organizational dimensions that may affect costs and benefits

Managing Project Risk

- **Dimensions of project risk**
  - **Level of project risk influenced by:**
    - **Project size**
      - Indicated by cost, time, number of organizational units affected
      - Organizational complexity also an issue
    - **Project structure**
      - Structured, defined requirements run lower risk
    - **Experience with technology**
- **Change management**
  - **Required for successful system building**
  - **New information systems have powerful behavioral and organizational impact**
    - Changes in how information is used often lead to new distributions of authority and power
    - Internal organizational change breeds resistance and opposition
- **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
  - Catalyst for entire change process
  - Responsible for ensuring that all parties involved accept changes created by new system

- **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**
        - Different backgrounds, interests, and priorities
        - Different loyalties, priorities, vocabularies
        - Different concerns regarding a new system

- **Management support and commitment**
    - Positive perception by both users and technical staff
    - Ensures sufficient funding and resources
    - Enforcement of required organizational changes

- **Very high failure rate among enterprise application and BPR projects (up to 70% for BPR)**
    - **Poor implementation and change management practices**
        - Employee's 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

A GANTT CHART

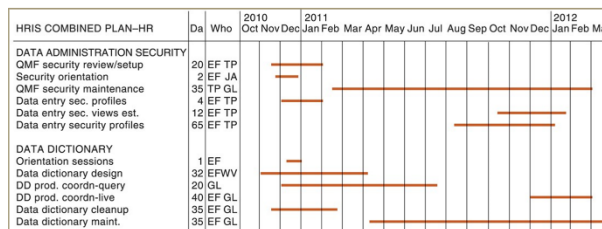| HRIS COMBINED PLAN–HR	Da	Who
DATA ADMINISTRATION SECURITY		
QMF security review/setup	20	EF TP
Security orientation	2	EF JA
QMF security maintenance	35	TP GL
Data entry sec. profiles	4	EF TP
Data entry sec. views est.	12	EF TP
Data entry security profiles	65	EF TP
DATA DICTIONARY		
Orientation sessions	1	EF
Data dictionary design	32	EFWV
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

FIGURE 14-5 The Gantt Chart in this figure shows the task, person-days, and initials of each responsible person, as well as the start and finish dates for each task. The resource summary provides a good manager with the total person-days for each month and for each person working on the project to manage the project successfully. The project described here is a data administration project.

A GANTT CHART (cont.)

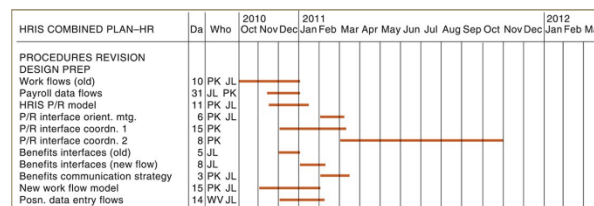| HRIS COMBINED PLAN–HR	Da	Who
PROCEDURES REVISION		
DESIGN PREP		
Work flows (old)	10	PK JL
Payroll data flows	31	JL PK
HRIS P/R model	11	PK JL
P/R interface orient. mtg.	6	PK JL
P/R interface coordn. 1	15	PK
P/R interface coordn. 2	8	PK
Benefits interfaces (old)	5	JL
Benefits interfaces (new flow)	8	JL
Benefits communication strategy	3	PK JL
New work flow model	15	PK JL
Posn. data entry flows	14	WV JL

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A GANTT CHART (cont.)

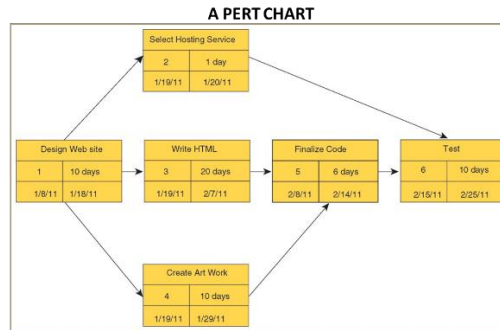| HRIS COMBINED PLAN–HR		Da	Who	2010 Oct	Nov	Dec	2011 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2012 Jan	Feb	Mar
RESOURCE SUMMARY																					
Edith Farrell	5.0		EF	2	21	24	24	23	22	22	27	34	34	29	26	28	19	14			
Woody Vinton	5.0		WV	5	17	20	19	12	10	14	10	2							4	3	
Charles Pierce	5.0		CP		5	11	20	13	9	10	7	6	8	4	4	4	4				
Ted Leurs	5.0		TL			12	17	17	19	17	14	12	15	16	2	1	1	1			
Toni Cox	5.0		TC	1	11	10	11	11	12	19	19	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	5.0		X							9					236	225	230		14	13	
Co-op	5.0		CO		6	4				2	3	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

A PERT CHART

FIGURE 14-6   This is a simplified PERT Chart for creating a small Web site. It shows the ordering of project tasks and the relationship of a task with preceding and succeeding tasks.

- **Increasing user involvement and overcoming user resistance**
  - **External integration tools consist of ways to link work of implementation team to users at all organizational levels**
    - Active involvement of users
    - Implementation team's responsiveness to users
  - **User resistance to organizational change**
    - Users may believe change is detrimental to their interests
    - Counterimplementation: Deliberate strategy to thwart implementation of an information system or an innovation in an organization
      - E.g., increased error rates, disruptions, turnover, sabotage

- **Strategies to overcome user resistance**
  - **User participation**
  - **User 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**
  - **Information system projects must address ways in which organization changes with new system**
    - Procedural changes
    - Job functions
    - Organizational structure
    - Power relationships
    - Work structure
  - **Ergonomics: Interaction of people and machines in work environment**
    - Design of jobs
    - Health issues
    - End-user interfaces

DST SYSTEMS SCORES WITH SCRUM AND APPLICATION LIFE CYCLE MANAGEMENT
Read the Interactive Session and discuss the following questions.
- What were some of the problems with DST Systems' old software development environment?
- How did Scrum development help solve some of those problems?
- What other adjustments did DST make to be able to use Scrum more effectively in its software projects?
- What management, organization, and technology issues had to be addressed?

- **Organizational impact analysis**
  - **How system will affect organizational structure, attitudes, decision making, operations**
- **Sociotechnical design**
  - **Addresses human and organizational issues.**
    - Separate sets of technical and social design solutions
    - Final design is solution that best meets both technical and social objectives.

- **Project management software**
  - **Can automate many aspects of project management.**
  - **Capabilities for**
    - Defining, ordering, editing tasks
    - Assigning resources to tasks
    - Tracking progress
  - **Microsoft Project 2010**
    - Most widely used project management software
    - PERT, Gantt Charts, critical path analysis
  - **Increase in SaaS, open-source project management software**

MOTOROLA TURNS TO PROJECT PORTFOLIO MANAGEMENT

Read the Interactive Session and discuss the following questions

- What are some of the challenges Motorola faces as a business? Why is project management so critical at this company?
- What features of HP PPM were most useful to Motorola?
- What management, organization, and technology factors had to be addressed before Motorola could implement and successfully use HP PPM?
- Evaluate the business impact of adopting HP PPM at Motorola.