

**MANAGING PROJECTS
MANAGING GLOBAL SYSTEMS**



MANAGING PROJECTS

Learning Objectives

- **Describe the objectives of project management and why it is so essential in developing information systems.**
- **Describe methods used for selecting and evaluating information systems projects and aligning them with the firm's business goals.**
- **Explain how firms assess the business value of information systems projects.**
- **Describe the principal risk factors in information systems projects.**
- **Describe strategies that are useful for managing project risk and system implementation.**

Nu Skin's New Human Resources System Project Puts People First

- **Problem:** Need to implement enterprise-wide HR system with new and automated business processes
- **Solutions:**
 - SAP ERP Human Capital Management
 - Planning and implementation managed by cross-functional project team representing different business and user interests
- Illustrates need for organizational and project management 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

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.

CONSEQUENCES OF POOR PROJECT MANAGEMENT

Austin Energy' s Billing System Can' t Light Up

- Is the Austin Energy project a failure? Explain your answer.
- Describe the business impact of the faltering Austin Energy project.
- To what degree was IBM responsible for the problems countered by the Austin Energy billing project? Was Austin Energy at fault for the problems?
- What were the specific organizational or technical factors as well as management factors involved in this project failure?
- Describe the steps Austin Energy and IBM should have taken to better manage this project.

The Importance of Project Management

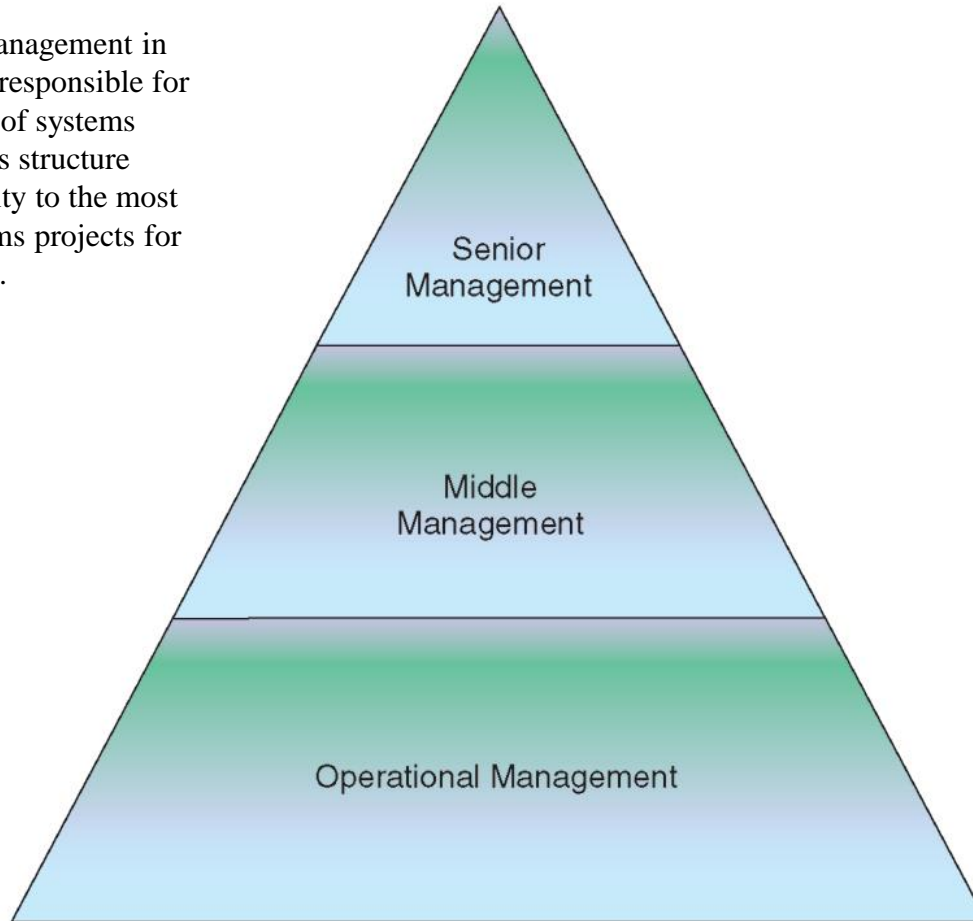
- **Project management**
 - **Activities include planning work, assessing risk, estimating resources required, organizing the work, assigning tasks, controlling project execution, reporting progress, analyzing results**
 - **Five major variables**
 1. Scope
 2. Time
 3. Cost
 4. Quality
 5. Risk

Selecting Projects

- **Management 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

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.



Selecting Projects

- **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
 - Management strategy
 - Implementation plan
 - Budget

Selecting Projects

- **For effective plan**
 - **Inventory and document**
 - Existing systems and components
 - Decision-making improvements
 - 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**
 - Production costs, labor costs, and so on

Selecting Projects

- **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

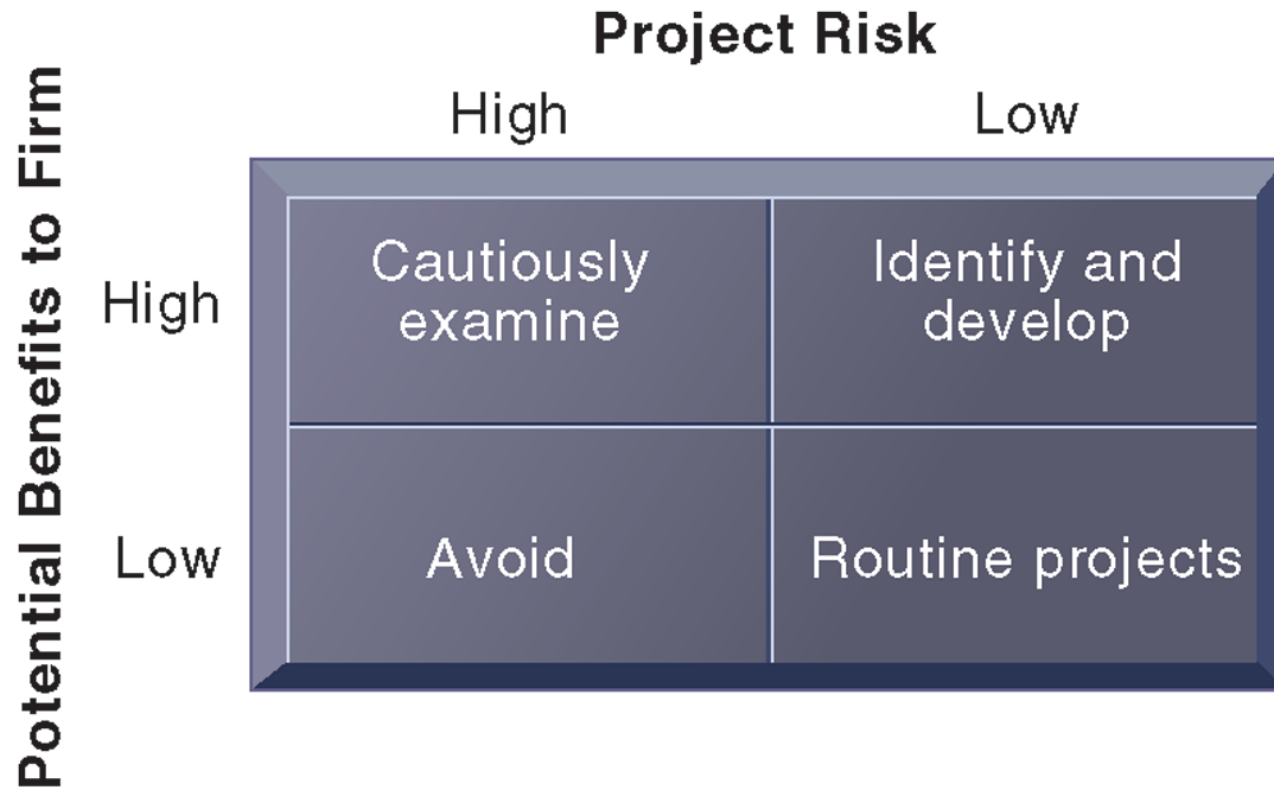


FIGURE 14-3 Companies should examine their portfolio of projects in terms of potential benefits and likely risks. Certain kinds of projects should be avoided altogether and others developed rapidly. There is no ideal mix. Companies in different industries have different profiles..

Selecting Projects

- **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

- **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 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)

Establishing the Business Value of Information Systems

- **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

- **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

Managing Project Risk

- **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

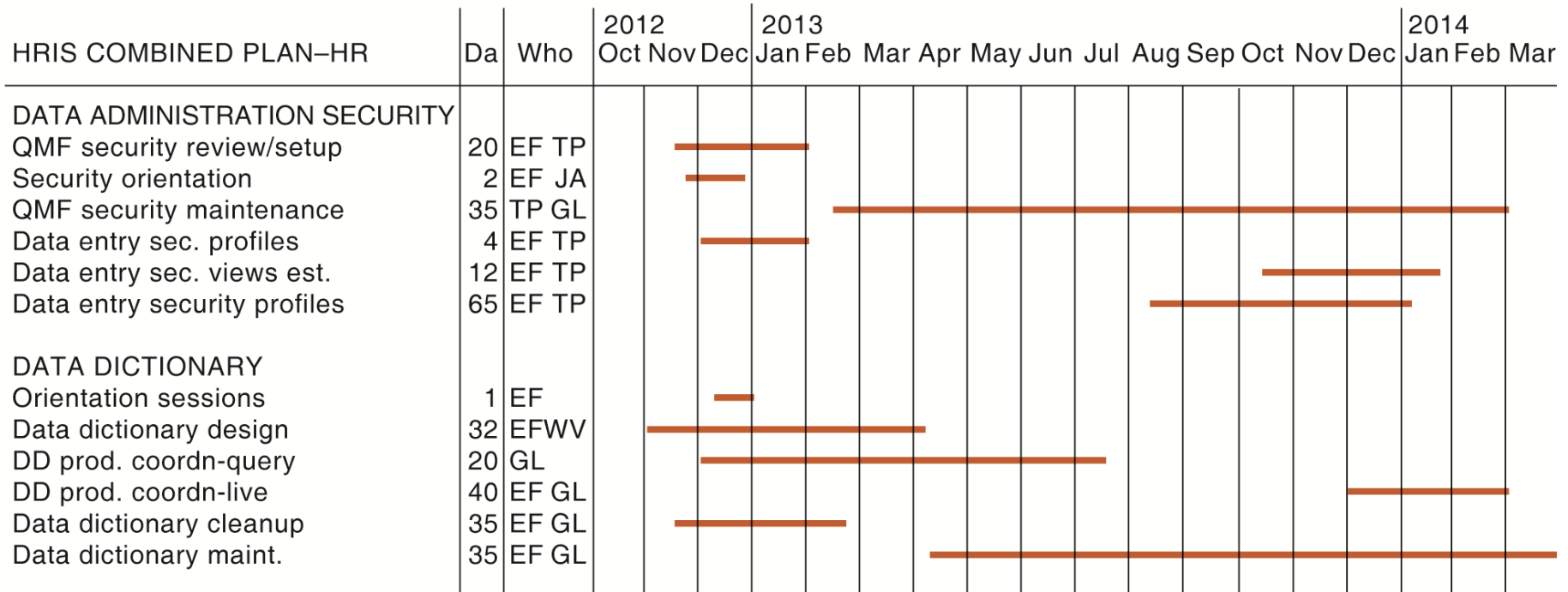
- **Management support and commitment**
 - The backing and commitment of management at various levels :
 - Effects positive perception by both users and technical staff
 - Ensures sufficient funding and resources
 - Helps enforce required organizational changes

- **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

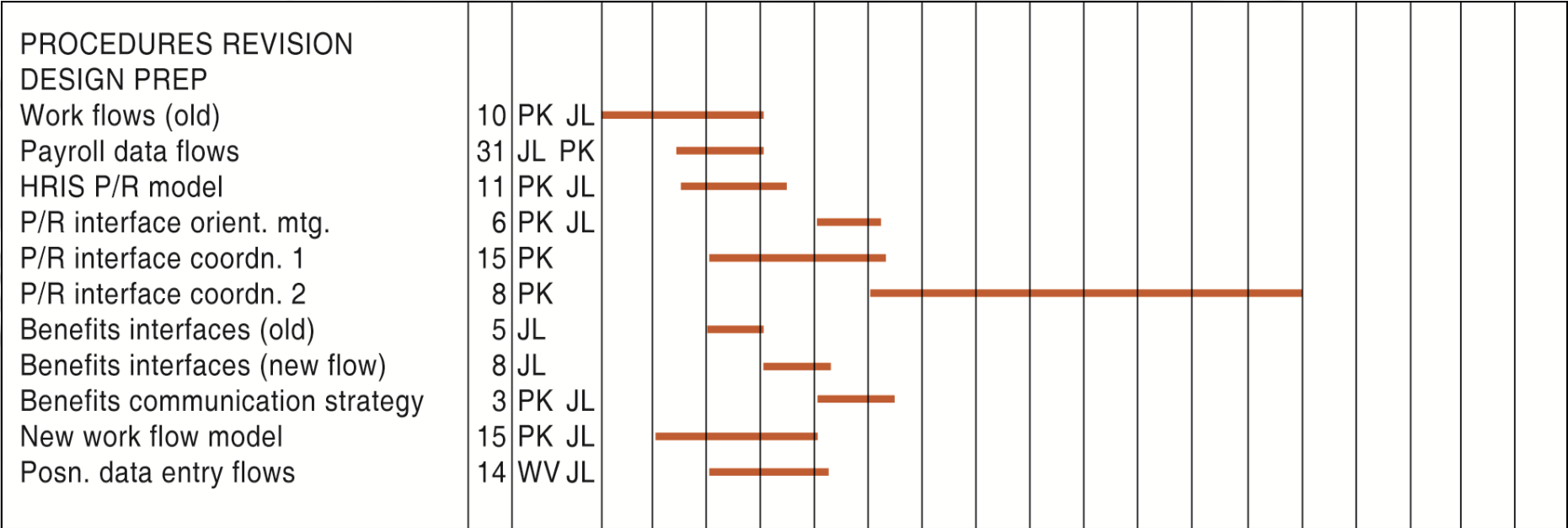
- **Formal planning and control tools**
 - Used for documenting and monitoring project plans
 - Help identify bottlenecks and impact of problems
 - **Gantt charts**
 - Visual representation of timing and duration of tasks
 - Human resource requirements of tasks
 - **PERT (program evaluation and review technique) charts**
 - Graphically depicts tasks and interrelationships
 - Indicate sequence of tasks necessary

A GANTT CHART



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.

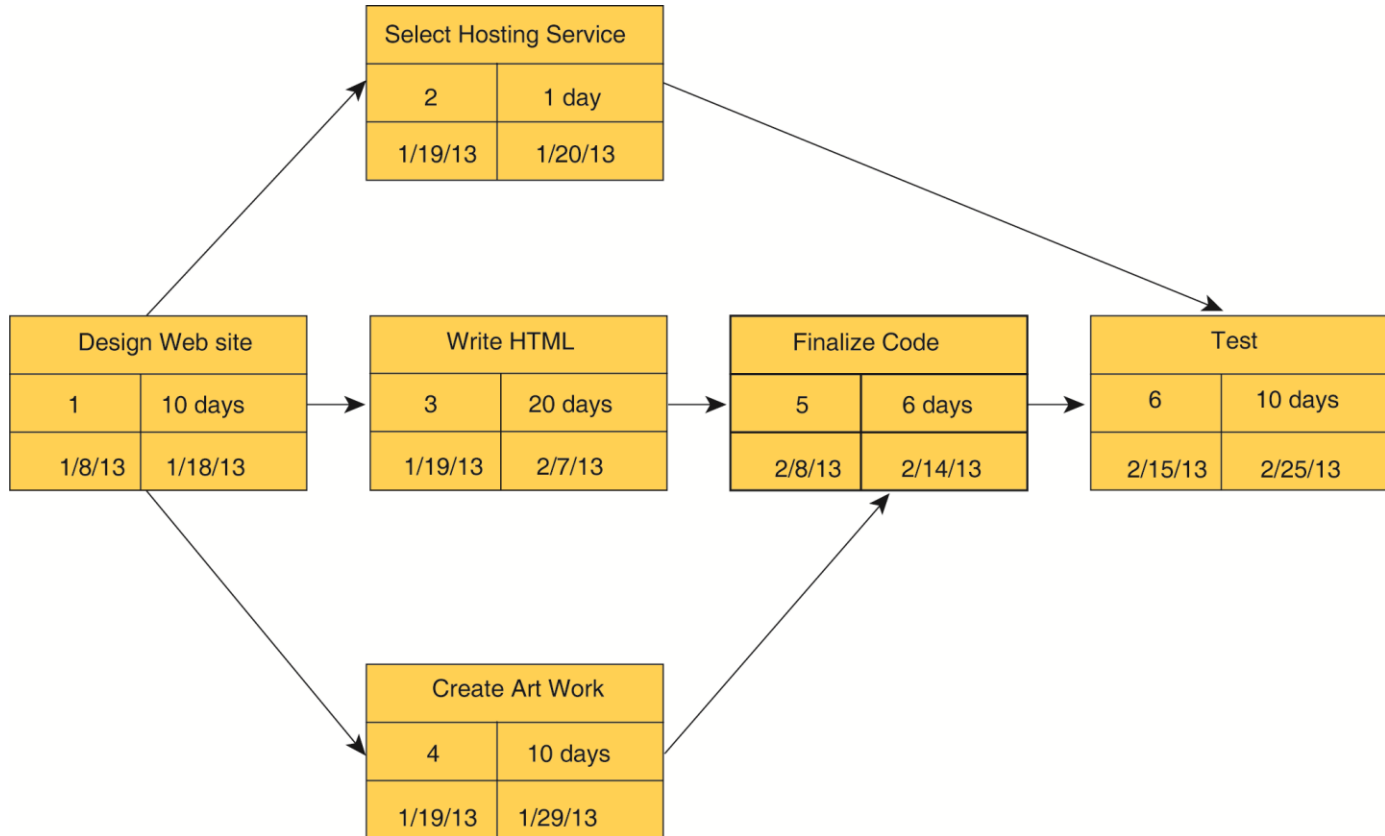
A GANTT CHART



A GANTT CHART

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

A PERT CHART



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**
 - Link work of implementation team to users at all levels
 - **User resistance to organizational change**
 - Users may believe change is detrimental to own interests
 - Counterimplementation: Deliberate strategy to thwart implementation of a system or innovation in an organization
 - For example, 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

Westinghouse Electric Takes On the Risks of a “Big Bang” Project

- Identify and discuss the risks in Westinghouse Electric’s Cornerstone project.
- Why was change management so important for this project and this company?
- What management, organization, and technology issues had to be addressed by the Westinghouse project team?
- Should other companies use a “big-bang” implementation strategy? Why or why not?

- **Designing for the organization**
 - **Need to 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

Managing Project Risk

- **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 software**
 - **Project portfolio management software**



MANAGING GLOBAL SYSTEMS

Learning Objectives

- **What major factors are driving the internationalization of business?**
- **What are the alternative strategies for developing global businesses?**
- **How can information systems support different global business strategies?**
- **What are the challenges posed by global information systems and management solutions for these challenges?**
- **What are the issues and technical alternatives to be considered when developing international information systems?**

3M: Sticky Film And Scratchy Things That Sell Around The World

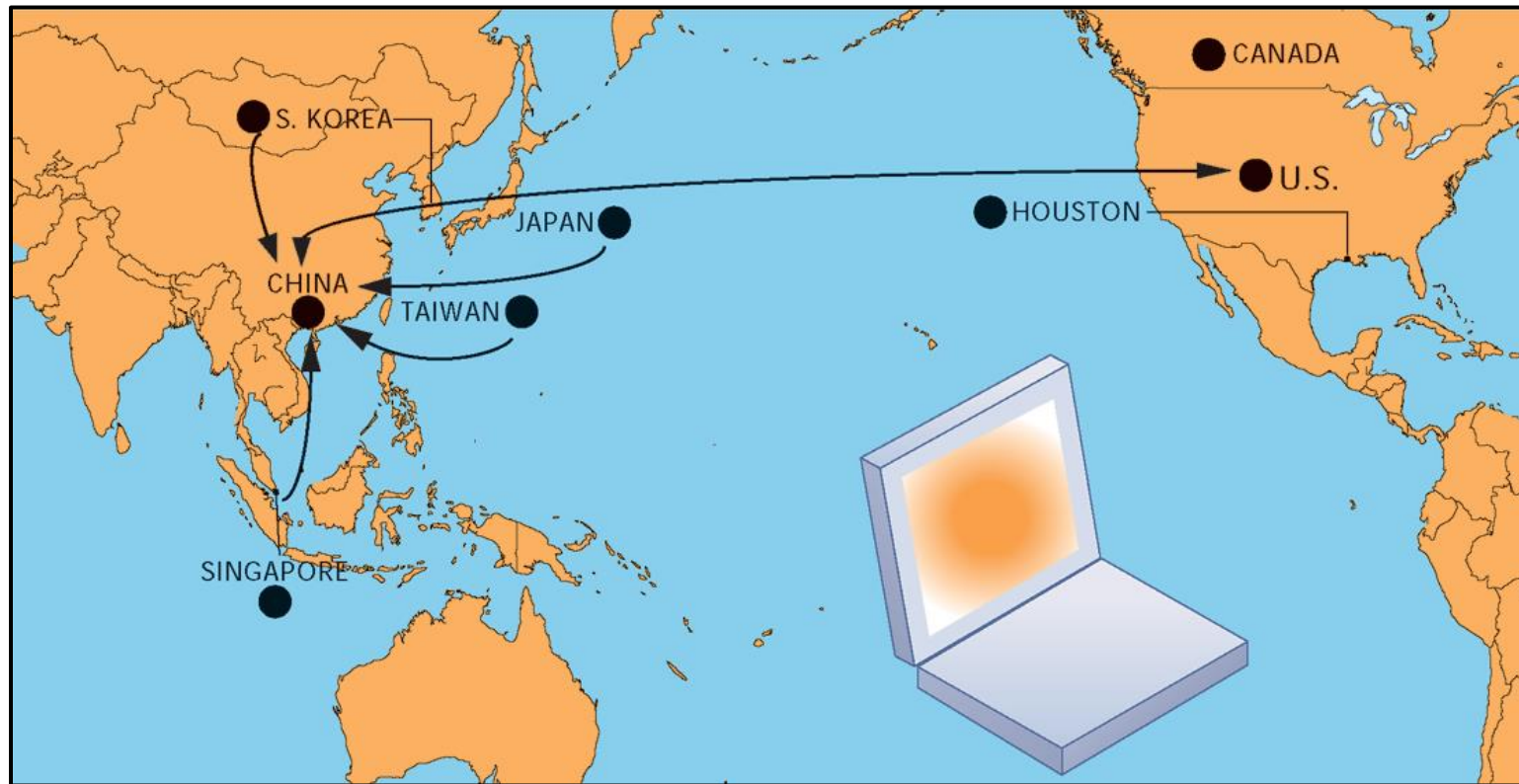
- **Problem:** 3M's many divisions and thousands of local operations use separate information systems, managers unable to access timely data
- **Solution:** SAP's Business Suite Applications to replace all legacy software around the world, rolling out the enterprise software in phased and modular stages
- **Demonstrates:** The need for global firms to have international systems for monitoring the business
- **Illustrates:** The use of enterprise software suite to minimize integration problems

The Growth of International Information Systems

- **Global economic system and global world order driven by advanced networks and information systems**
- **Growth of international trade has radically altered domestic economies around the globe**
- **For example, production of many high-end electronic products parceled out to multiple countries**
 - **E.g., Hewlett-Packard laptop computer**

The Growth of International Information Systems

AN HP LAPTOP'S PATH TO MARKET



HP and other electronics companies assign distribution and production of their products to a number of different countries.

The Growth of International Information Systems

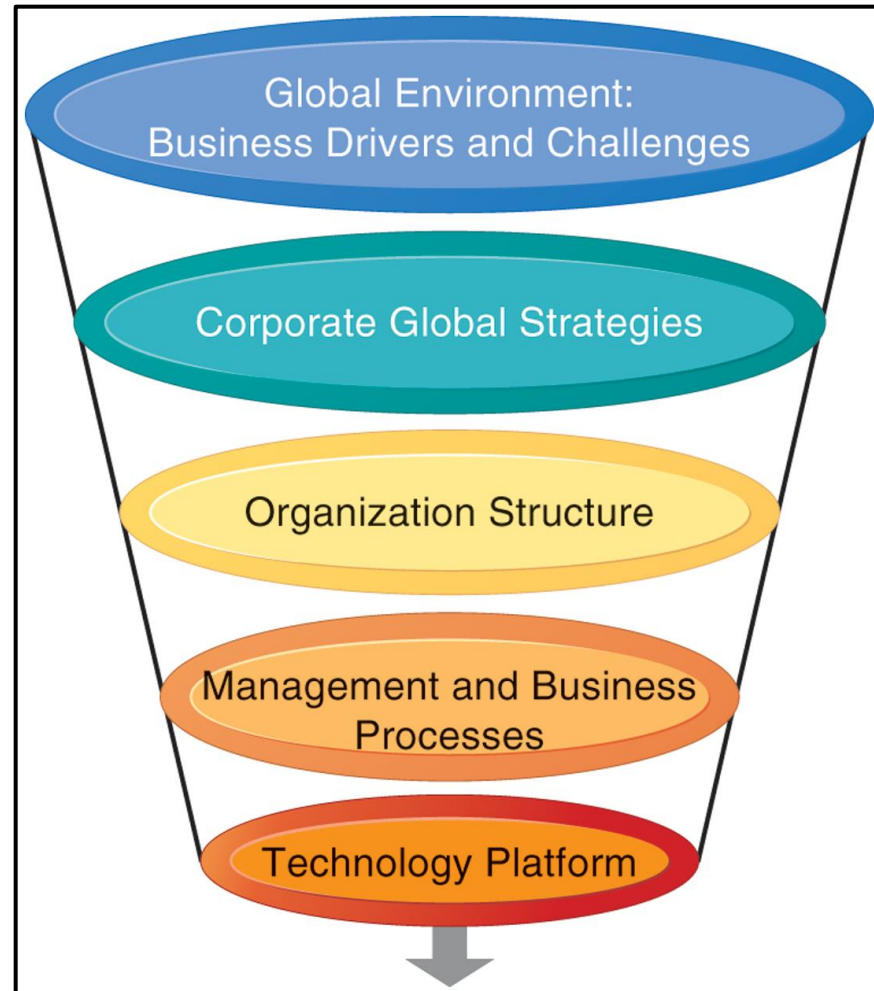
- **Strategy when building international systems**
 - 1. Understand global environment**
 - Business drivers pushing your industry toward global competition
 - Inhibitors creating management challenges
 - 2. Develop corporate strategy for competition**
 - How firm should respond to global competition
 - 3. Develop organization structure and division of labor**
 - Where will production, marketing, sales, etc., be located
 - 4. Consider management issues**
 - Design of business procedures, reengineering, managing change
 - 5. Consider technology platform**

The Growth of International Information Systems

INTERNATIONAL INFORMATION SYSTEMS

ARCHITECTURE

The major dimensions for developing an international information systems architecture are the global environment, the corporate global strategies, the structure of the organization, the management and business processes, and the technology platform.



The Growth of International Information Systems

- **Global business drivers:**
 - **General cultural factors lead toward internationalization and result in specific business globalization factors**

GENERAL CULTURAL FACTORS	SPECIFIC BUSINESS FACTORS
Global communication and transportation technologies Development of global culture Emergence of global social norms Political stability Global knowledge base	Global markets Global production and operations Global coordination Global workforce Global economies of scale

The Growth of International Information Systems

- **Challenges and obstacles to global business systems**
 - **General cultural challenges**
 - Cultural particularism
 - Regionalism, nationalism, language differences
 - Social expectations:
 - Brand-name expectations, work hours
 - Political laws
 - Transborder data flow
 - Transborder data and privacy laws, commercial regulations

The Growth of International Information Systems

- **Challenges to global business systems (cont.)**
 - **Specific challenges**
 - Standards
 - Different EDI, e-mail, telecommunication standards
 - Reliability
 - Phone networks not uniformly reliable
 - Speed
 - Different data transfer speeds, many slower than U.S.
 - Personnel
 - Shortages of skilled consultants

The Growth of International Information Systems

- **State of the art**
 - **Most companies have inherited patchwork international systems using 1960s-era batch-oriented reporting, manual entry of data from one legacy system to another, and little online control and communication**
 - **Significant difficulties in building appropriate international architectures**
 - Planning a system appropriate to firm's global strategy
 - Structuring organization of systems and business units
 - Solving implementation issues
 - Choosing right technical platform

Organizing International Information Systems

- **Global strategies and business organization**
 - **Three main kinds of organizational structure**
 - Centralized: In the home country
 - Decentralized/dispersed: To local foreign units
 - Coordinated: All units participate as equals
 - **Four main global strategies**
 - Domestic exporter
 - Multinational
 - Franchisers
 - Transnational

Organizing International Information Systems

GLOBAL BUSINESS AND STRATEGY

BUSINESS FUNCTION	DOMESTIC EXPORTER	MULTINATIONAL	FRANCHISER	TRANSNATIONAL
Production	Centralized	Dispersed	Coordinated	Coordinated
Finance/ Accounting	Centralized	Centralized	Centralized	Coordinated
Sales/ Marketing	Mixed	Dispersed	Coordinated	Coordinated
Human Resources	Centralized	Centralized	Coordinated	Coordinated
Strategic Management	Centralized	Centralized	Centralized	Coordinated

Organizing International Information Systems

- **Global systems to fit the strategy**
 - **Configuration, management, and development of systems tend to follow global strategy chosen**
 - **Four main types of systems configuration**
 1. **Centralized:** Systems development and operation occur totally at domestic home base
 2. **Duplicated:** Development occurs at home base but operations are handed over to autonomous units in foreign locations
 3. **Decentralized:** Each foreign unit designs own solutions and systems
 4. **Networked:** Development and operations occur in coordinated fashion across all units

Organizing International Information Systems

GLOBAL STRATEGY AND SYSTEMS CONFIGURATIONS

SYSTEM CONFIGURATION	Strategy			
	Domestic Exporter	Multinational	Franchiser	Transnational
Centralized	X			
Duplicated			X	
Decentralized	x	X	x	
Networked		x		X

The large Xs show the dominant patterns, and the small Xs show the emerging patterns. For instance, domestic exporters rely predominantly on centralized systems, but there is continual pressure and some development of decentralized systems in local marketing regions.

Organizing International Information Systems

- **To develop a global company and information systems support structure:**
 - 1. Organize value-adding activities along lines of comparative advantage**
 - E.g., Locate functions where they can best be performed, for least cost and maximum impact
 - 2. Develop and operate systems units at each level of corporate activity—regional, national, and international**
 - 3. Establish at world headquarters:**
 - Single office responsible for development of international systems
 - Global CIO position

Organizing International Information Systems

- **Principle management challenges in developing global systems**
 - **Agreeing on common user requirements**
 - **Introducing changes in business processes**
 - **Coordinating application development**
 - **Coordinating software releases**
 - **Encouraging local users to support global systems**

Managing Global Systems

- **Typical scenario: Disorganization on a global scale**
 - **Traditional multinational consumer-goods company based in U.S. and operating in Europe would like to expand into Asian markets**
 - **World headquarters and strategic management in U.S.**
 - Only centrally coordinated system is financial controls and reporting
 - **Separate regional, national production and marketing centers**
 - **Foreign divisions have separate IT systems**
 - **E-mail systems are incompatible**
 - **Each production facility uses different ERP system, different hardware and database platforms, etc.**

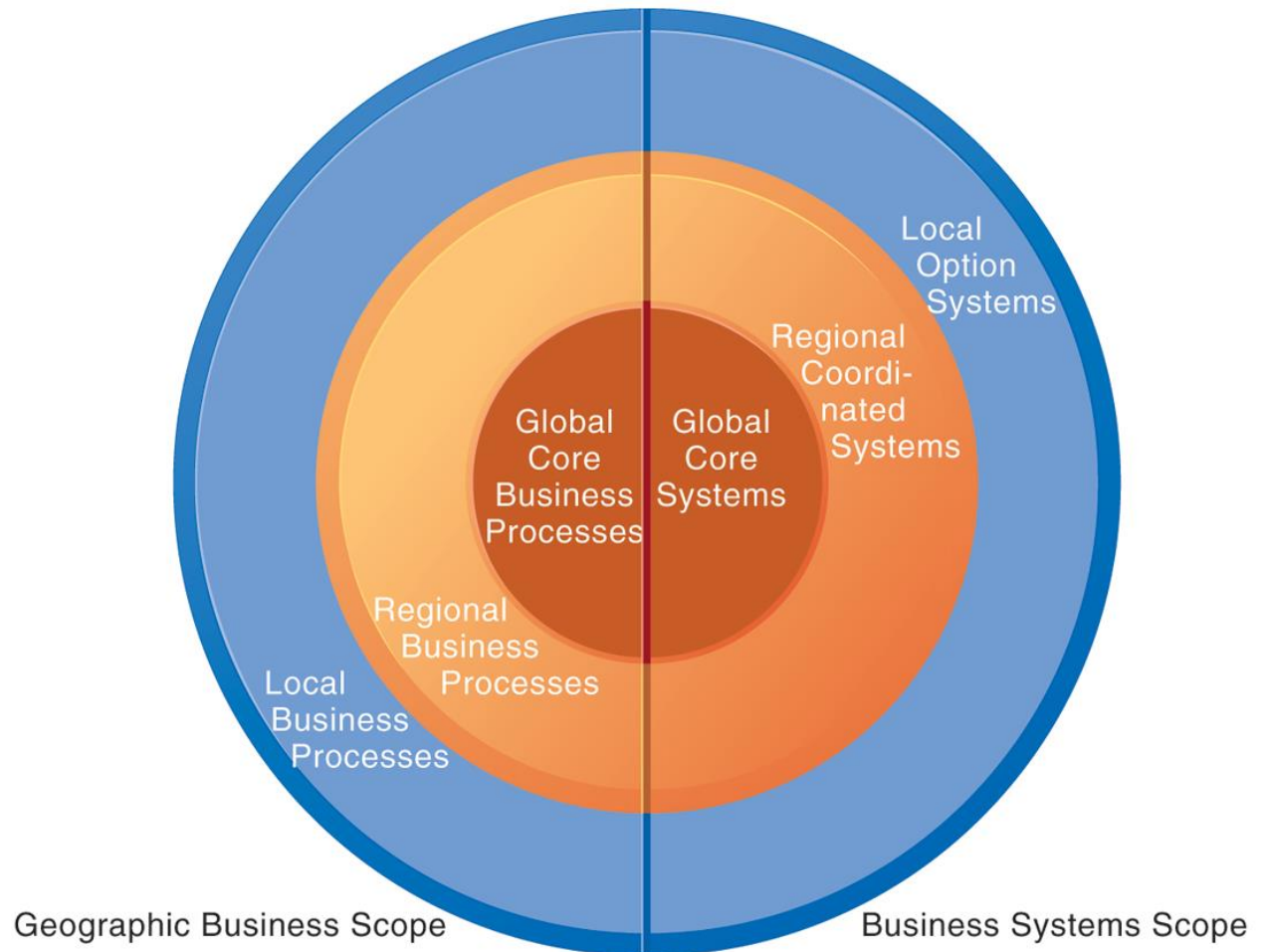
Managing Global Systems

- **Global systems strategy**
 - **Share only core systems**
 - Core systems support functionality critical to firm
 - **Partially coordinate systems that share some key elements**
 - Do not have to be totally common across national boundaries
 - Local variation desirable
 - **Peripheral systems**
 - Need to suit local requirements only

Managing Global Systems

LOCAL, REGIONAL, AND GLOBAL SYSTEMS

Agency and other coordination costs increase as the firm moves from local option systems toward regional and global systems. However, transaction costs of participating in global markets probably decrease as firms develop global systems. A sensible strategy is to reduce agency costs by developing only a few core global systems that are vital for global operations, leaving other systems in the hands of regional and local units.



Managing Global Systems

- 1. Define core business processes**
- 2. Identify core systems to coordinate centrally**
- 3. Choose an approach**
 - Piecemeal and grand design approaches tend to fail
 - Evolve transnational applications incrementally from existing applications
- 4. Make benefits clear**
 - Global flexibility
 - Gains in efficiency
 - Global markets and larger customer base unleash new economies of scale at production facilities
 - Optimizing corporate funds over much larger capital base

- **The management solution: Implementation**
 - **Agreeing on common user requirements**
 - Short list of core business processes
 - Develop common language, understanding of common elements and unique local qualities
 - **Introducing changes in business processes**
 - Success depends on legitimacy, authority, ability to involve users in change design process
 - **Coordinating applications development**
 - Coordinate change through incremental steps
 - Reduce set of transnational systems to bare minimum

FONTERRA: MANAGING THE WORLD'S MILK TRADE

- Describe the various capabilities of SAP GTS. How does using this software help Fonterra manage its export trade? What quantifiable benefits does this system provide?
- How would you characterize Fonterra's global business strategy and structure (review Table 15-3)? What kind of a global business is it? Has Fonterra's structure and strategy shaped its uses of SAP GTS? Would a transnational company choose a different solution?
- What influence does the global business environment have on firms like Fonterra, and how does that influence their choice of systems?

Managing Global Systems

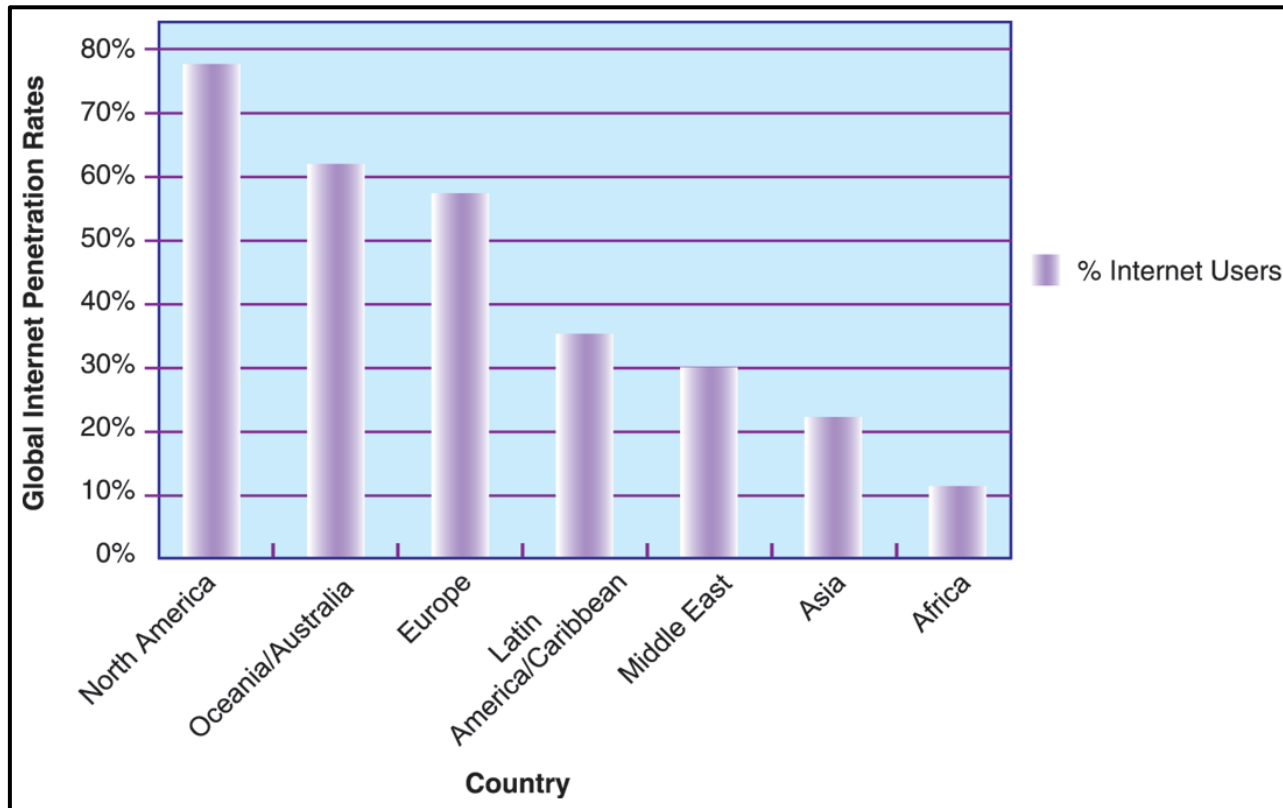
- **The management solution (cont.)**
 - **Coordinating software releases**
 - Institute procedures to ensure all operating units update at the same time
 - **Encouraging local users to support global systems**
 - Cooptation: Bringing the opposition into design and implementation process without giving up control over direction and nature of the change
 - Permit each country unit to develop one transnational application
 - Develop new transnational centers of excellence

Technology Issues and Opportunities for Global Value Chains

- **Technology challenges of global systems**
 - **Computing platforms and systems integration**
 - How new core systems will fit in with existing suite of applications developed around globe by different divisions
 - Standardization: Data standards, interfaces, software, etc.
 - **Connectivity**
 - Internet does not guarantee any level of service
 - Many firms use private networks and VPNs
 - Low penetration of PCs, outdated infrastructures in developing countries

Technology Issues and Opportunities for Global Value Chains

INTERNET PENETRATION BY REGION



The percentage of the total population using the Internet in developing countries is much smaller than in the United States and Europe, but the fastest growth is in Asia.

- **Technology challenges of global systems (cont.)**
 - **Software**
 - Integrating new systems with old
 - Human interface design issues, languages
 - Software localization: converting software to operate in second language
 - Most important software applications:
 - TPS and MIS
 - Increasingly, SCM and enterprise systems to standardize business processes
 - Applications that enhance productivity of international teams

HOW CELL PHONES SUPPORT ECONOMIC DEVELOPMENT

- **What strategies are cell phone companies using to ‘close the digital divide’ and market phones to the poorest segment of the world’s population?**
- **Why do economists predict that widespread cell phone usage in developing countries would have an unprecedented effect on the growth of those countries?**
- **What are some examples of how cell phones might increase quality of life for residents of developing countries?**
- **Do you believe that cell phones will proliferate widely through Africa and Asia? Why or why not?**

