

CIS (21-774)
C*omputer* I*nformation* S*ystems*
 in
Industrial Engineering
 Department of Industrial Engineering
 Sharif University of Technology

Session # 6



Course Description (Continued..)

- *Contents:*
- *The role of managers in Information Technology (IT)* (3 sessions)
- *Organizational Issues* (3 sessions)
- *Information Technology* (9 sessions)
- *Operational and enterprises systems* (4 sessions)
- *Exciting directions in systems* (3 sessions)
- *E-Business and E-Commerce* (3 sessions)
- *Issues for senior management* (2 sessions)

Course Description (Continued..)

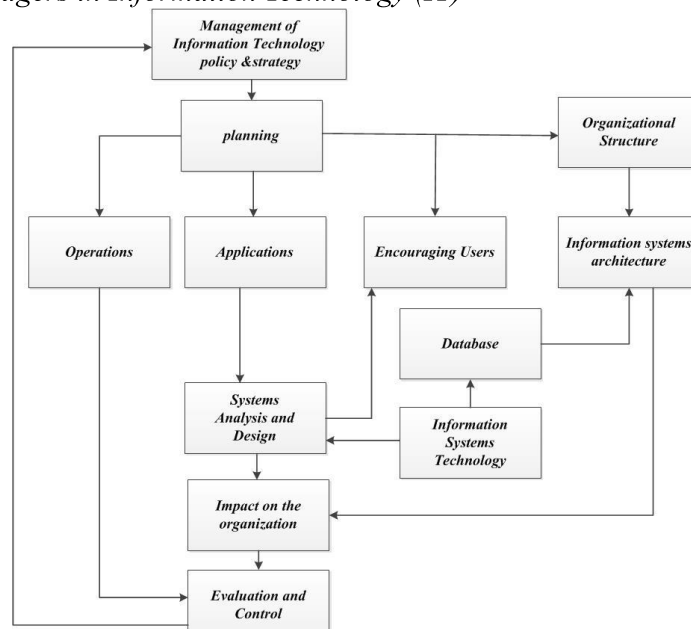
▪ Contents:

- *Organizational Issues* (3 sessions)
 - *The impact of Information Technology on the organization*
 - *Modern organization*
 - *Building a T-form organization*
 - *Strategic issues of Information Technology*
 - *Information Technology and Corporate Strategy*
 - *Integrating technology with business technology*
 - *Managing Information Technology*
 - *International business and Information Technology*
 - *The impact of globalization on business*
 - *Key issues in international environment*
 - *Managing Information Technology internationally*

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The role of managers in Information Technology (IT)



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Organizational Issues

- *The impact of Information Technology on the organization*
 - *Organizational Structure and Design*
 - *There are many factors that influence the structure and design of modern organizations.*
 - *Uncertainty*
 - *Specialization*
 - *Coordination*
 - *Interdependence*
 - *Pooled interdependence*
 - *Sequential interdependence*
 - *Reciprocal interdependence*

Organizational Issues

- *The impact of Information Technology on the organization*
 - *Organizational flexibility*
 - *A flexible organization defends quickly against threats and moves rapidly to take advantage of opportunities.*
 - *Flexibility provides the organization with the ability to adapt to change and respond quickly to market forces and uncertainty in its environment.*
 - *In general, technology speeds up the pace of work and increases the capacity of the organization to process information*

Organizational Issues

- *The impact of Information Technology on the organization*
 - *Organizational flexibility*

ORGANIZATIONAL FLEXIBILITY IN THE AIRLINE AND SECURITIES INDUSTRIES

Boundaries	Time	Nature and pace of work	Responsiveness
Airline CRS stage 1*			
Remove boundary of manual centralized processing; make reservation from anywhere	Make reservation anytime	Confirmed reservation made instantaneously	Alter schedules in response to loads
Airline CRS stage 2			
Boundary for making reservation shifts from airline to agent; airport boarding pass moved to travel agency	Extra service by agent, e.g., 24-hour assistance	Travel agent becomes more productive	Yield management programs allow instantaneous adjustment to demand for seats

Organizational Issues

- *The impact of Information Technology on the organization*
 - *Creating new types of organizations*
 - *Technology makes it possible to create new forms of organizations through the use of different design variables.*
 - *Structural*
 - *Virtual components, Linking mechanisms, Electronic linking, Technological leveling*
 - *Work Process*
 - *Production automation, Electronic workflows, Virtual components*
 - *Communications*
 - *Electronic communications, Technological matrixing*
 - *Inter-organizational relations*
 - *Electronic customer/ supplier relationships, Electronic linking*

Organizational Issues

- The impact of Information Technology on the organization
 - Creating new types of organizations

CONVENTIONAL AND IT DESIGN VARIABLES

Class of variable	Conventional design variables	IT design variables
Structural	Definition of organizational subunits	Virtual components
	Determining purpose, output of subunits	Linking mechanisms
	Reporting mechanisms	
	Linking mechanisms	Electronic linking
	Control mechanisms	
	Staffing	Technological leveling
Work process	Tasks	Production automation
	Workflows	Electronic workflows
	Dependencies	
	Output of process	
	Buffers	Virtual components

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Organizational Issues

- The impact of Information Technology on the organization
 - Creating new types of organizations
 - Technology makes it possible to create new forms of organizations through the use of different design variables.

Communications	Formal channels	Electronic communications
	Informal communications/collaboration	Technological matrixing
Interorganizational relations	Make versus buy decision	Electronic customer/supplier relationships
	Exchange of materials	Electronic customer/supplier relationships
	Communications mechanisms	Electronic linking

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- *Creating new types of organizations*

Organizational Issues

The impact of Information Technology on the organization

IT DESIGN VARIABLES AND FOUR PROTOTYPICAL ORGANIZATIONS

Organization variable	Virtual	Negotiated organizations	Traditional	Vertically integrated conglomerates
Virtual components	Substitute electronic for physical components	Substitute electronic for physical components	Use to replace isolated components	Force component onto electronic subsidiary
Electronic linking and communications	Essential part	Essential part	Optional	Essential part
Technological matrixing	Participate in matrixed group	Use for coordination	Use for various groups	Use for coordination and task forces
Technological leveling	Use to supervise remote workers and groups	NA	Use to reduce layers of management	Use to reduce layers of management
Electronic workflows	Crucial part of strategy	Crucial part of strategy	Use where applicable to restructure work	Key to coordinate work units
Production automation	NA	Communicate designs	Use where applicable	Coordinate production among work units
Electronic customer/supplier links	Used extensively	Used extensively	Potentially important	Key to operations

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Organizational Issues

- *The impact of Information Technology on the organization*
 - *Creating new types of organizations*



Mercedes Benz

egan selling utility vehicle is Mercedes more than a Explorer; it reviewers. beyond just- here suppli- weeks in ew days or Mercedes is turing. n the paint er to a sup- Wisconsin, to deliver a dashboard within a few hours.

The plant assembles cars in which other suppliers manufacture 70 percent of the components. The objective of just-in-sequence manufacturing is to dramatically reduce inventory management costs. The company contracted with IBM to develop the system for its 2 million-square-foot plant; IBM has installed enterprise resource planning software from The Baan Company.

In this example, information technology provides electronic linking and communications and ties Mercedes to its suppliers. The objective is to reduce inventory management effort and costs while maintaining scheduled production.

Organizational Issues

- *The impact of Information Technology on the organization*
 - *Building a T-form organization*
 - *The pure T-Form organization operates with the assumptions about people found in the virtual and negotiated agreement organizations, where managers base supervision on trust in employees and their self-control.*
 - *The T-Form organization is a generic model for a technologically enabled organization.*
 - *The same IT design variables can be used in a variety of ways to create very different types of organizations, all of which have some of the characteristics of the T-Form.*

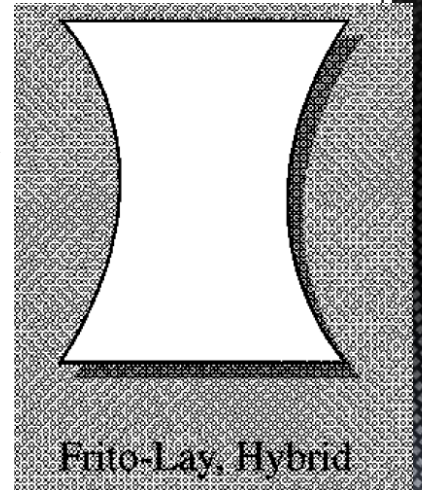
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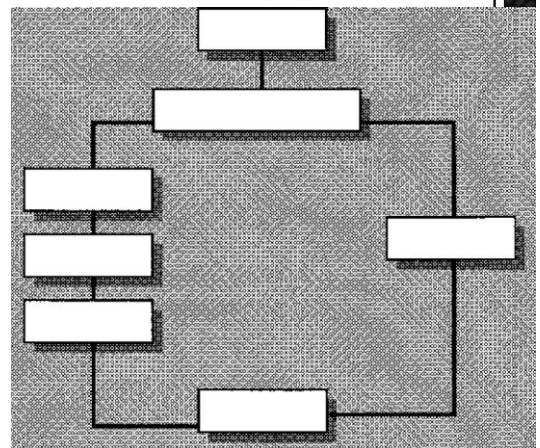
Organizational Issues

- *The impact of Information Technology on the organization*
 - *Building a T-form organization (Case study)*
 - *Frito-Lay is a major producer of snack foods like Fritos Corn Chips.*
 - *The company invested heavily in hand-held computers for its drivers and a satellite communications network to transmit transactions data to headquarters.*
 - *The firm developed a data warehouse and provided decision-support tools for district managers to use in planning their operations*



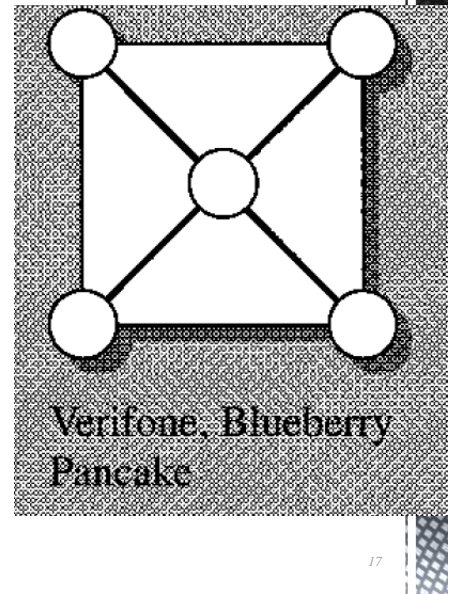
Organizational Issues

- *The impact of Information Technology on the organization*
 - *Building a T-form organization (Case study)*
 - *Mrs. Fields Cookies developed elaborate in-store systems to guide its store managers in all aspects of the business*
 - *The company uses e-mail and voice mail to communicate with the store manager.*
 - *It also has a very flat control structure with store controllers at headquarters closely monitoring sales results for each retail store*



Organizational Issues

- *The impact of Information Technology on the organization*
 - *Building a T-form organization (Case study)*
 - *VeriFone is a company that manufactures devices to verify credit card payments and is active in offering electronic commerce solutions on the Internet.*
 - *The firm views itself as a global corporation.*
 - *The chairman compares it to a "blueberry pancake where all the blueberries (locations) are equal".*
 - *Verifone uses technology extensively for communications and coordination in the firm*

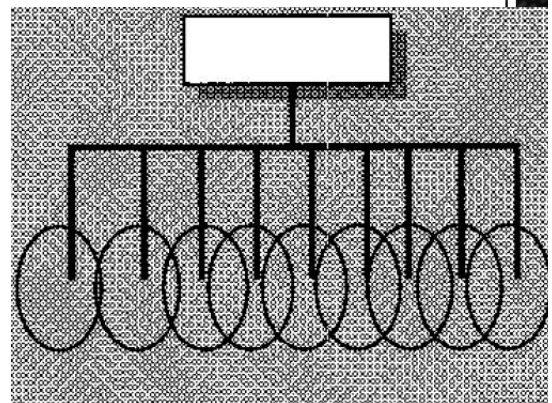


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Organizational Issues

- *The impact of Information Technology on the organization*
 - *Building a T-form organization (Case study)*
 - *Oticon is a Danish manufacturer of hearing aids that underwent a major restructuring when it lost considerable market share.*
 - *The chairman created a "spaghetti organization" in which an executive committee agrees on tasks that the firm must complete and assigns them to a team leader.*
 - *The leader must put together a team to complete the task; technology facilitates the work of these virtual teams.*



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Organizational Issues
 The impact of Information Technology on the organization
 ■ Building a T-form organization

Companies/IT design variables	Frito-Lay	Mrs. Fields	Verifone	Calyx & Carolla	Oticon
Virtual components		Presence of Mrs. Fields in each store	Extensive use of teams and alliances	Growers, FedEx, and credit card companies	Project teams
Electronic linking and communications	Extensive with route sales force, district managers, factories, distribution centers	E-mail and voice mail; PCs in stores	Extensive within company	With growers	Within firm
Technological matrixing			Global teams to solve problems		Project teams
Technological leveling	At headquarters	For store controller organization	Minimum structure and hierarchy		
Electronic workflows				With growers, credit card companies	
Production automation		In store systems			Redesign of factory
Electronic customer/supplier relationships				With growers, credit card companies	

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The role of managers in Information Technology (IT)

- HW#04
 - Adopting the T-Form: An Example
 - Study your reference book (pages 96 to 100), try to explain the different aspects of forming a T-form organization based on the design variables which have been explained in the class.
 - Describe the provided table in the book based on your own idea
 - Declare a new description for one of design variables based on your own idea
- The Home work should be sent to omidf@ie.sharif.edu till Monday, 27th of Mehr (Oct, 19th, 2013)
- Email subject: "HW04:studentnumber"

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