INTRODUCTION

- Chapter 3 explored how IT influences the design of organizational level issues, and manager's issues both physically and virtually.
- Chapter 4 looks at the impact of IS on the way work is done by individual workers.
- It explores:
  - the changing nature and design of work,
  - IT's impact on different types of workers, and
  - the rise of new work environments.

Who/What Delivers IT Value?

- IT Value is a function of people, process, and technology.
- IT Value is also a function of organizational value.

Learning Objectives

- Understand how the use of information technology impacts an organization.
- Identify the type of organizational structure that tends to be most willing to embrace technological change and sophistication.
- List the advantages and disadvantages of the networked organizational structure.
- Discuss how IT has changed the way managers monitor and evaluate performance.
- Define and explain the concept and importance of virtual organizations.
- Identify the challenges that are faced by virtual teams.
Opening Case - Comparing Cognizant and Tata

- Cognizant Technology Solutions grew fast to become a $8.84 billion revenue company providing IT outsourcing services.
- A quick growth required that they reinvent their organization - move from a cost-based to complex, relationship-based structure.
- Managers were moved to customer locations while the software engineers stayed in their original location. This led to new headaches, but Cognizant learned that some of the teams were working well.
- They changed to a new layout that enabled the company to adopt a matrix structure that utilized the best of both styles of management.

Opening Case - Comparing Cognizant and Tata (cont.)

- Tata Consultancy Services (TCS), the largest outsourcing company and software exporter in India, created a different organization structure.
- This organization focused more on New Growth Markets and Strategic Initiatives.
- Added a new layer of leaders to oversee the businesses and free up the CEO’s time to work on strategy.
- Different organizational structures reflect different organizational strategies that are used by organizations to implement their business strategies and accomplish organizational goals.

Opening Case - Comparing Cognizant and Tata (Q/A)

1. What is similar about the two firms?
   - Both are IT consulting firms but have different business strategies.
2. Why are they organized differently?
   - Cognizant’s strategy: Complex relationship-based solutions; goal was “extremely close partnerships”; needed to be responsive enough to customers. Main problem: lack of necessary information flows between software engineers and client customer service managers. Adopted a matrix structure to allow functional managers to interact with business managers.
   - Tata’s Focus: customer and revenue growth; goal was to be nimble; adopted decentralized structure heavy on markets and strategic initiatives.

IS and Organizational Design - Overview

- This chapter builds on the concepts in Chapter 1, particularly those around organizational design and organizational strategy.
- Figure 3.3 suggests how IT affects the design specifically.
- Decision rights indicate the persons designated with specific responsibilities and control. Holding these individuals accountable for results leads to greater effectiveness. Organizational design includes appropriately allocating decision rights.

INFORMATION AGE ORGANIZATIONS
This chapter builds on the managerial levers model (see chapter 1).

Optimized organizational design and management control systems support optimal business processes which reflect the firm’s values and culture.

- Three types of managerial levers: organizational, control, cultural.

### Why Organization Strategy?

**What is required?**

**Where is the business going and why?**

**How it can be delivered?**

**Business (Firm) Strategy**

**GAP**

**IS/IT Strategy**

---

### I-P-O Model

**PROCESS**

**INPUT**

(Data)

**Overall Objective:**

Improve organizational productivity and competitive advantage

**OUTPUT**

(Information)

---

### Figure 1.5 Managerial Levers

- **IT governance** can be defined as specifying decision rights and accountability framework to encourage desirable behavior in the use of IT and IT resources.

- Concept of the model is useful because: Management should not make a change unless they align multiple issues, such as processes, tasks, measures, values, incentives, etc.

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### Figure 3.3 Organizational design variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organizational variables</strong></td>
<td></td>
</tr>
<tr>
<td>Decision rights</td>
<td>The authority to initiate, approve, implement, and control various types of decisions necessary to plan and run the business.</td>
</tr>
<tr>
<td>Business processes</td>
<td>The set of ordered tasks needed to complete key objectives of the business.</td>
</tr>
<tr>
<td>Formal reporting relationships</td>
<td>The structure set up to ensure coordination among all units within the organization.</td>
</tr>
<tr>
<td>Informal networks</td>
<td>Mechanism, such as ad hoc groups, which work to coordinate and transfer information outside the formal reporting relationships.</td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
</tr>
<tr>
<td>Data</td>
<td>The facts collected, stored, and used by the organization.</td>
</tr>
<tr>
<td>Planning</td>
<td>The processes by which future direction is established, communicated, and implemented.</td>
</tr>
<tr>
<td>Performance measurement and evaluation</td>
<td>The set of measures that are used to assess success in the execution of plans and the processes by which such measures are used to improve the quality of work.</td>
</tr>
<tr>
<td>Incentives</td>
<td>The monetary and non-monetary devices used to motivate behavior within an organization.</td>
</tr>
<tr>
<td><strong>Cultural variables</strong></td>
<td></td>
</tr>
<tr>
<td>Values</td>
<td>The set of implicit and explicit beliefs that underlie decisions made and actions taken, reflects aspirations about the way things should be done</td>
</tr>
<tr>
<td>Loyalty</td>
<td>The extent of the culture, i.e., local, national, regional</td>
</tr>
</tbody>
</table>

---

### Question

At Zara, decision rights for ordering have been granted to whom?

a) Regional managers  
b) Headquarters  
c) Store managers  
d) Central production  
e) The commercial team

Ans: **C** (Why?)

By giving store managers the decision rights for ordering, Zara store managers can place orders that reflect the tastes and preferences of customers in their localized area.

IT used: Handheld devices are linked directly to the company’s design rooms in Spain.
Zara’s store managers place orders that reflect their localized needs. However, order fulfillment is ultimately the responsibility of the commercial team in headquarters because:

a) Store managers have no real decision rights.
b) The commercial team does not trust the store managers.
c) Store managers do not have visibility into regional (consolidated) demands but the commercial team does.
d) The commercial team has more direct contact with the designers and production.
e) Store managers have no access to sales information for their store.

Ans: C

Decision Rights

• Who in the organization has the responsibility to initiate, supply information, approve, implement, and control various types of decisions.

• Ideally the person with the most information and in the best position should have these rights. (i.e. senior leaders).

• Organizational design focus on making sure that decision rights are properly allocated.

• Zara - decision rights moved to the store managers, providing for quicker responses to their local customer base.

Organizational Design

• Different designs accomplish different goals

• *Decision rights* will differ according to the design

• Different reporting relationships and organizational structure will allocate decision rights in different ways

• Four major organizational designs are:
  – Hierarchical
  – Flat
  – Matrix
  – Networked

Hierarchical Organizational Structure

• Orders go down and information goes up
  – IT provides communication/memory in both directions
  – Also known as a bureaucracy
  – First observed by Max Weber in the Catholic Church and German army and applied to early factories and offices

• Features include
  • Unity of command (one boss for each person)
  • Span of control (measures the number of subordinates for each boss)
  • Clear lines of authority and reporting duties

Flat Organizational Structure

• Also known as horizontal organizational structure

• Features:
  – Decentralized decision making
  – Less well-defined chain of command
  – Less clear decision rights
  – Few middle managers

• IT glues together the organization

• IT allows rapid response; supports internal communications

Matrix Organization

• Assigns employees to two or more supervisors to integrate multiple dimensions of a firm

• Features:
  – Work is organized into small work teams
  – Allows organizations to concentrate on functions and purpose
  – IT reduces operating complexity and expense by allowing information to be easily shared among different managerial functions

• Shortcomings:
  – Sometimes frustrating and confusing
  – Require frequent meetings
  – Information overload
**Networked Organizational Structure**
- Feel flat yet hierarchical
- Work well in dynamic, unstable environments
- Features:
  - Highly decentralized decision rights
  - Information systems replace hierarchical controls
  - Formal and informal communication networks connect everyone
  - Promote creativity and flexibility while maintaining operational process control
- Extensive use of communication technologies and networks:
  - Allows coordination across functional boundaries
  - Enables quick and more accurate decision making

**Fig. 3.4 - Comparison of Organizational Structures**

<table>
<thead>
<tr>
<th>Description</th>
<th>Hierarchical</th>
<th>Flat</th>
<th>Matrix</th>
<th>Networked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bureaucratic/defined levels of management</td>
<td>Decision-making pushed down to lowest level</td>
<td>Workers assigned to 2 or more supervisors</td>
<td>Formal/informal communication networks that connect all</td>
<td></td>
</tr>
<tr>
<td>Characteristics</td>
<td>Division of labor specialization, unity of command</td>
<td>Internal roles; often small, young organizations</td>
<td>Dual reporting based on function/purpose</td>
<td>Known for flexibility and adaptability</td>
</tr>
<tr>
<td>Type of Environment Best Supported</td>
<td>Stable</td>
<td>Dynamic/uncertain</td>
<td>Dynamic/uncertain</td>
<td>Dynamic/uncertain</td>
</tr>
<tr>
<td>Basis of Structuring</td>
<td>Primary functional</td>
<td>Very loose</td>
<td>Functions and purpose</td>
<td>Networks</td>
</tr>
<tr>
<td>Power Structure</td>
<td>Centralized</td>
<td>Decentralized</td>
<td>Distributed</td>
<td>Distributed</td>
</tr>
<tr>
<td>Key Tech. Supporting this</td>
<td>Mainframe/centralized data and processing</td>
<td>PCs</td>
<td>Networks</td>
<td>Intranet and Internet</td>
</tr>
</tbody>
</table>

**Emerging Organizational Forms**
- **Hybrid structure** (differs throughout the organization)
- New forms are beginning to emerge:
  - Adaptive Organization
  - Zero-Time Organization
  - an organization designed around responding instantly to customers, employees, suppliers, and other stakeholder demands
  - Elastic Enterprise: platform disruption
  - e.g., IT department: hierarchical, information flow from top to down; R&D: networked, all researchers may be connected to one another
- What is common among those?
  - Flexible, agile, responsive configurations over time
  - React to changing needs
  - Use of IT and networks to enable these configurations

**New Options - Social Network**
- Computer and information technologies facilitate **collaboration** across distances, **social networks** and **virtual communities** are formed.
- **Social network** is an **IT-enabled** network that links individuals together in ways that enables them to
  - find experts,
  - get to know colleagues,
  - see who has relevant experience for projects across functions and geography

**INFORMATION SYSTEMS AND ORGANIZATION DESIGN/TRANSFORMATION**
What is Organization Transformation?

• Organization transformation is a comprehensive organization-wide change initiative that results in change in the “deep structure” of the firm, **radically** altering strategy, structure, systems, processes, human resource requirements, and core values and beliefs.

• With the overall change initiative resulted in radical change, the implementation process proceeded through overlapping episodes of **incremental** and **radical** change consistent with the change process.

  -- Business Process Reengineering (BPR)

Dilemma in Organization Design

<table>
<thead>
<tr>
<th>Complex</th>
<th>Simple</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hierarchy</strong> (Centralized Control)</td>
<td><strong>Entrepreneurial</strong> (Autonomy/Decentralized)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stable</th>
<th>Environment</th>
<th>Dynamic</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certain</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The IT Design Challenge Parallels the Organization Design Challenge

<table>
<thead>
<tr>
<th>Complex</th>
<th>Simple</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mainframe</strong> (Centralized Intelligence)</td>
<td><strong>Microcomputer</strong> (Decentralized Intelligence)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stabe</th>
<th>Environment</th>
<th>Dynamic</th>
<th>Uncertain</th>
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</thead>
<tbody>
<tr>
<td>Certain</td>
<td></td>
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</tbody>
</table>

The Emerging Information Age Organization

<table>
<thead>
<tr>
<th>Complex</th>
<th>Simple</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hierarchy</strong></td>
<td><strong>Entrepreneurial</strong></td>
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</tbody>
</table>

Transitions in Organization Design

• From Control to **Learning**
  -- Promote flexibility, creativity, and learning while continuing to enable tight control of operating process

• From Autonomy to **Collaboration / Co-operation**
  -- Line managers are empowered to make decisions
  -- Timely, quality **distributed information** and new **communication technologies** (e.g., video conferencing) are important factors that are enabling dramatic changes in organization redesign.

The Organization Design Challenge

• **Hierarchy**: centralized intelligence control
  -- complex organization in stable environment
  -- mainframe

• **Entrepreneurial**: autonomy decentralized intelligence
  -- simple organization in dynamic environment
  -- microcomputer

• **Information/K. Age** distributed intelligence collaboration
  -- complex organization in dynamic environment
  -- networked IT architecture
  -- flat, fast, flexible and focused on areas of core competency
The Organization Design Challenge

- **Hierarchy**
  - centralized intelligence control
  - complex organization in stable environment
  - mainframe

- **Entrepreneurial**
  - autonomy decentralized intelligence
  - simple organization in dynamic environment
  - microcomputer

- **Information/K. Age**
  - distributed intelligence
  - collaboration/Co-operation
  - complex organization in dynamic environment
  - networked IT architecture
  - flat, fast, flexible and focused on areas of core competency

Lessons of the Information Age

- **Organization Design**
  - **Speeds** counts, but not at the expense of control.
  - **Empowerment** is not anarchy.
  - Transforming an organization requires more than just changing the structure.
    - Maximizing flexibility, innovation, and control.
    - Maximizing independence and interdependence: collaboration, the missing organization design criterion.
    - Organization transformation needs a comprehensive organization-wide change initiative that results in change in the “deep structure” of the firm, radially altering strategy, structure, systems, processes, human resource requirements, and core values and beliefs.

Formal Reporting Relationships and Organization Structures

- Organization structure is the way of designing an organization so that decision rights are correctly allocated.
- The structure of reporting relationships typically reflects the flow of communication and decision making throughout the organization.
- Traditional organizations are hierarchical, flat or matrix. (Fig. 3.4).
- The networked structure is a newer organizational form.

- **Social networks and virtual communities.**

Management Functions/Control and IT

- IT changes the way managers:
  - **Monitor**: new ways to track performance and behavior
  - **Evaluate**: easier to understand progress and performance
  - **Provide Feedback**: rapid feedback possible
  - **Compensate & Reward**: team-based efforts can be evaluated and complex formulas used
  - **Control Processes**: easier to
    - Collect data
    - Analyze
    - Communicate results

INFORMATION SYSTEMS AND CULTURE

INFORMATION SYSTEMS AND MANAGEMENT CONTROL SYSTEMS

INFORMATION SYSTEMS AND CULTURE
**CULTURE**

- Culture is the third managerial lever (Fig. 1.5).
- It is defined as a shared "set of values and beliefs" about what is desirable and undesirable in a community of people (also see TAM model in chapter 4).
- Culture is not static but always changing.
- IT supports cross-cultural communication
  - People need to be aware of cultural differences when communicating.
- Culture should be considered as the most important organizational strategic resources for improving its competitive advantage as it is non-imitatable.

**Data and Information Systems**

- IS can streamline data collection through monitoring.
- IS can provide analysis tools for that data.
- Types of data include
  - Keystrokes
  - How long each task takes
  - Who is contacted during the task
  - Specific data passing through the process.
- Large data stores can be created.
- Behavioral issues can result
  - Stress from monitoring, especially if it seems not to fit the task
  - Deliberate delaying, distorting or falsifying collected data
  - Employees should know what is collected and how it is used.

**Performance Measurement, Evaluation, and IS**

- Analytics tools have proliferated, perhaps leading to information overload.
- Often it is less threatening/more welcomed to provide feedback for performance improvement than for rewards/compensation.
- Incentives and goals need to be carefully administered
  - Reward for short call duration? You’ll get short calls and perhaps unhappy customers.
  - Reward for customer satisfaction? You’ll get happier customers but perhaps calls that are significantly longer than necessary.
  - Be careful with incentives; you will get what you reward.
- IS can easily apply complex formulas and track performance
  - Multi-dimensional goals (e.g., 50% on efficiency + 50% on satisfaction).
  - If most work is done on teams, team performance needs to be added.

**Impacts of Culture on IT**

- Culture plays an increasingly important role in IS development and use.
  - because IS management and use are complicated by human factors, it is important to consider culture’s impact.
- Culture is a “collective programming of the mind” involving “shared values and beliefs.”
- Culture can:
  - Color the development of IS
  - Lead to differing perceptions and approaches to IS development
  - Influence technology adoption/diffusion
  - Influence system use and outcomes
  - Impact management practices.

**Layers of Culture**

1. Observable artifacts – most visible layer
   - For example, dress, acronyms, awards, stories, rituals.
2. Espoused values: explicitly stated preferred values
   - For example: “we have a good work-life balance”.
3. Enacted values: reflected in actual behavior, sometimes inconsistent with espoused values
   - For example “we have a good work-life balance” but require 12-hour work days plus weekends.
4. Assumptions – deepest layer – unobservable; taken for granted
   - For example, “respect the customer.”

**Levels of Culture and IT**

- In business, culture is often applied at the following levels:
  - Nations
  - Organizations
  - Work groups.
- Sometimes IS developers and clients can have a clash in culture.
  - Clients might want fast turnaround and convenience.
  - Developers might want slower, more deliberate approach, for stability and control.
- Figure 3.5 and describe the model for the impact culture of on IT issues.
Figure 3.5 Levels of culture

Figure 3.6 - National cultural dimensions: GLOBE Cultural Dimensions

Organizational Culture and Information Technology Management

- Differences in culture result in differences in the use and outcomes of IT.
- At the organizational level, cultural values are often related to satisfied users, successful IS implementations, or knowledge management success.
- Culture affects planning, governance, and perceptions of service quality at the national and organizational levels.
  - Having planning cultures at the top levels, signal that strategic systems investment is important.

How are IT and Culture Linked?

- IT supports cross-cultural communication
- People need to be aware of cultural differences when communicating
- This awareness will lead to: (i.e., without awareness of cultural differences, it is unlikely that IS will be developed or used effectively)
  - Better listening and understanding (correctly framed messages)
  - Searching for a solution that will be accepted widely
  - Reduced conflict

Application to IS Training Investments

- Peretz & Rosenblatt found that cultural dimensions impact training.
- Higher training investments were found by firms in countries with:
  - Low power distance (Germanic countries, Anglo-American countries, Netherlands, Israel)
  - Future orientation (some Asian countries)
  - High uncertainty avoidance (some Hispanic countries, Japan, South Korea, Israel, Russia)
- Lower investments were found in firms from countries with
  - High power distance (some Asian, Latin American, and Middle Eastern countries)
  - Why? Perhaps to maintain power differences
  - Short-term orientation (some Anglo-American countries)
  - Low uncertainty avoidance (the UK, Ireland, Hong Kong, and Singapore)

SUMMARY
Conclusions

- The power of IS department now and the future will come from leadership, influence and capability - and less from control.
- The measure of success of the IS will no longer be numbers of people but contributions to the business - quality, speed, products/services, and innovation.
- The roadblock to competitive advantage generally is not technology, but implementation - with people.
- Successful implementation requires working closely with line people. Thus IS departments need to establish better relationships with outside organizations, senior management, and users.

End of Chapter 3