Today’s Lecture

- Introduction
- Where is the IS Organization headed?
- The CIO’s Responsibilities

Introduction

- Management of IT has changed drastically in the past 50 years
- Early days = manage the technology:
  - Get it to work
  - Keep it running
  - Reduce cost of doing business
- Then = manage the information resources
  - Support (management) decision making
    - Delivering information when and where it was needed
- Now = IT is pervasive and is a mandatory link between enterprises

Where Is The IS Organization Headed?

- The Escalating Benefits of Information Technology
  - Kenneth Primozic, Edward Primozic, and Joe Leben introduce the notion of “Waves of Innovation” which they define as how IT is used by industries and enterprises.
- There are five Waves of Innovation (Figure 2-1):
  5. Reaching the consumer
  4. Enhancing executive decision making
  3. Enhancing products and services
  2. Leveraging investments
  1. Reducing cost

Where Is the IS Organization Headed?

Escalating Benefits of IT

Waves of Innovation
- Below the line (Saving $)

- Wave 1: Reducing costs
  - Began in the ‘60s
  - Focused on increasing the productivity of individuals and business areas by e.g. automating manual processes

- Wave 2: Leveraging Investments
  - Began in the ‘70s
  - Concentrated on more effective use of corporate assets
  - Systems justified on ROI, cash flow etc.

Waves of Innovation
- Above the line (Making $)

- Wave 3: Enhancing Products & Services
  - Began in the ‘80s
  - Attention shifted to using IT to produce revenue by gaining strategic advantage or creating entirely new businesses

- Wave 4: Enhancing Executive Decision Making
  - Began in the late ‘80s
  - Changed fundamental structure of organizations
  - Created real-time business management systems

Waves 1 & 2 = could be done at ‘any time’ (and are still being done!)

Waves 3 & 4 = must be implemented once an industry leader has set a precedent
  - Companies that don’t do = cease to be competitive

Waves of Innovation
- Above the line (Making $) cont.

- Wave 5: Reaching the Consumer
  - Began in the ‘90s
  - Uses IT to communicate directly with consumers leading to new:
    - Marketing
    - Distribution, and
    - Service strategies
  - Changes the rules of competition

- Management must be involved in guiding IT use once you ‘cross the line’
  - Management must steer the company in the new (evolved) business environment

The SABRE system (American Airlines)

Case example: ‘Waves of Innovation’

- Waves 1 and 2
  - SABRE built to reduce costs of making airline seat reservations

- Wave 3
  - System expanded so it could be used directly by travel agents

- Wave 4
  - System expanded to include hotels and rental cars through alliances with these suppliers

The SABRE system (American Airlines)
Case example: ‘Waves of Innovation’ cont.

- Wave 5
  - American extended their reach to the consumer:
    - Introduced EAASY SABRE that enabled consumers direct access from their PCs
    - AAdvantage – frequent flyer program
    - Enhanced their Wave 5 connections to consumers via the Web (and mobiles?)
    - Targeted its most profitable customers = Frequent Flyers
  - Marketing strategy including ‘distressed inventory’ (the unsold seats)
  - Note: this example also illustrates that as the benefits of IT increase, the importance of executive guidance also increases

Traditional Functions Are Being Nibbled Away

- IT has become an essential piece of business strategy
- Not keeping up in IT may even mean going out of business
- The job has become too large for one group
- While the growing importance of IT is causing the IS Department’s work to expand into new areas of responsibility, management is realizing that the traditional and more operational portions of the job do not have to be performed by the IS department
The traditional set of responsibilities for IS has included:
1. Managing operations of data centers, remote systems, and networks
2. Managing corporate data
3. Performing systems analysis and design, and constructing new systems
4. Systems planning
5. Identifying opportunities for new systems

The traditional functions still need to be performed but the following trends are moving their performance out of the IS department and into other parts of the organization or to other enterprises:
1. Distributed systems
   - Software applications migrating to user areas
2. Ever more knowledgeable users have taken on increased IS responsibilities
3. Better application packages
   - Less need for ‘armies’ of programmers, analysts etc.
4. Outsourcing

Another way to look at it: IS is not a single monolithic organization, but rather a cluster of four functions (Fig. 2-3):
1. Run operations
2. Develop systems
3. Develop architecture
4. Identify business requirements

The ‘Squeeze’ on Traditional IS Activities (Figure 2-4):
- Growing External Services
- Growing Capabilities of Users

‘Future’ Roles for IS (Figure 2-5):
- Broker
- Systems and Information Architecture

IS started ‘centralised’ and evolved into a ‘federal model’:
- Some things (standards, operations) = centralised
- Others (application development) = dispersed locally to best meet local needs

To make the federal model work better, companies are shifting attention from roles to processes

The IS department can be viewed as managing three overall processes (Figure 2-6):
- Driving innovation
- Managing change
- Supporting infrastructure

In line with the evolution of IS departments, the emphasis of the top job has changed

Today the cost emphasis remains
- Outsourcing continues to grow (amid controversy)
- CIOs are expected to do much more with not much more $$

Also = under pressure:
- To implement protective measures
- New financial reporting
- Keep the IT innovations coming!!
CIO Responsibilities — History cont.

- The Mainframe Era
  - Predominated 1960s – early ’80s
  - Role of DP / IS Manager = operational manager of a specialist function

- Distributed Era
  - End of ’70s as PCs became commonplace
  - LANS and WANS linking computers
  - Took on 4 more roles:
    • Organizational Designer
    • Technology Advisor
    • Technology Architect
    • Informed Buyer

CIO Responsibilities — History cont.

- The Web Era
  - Started in the mid-1990s for some
  - Arose from the emergence of the Internet, and esp. the Web as a business tool
  - Era is still in its ‘infancy’ but add to the CIO’s ‘job’ the role of business visionary

Four Aspects of the CIO role

1. Leading: Creating a vision by understanding the business
2. Governing: Establishing an IS Governance structure
3. Investing: Shaping the IT portfolio
4. Managing: Fostering change

1. Leading: Creating a Vision by Understanding the Business

- There are seven approaches CIOs are using to understand the business and its environment:
  1. Encourage project teams to study the marketplace
  2. Concentrate on lines of business
  3. Sponsor weekly briefings
  4. Attend industry meetings with line executives
  5. Read industry publications
  6. Hold informal listening sessions
  7. Become a “partner” with a line executive

1.A Understand the Business: Encourage Project Teams to Study the Marketplace

- Gather the following information about the company and its industry:
  - Current industry environment
  - Business goals and objectives
  - Major practices of competitors
  - Pertinent government regulations
  - The inputs, outputs, and resources of the firm

1.B Understand the Business: Concentrate on Lines of Business

- It is recommended to ask the following questions about each line of business:
  1. Are we organized to serve that line of business?
  2. Do we have an account manager in IS who has responsibility for that line of business?
  3. Do we have someone within that line of business who oversees IT activity and talks the business language?
  4. Do we have a sponsor in the line of business?
  5. Do we have the attention of their management?
  6. Does the line of business offer an opportunity to use systems in new ways?
1.C Understand the Business: 
Sponsor Weekly Briefings
- To understand the business, one needs to understand the marketplace
- By sponsoring short presentations by the people closest to a business, IS management can help fix the problem of employees not being given exposure to the marketplace without cutting into working time too greatly

1.D Understand the Business: 
Attend Industry Meetings with Line Executives
- Attending meetings with a line executive can be even more enlightening because he or she can explain what the company is or is not doing in areas discussed by the speakers
- It is also likely to foster new friendships

1.E Understand the Business: 
Read Industry Publications
- News publications provide information on new products, current issues, company changes, and so on
- They provide better analyses of industry trends, discussions of ongoing research, and projections about the future

1.F Understand the Business: 
Hold Informal Listening Sessions
- Employees learn a lot by listening to each other’s needs
- Meetings are held in a setting that is not charged with tension, participation is voluntary, and their purpose is to “just chat”

1.G Understand the Business: 
Partner with a Line Executive
- The Society for Information Management presents an award each year to honor an IS executive business team who have achieved significant business results through their alliance
- It reinforces partnering which is needed to successfully guide and deploy IT today

1.2 Leading: Creating a Vision of the Future and Selling It
- IS executives are no longer reactive, providing only support
- They manage some of the most important tools for influencing the firm’s future
- They are becoming more “proactive” by helping to create a vision of the firm’s future and its use of IT and selling those ideas to others
1.2 Leading: Creating a Vision of the Future and Selling It:

What is a Vision?

- It is a statement of how someone wants the future to be or believes it will be.
- “We will put a man on the moon and return him safely to earth, by the end of the decade” – JFK, early 1960s.
- Beath and Ives present several corporate visions, e.g.:
  - Otis Elevator
    - “Any salesperson can completely order an elevator in a day.”
  - Rittenhouse Homes
    - “Customers can get a house designed and built from a retail store.”
- Once a vision is in hand, then a strategy can be formulated on how to bring the vision into being.

Why develop a Vision?

- A vision of a desirable future can provide stability when it sets a direction for an organization.
- Today most corporate visions have an IT underpinning – leveraging the Internet for business purposes.
- That vision sets their direction.

1.2 Leading: Creating a Vision of the Future and Selling It:

Encouraging Champions of IT Projects

- A champion is someone with a vision who gets it implemented by obtaining the funding, pushing the project over hurdles, putting his or her reputation on the line, and taking the risk of the project.
- The first step in encouraging champions is to find them (they can’t be “appointed”).
  - They are opinion leaders, and they have a reputation for creative ideas or being involved with innovations.
  - They have developed strong ties to others in their organization, and they command respect within the firm.
  - They have the organizational power to get strategic innovations implemented.

Encouraging Champions of IT Projects cont.

- Information systems champions need three things from IS Management:
  1. They Need Information:
    - Champions need information, facts, and expertise for persuading others that the technology will work.
    - Information systems people can help them find the information they are lacking.
  2. They Need Resources:
    - Giving champions “free” staff time is especially helpful during the evaluation and persuading portions of a project.
    - Champions are likely to need material resources, such as hardware and software.
  3. They Need Support:
    - Champions need people who approve of what they are doing and give legitimacy to their projects.

2. Governing:

Establishing an IS Governance Structure

- The term ‘Governance’ has become prominent in all areas of business including IT.
- IT Governance:
  - “The assignment of decision rights and the accountability framework to encourage desirable behavior in the use of IT.”
- Governance differs from management in that:
  - Governance is about deciding who makes decisions whereas management is about making decisions once decision rights have been assigned.
2. Governing:
Establishing an IS Governance Structure cont.
- ‘Governance’ has become more important in the IS world because IT expenditures have become so large and diverse that management has had to find a way to bring order to all the decision making
- Centralizing all IT decisions is not a solution
  - All business units and local employees need a voice in the decisions to tailor their business to the local culture and customers
  - Striking such a balance is a major IS emphasis

Assigning Decision Rights (Figure 2-9)
- Six governance styles (the rows)
  1. A business monarchy is where C-level executives (CIO, ..) hold the right to make decisions
  2. IT monarchy is where IT executives hold the right to make decisions
  3. Feudal is where business unit leaders (or delegates) have decision or input rights
  4. Federal means that the rights are shared by C-level executives and one other tier of the business hierarchy
  5. A duopoly is where one IT group and one business group share a right
  6. Anarchy is where individual process owners or end users hold a right

- Five decision areas (the columns)
  1. IT principles are high-level statements about how IT will be used to create business value
  2. IT infrastructure strategies state the approach for building shared and standard IT services across the enterprise
  3. IT architecture states the technical choices that will meet business needs
  4. Business application needs is where the business defines its application needs
  5. IT investment and prioritisation defines the process for moving IT-based investments through justification, approval and accountability

3. Investing:
Shaping the IT Portfolio
- IT investments are large and important to company success
  - How to make such investments is getting increased attention
- Business executives can no longer “blame CIOs” for poor IT investments
  - CIOs can only implement good systems
  - They are not responsible for changing business practices to take advantage of those systems
  - = the job of line executives!

Shaping the IT Portfolio – A Strategic View of Making IT Investments
- Intense competition in ‘non-regulated’ industries forced executives in these to innovate
  - By investing in IT
  - By improving their business processes, and
  - By offering new products and services
- These innovations, in turn, increased productivity
  - Virtuous circle (Figure 2-10)
    - Competition leads to innovation, which leads to productivity increases

3. Investing:
Shaping the IT Portfolio – A Strategic View of Making IT Investments cont.

- Sequencing and timing IT investments
  - Companies that reaped the highest productivity generally sequenced their IT investments so that new ones built on existing ones
  - Timing is also important
    - ‘Rush in’ only when it advances company goals, builds on strengths and cannot be easily replicated by competitors
    - ‘Everybody is doing it’ = not a good reason

- Complementing IT investments
  - IT investments do not reap anticipated results until accompanying management practices change to take advantage of potentially better ways of working
  - NOTE: IT is not the only contributor to increased productivity

3. Investing:
Shaping the IT Portfolio – A Tactical View of Making IT Investments

- Much attention has been placed on shaping the IT portfolio as business executives seek to maximize the business value of their IT investments

- Most companies have far more opportunities than they can fund
  - Must find a way to prioritize the possibilities to best support their business’ strategic objectives
    - Prioritization
    - “Doing more with less”

3. Investing:
Shaping the IT Portfolio cont.

- Benefits Come More From the Discussions Than the Prioritizations
  - When the discussions are structured, focused and well moderated, the participants better understand the business goals, better support others and other business units and are more committed
  - Leads to:
    - Healthier teamwork
    - Better decision processes, and
    - Better definitions of projects

- Put Projects into Categories Where They Are Comparable
  - Once defined, projects belong in different categories and thus require different treatment
  - E.g. R&D projects can’t generate immediate tangible benefits

3. Investing:
Shaping the IT Portfolio cont.

- Address Project Risks
  1. Risk that project will fail
     - Need mitigation strategies and include cost thereof in the project cost
  2. Risk of not doing the project
     - E.g. Virus protection
  3. Risk that it is the wrong project for what is trying to be achieved

- Prioritize Quarterly, and Apportion Your Budget Accordingly
  - Not wise to close the approved list of projects for a long time
  - Track projects and if significant deviations = consider project costs, risks and benefits

- Be Consistent

4. Managing:
Establishing Credibility and Fostering Change

- CIOs are in the change business
- Information systems bring about change
- BUT – before a CIO and the IS organization will be heard as a voice for change, they must be viewed as being successful and reliable
- To foster change, a CIO must establish and then maintain the credibility of the IS organization
4. Managing: Establishing Credibility

- The first job of IS management is to get the “today” operation in shape.
  - Until that task is accomplished, CIOs will have little credibility with other top management.
- Managing “today” includes:
  - Computer operations
  - Technical support (including networks)
  - The help desk, and
  - Maintenance and enhancement of existing systems.
- Delivery oriented with a high level of service.
- Some = outsource parts.
- Once you have “today” working well – they will listen to your “tomorrow.”

4. Managing: Fostering Change

- ‘IT deptt.’ presume a technically elegant system is a successful one.
  - Not so. Many technically sound systems have turned into implementation failures because the people side of the system was not handled correctly.
- IT is all about managing change.
  - New systems require changing how work is done.
  - Focusing on the technical aspects is only ‘half’ the job. The other job is change management.


- People resist change, especially technological change.

The Office of the CIO?

- Some believe the office of the CIO is so broad it should be handled by a team.
- Four “positions”:
  1. Chief Information Officer
     - Heads IS and works with top management, customers and suppliers.
  2. Chief Technology Officer
     - Heads IT planning, which involves architecture and exploration of new technologies.
  3. Chief Operations Officer
     - Heads day-to-day IS operations.
  4. Chief Project Officer
     - Oversees all projects and project managers.
- IT is so critical to enterprise success and the know-how needed to run it so deep and wide = management needs to become a team effort.

Conclusion

- IT decision making must be ‘shared’ - The main responsibility for managing the use of IT needs to pass to the line, while the management of the IT infrastructure is retained by the IS group.
- It is reflected in the following saying:
  1. “We used to do it to them” - IS required end users to obey strict rules for getting changes made to systems, submitting job requests, etc.
  2. “Next, we did it for them” - IS moved to taking a service orientation.
  3. “Now, we do it with them” - which reflects “partnering.”
  4. “We are moving toward teaching them how to do it themselves.”
Conclusion cont.

- To achieve this transformation, CIOs must play a leadership role in their enterprise and develop partnerships with senior management, internal and external customers, and suppliers