

# Managing Operations

## Chapter 8

## Outline

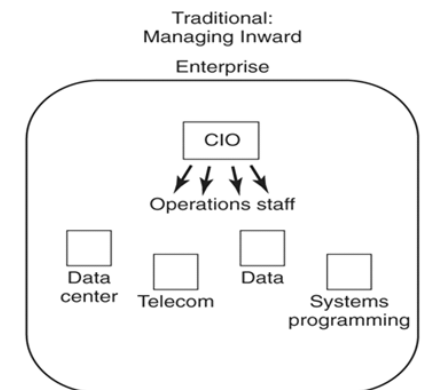
- Introduction
- What are Operations
  - ◆ Why Talk About Operations?
  - ◆ Solving Operational Problems
  - ◆ Operational Measures
  - ◆ The Importance of Good Management
  - ◆ What's New in Operations
- Outsourcing Information Systems Functions
  - ◆ The Driving Forces Behind Outsourcing
  - ◆ Changing Customer-Vendor Relationships
  - ◆ Outsourcing's History
  - ◆ Managing Outsourcing
  - ◆ Offshoring

## Introduction

- Systems operations are important:
  - ◆ If they are not professionally run, a company could suffer a computer or network crash that could shut down their business for some period of time
- It is not a trivial area, especially as companies become increasingly reliant on networks and computers to run their business

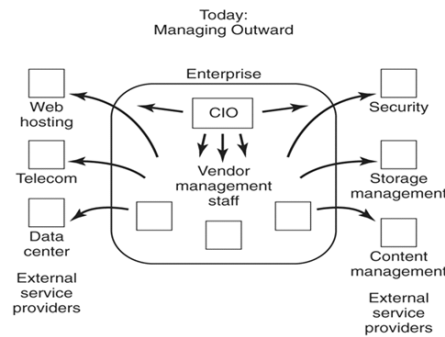
## The Shifting Operations Perspective

- Traditionally, managing inward
  - ◆ One's own operations staff



## The Shifting Operations Perspective

- Today, managing outward
  - ◆ The company's relationships with IT External Service Providers (ESP)



## Why Emphasizing Operations?

- A Typical MIS Department Budget:
  - ◆ 33% Systems and Programming
    - ◆ 70% Maintenance
    - ◆ 30% New Development
  - ◆ 10% Administration and Training
  - ◆ 57% Operations
    - ◆ Involve more money than any other part of the IS department
    - ◆ Very involved (difficult), challenging and rewarding area

## Solving Operational Problems

- Operational problems are obvious to the entire company:
  - ◆ Response times are slow
  - ◆ Networks are down
  - ◆ Data is not available
  - ◆ Data is wrong

## Solving Operational Problems

- Three strategies to improve operations:
  - ◆ Buy more equipment
  - ◆ Continuously fight fires and rearrange priorities, getting people to solve the problems at hand
  - ◆ Continually document and measure what you are doing, to find out the real problems, not just the apparent ones. Then set standards and manage to them.

## Operational Measures

- External Measures
  - ◆ What the customer sees, relating to customer satisfaction
    - ◆ System and network uptime, response time, turnaround time, program failures
- Internal Measures
  - ◆ Of interest to IS people
    - ◆ Computer utilization as percentage of capacity, disk storage used etc.

Problems reported by external measures can be explained by deviations in internal measures

## The Importance of Good Management

- The corporate culture created by IS management must recognize and value good operations
- Skills of an operations manager is similar to that needed in e.g. a factory
  - ◆ Only here the "factory equipment" is the disk drives, database servers, network gateways etc
- The key to managing operations is the same as in any management job
  - ◆ Set standards
  - ◆ Then manage to those standards by finding an outstanding operations manager

U51020 © Peter Lo 2008

10

## What's New in Operations?

- Companies have "cleaned their operational house"
  - ◆ Y2K problem moved company from a survival mode to a planning mode
- More operations managers are managing outward
  - ◆ CIO does not relinquish responsibility for operations
  - ◆ Ensure their people are properly managing relationships
- Operations are being "simplified"
  - ◆ Centralizing applications in one place rather than distribute them on PCs
    - ◆ Server based computing
- Certain operations are being offloaded
  - ◆ e.g. Microsoft offloaded webcasts to Netpodium

U51020 © Peter Lo 2008

Read Case Example P.303

## The Focus of CIO in Operations is Changing

- Their attention used to be focused on ensuring they had the in-house expertise to keep systems and networks up and tuning
- Their attention is now toward determining where best to perform the various kinds of operations:
  - ◆ In house or with a third party (or permutations and/or combinations thereof)
  - ◆ Then manage it accordingly

U51020 © Peter Lo 2008

12

## Outsourcing IS Function

- Outsourcing means contracting with another firm to perform work that had previously been performed in-house, generally requiring a multiyear contract and generally for non-core work.
- CIO are expected to at least to prove that their in-house operations are as efficient and effective as if they were outsourced
  - ◆ Shared Services concept
  - ◆ Should outsource what they do not do well

## The Driving Forces Behind Outsourcing

- **Focus on Core Businesses:** In the 1980s, this led to huge amount of merger and acquisition activity
- **Shareholder Value:** Companies were priced based on their shareholder value, that is, their discounted cash flow, as a result of high-yield bonds that allowed a few people to buy a company and leverage it with debt
  - ◆ Management must stress value, they must consider outsourcing in all their nonstrategic functions
  - ◆ U.S. driven – other countries have variations on this pricing (share market) model but the drivers still expensive

## Changing Customer-Vendor Relationships

- Relationships have expanded from buying professional services, to buying products and transactions, to integrating systems, to outsourcing – the most bundled approach to contracting
- In this evolution:
  - ◆ CIO have increasingly lost control
    - ◆ More activities turned over to outsiders
  - ◆ Providers take on more risks
    - ◆ As they move to (options on) the right
  - ◆ Provider's margins increase
    - ◆ Risks also improve: Don't get "Nothing for nothing!"

Importance of choosing the right provider becomes more important!

## Custom-Vendor Relationships

FIGURE 8-2 Customer-Vendor Relationships

Activities	Relationships				
	Professional Services	Product	Transactions	Systems Integration	Outsourcing
• Planning/consulting	(X)				
• Building/maintaining applications	(X)				
• Building/maintaining networks	(X)				
• Training users/clients	(X)	X	X	X	X
• Operating platforms					
• Performing administrative functions					
• Building/using product					

Source: Mel Bergstein, DiamondCluster Int'l., Chicago, IL.

## Outsourcing's History – IT Outsourcing

- In 1989 only full IT outsourcing was available
  - ◆ Essentially began with "big-bang" deals.
  - ◆ The goal was purely financial.
  - ◆ Problems occurred
    - ◆ Us vs. them
    - ◆ Culture clash
  - ◆ Until that time, companies only outsourced poorly run IS operations
    - ◆ Kodak outsourced its well-run IS operations in 1989 to become a more competitive company

## Outsourcing's History – Transitional Outsourcing

- Early 1990s: Transitional Outsourcing
  - ◆ One of two routes in outsourcing
    - ◆ Maintenance of their legacy systems, hence staff concentrated on building new client server systems
    - ◆ Client-Server development to specialists & kept maintenance of legacy systems in-house

**Transitional Outsourcing** outsource legacy systems for maintenance so that the in-house staff can focus on developing replacement client/server systems.

## Outsourcing's History – Best-of-Breed Outsourcing

- Mid to late '90s: best-of-breed outsourcing
  - ◆ Selective outsourcing began
  - ◆ "Collaborative outsourcing": one prime contractor and some secondary external service providers

**Best-of-Breed Outsourcing** outsource specific functions, each to the most appropriate provider, rather than outsourcing all functions to one provider who may not be the best for all the functions.

## Outsourcing's History – Shared Services

- In-sourcing to an internal shared service group
- Improved efficiencies & saved money (scale of economy)

**Shared Services** is a department or division formed by consolidating and centralizing services formerly operated by business units. These services can include legal, travel, finance, IT, food service, fleet management, accounting, telecom, and others. It is a form of in-sourcing; business units draw on the expertise in shared services when needed.

## Outsourcing's History – Business Process Outsourcing (BPO)

- As IT outsourcing matured it became a commodity service, profit margins dropped and competitors rose
- External Service Provider (ESP) moved to specific functional areas with higher margins
- Handling specific business processes as well as their IT underpinnings: Business Process Outsourcing (BPO)

**Business Process Outsourcing (BPO)** outsource all or most of a reengineered process that has a large IT component

U51020 © Peter Lo 2008

Read Case Example P.309-311

## Outsourcing's History – E-business Outsourcing

- With the arrival of business use of the Internet, outsourcing has been one way that companies can quickly get Websites up and handling business
- In Internet-based operations, outsourcing all or most of the IS function has been preferred mode of operation
  - ◆ Allows a company to move faster
  - ◆ Companies can remain flexible
  - ◆ Do not tie up a firm's funds in computer and networking equipment

**E-business Outsourcing** outsource e-commerce and e-business aspects of one's company, such as Website hosting, application hosting, telecom management, and so forth

## Outsourcing's History – Utility Computing

- Also known as on-demand computing, virtual data centers and grid computing
- The idea is computing power can be treated like electricity: You plug in and only pay for what you use
  - ◆ Numerous vendors, especially IBM, HP and Sun are promoting access rather than ownership
  - ◆ Turning clients' fixed IT costs into variable costs

**Utility Computing** is the notion of having computing power at your fingertips, much like electricity: plug in and you have it. This new form of managed services outsourcing has various names, including on-demand computing, virtual data centers, autonomic systems, and grid computing.

U51020 © Peter Lo 2008

Read Case Example P.312

## The Outsourcing Management Spectrum

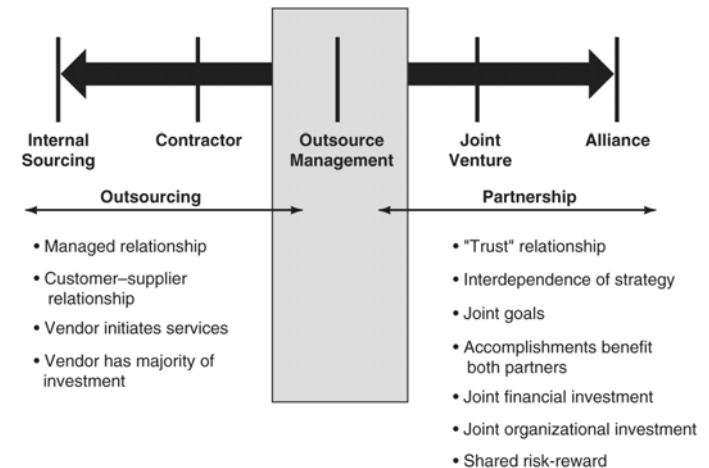


FIGURE 8-3 The Outsourcing Management Spectrum

Source: Courtesy of Gartner EXP, 56 Top Gallant, Stamford, CT.

## Managing Outsourcing

- Numerous aspects to managing outsourcing need to be handled well to create a successful working relationship
  - ◆ Organizational Structure
  - ◆ Governance
  - ◆ Day-to-Day Working
  - ◆ Supplier Development

## Organizational Structure

- Managing outsourcing is different from managing internal staff
  - ◆ It is a joint effort between parties that may not have the same goals
- Typically, parties establish layers of joint teams
  - ◆ Top-level team: final word in conflict resolution
  - ◆ Operational team: oversees day-to-day functioning
  - ◆ Joint special purpose teams: created from time to time to solve pressing issues
  - ◆ Standing committees: oversee the use of formal change management procedures
  - ◆ Relationship managers: look after the relationship

## Governance

- The foundations of governing an outsourcing relationship are laid in the (LARGE) contract
  - ◆ Service Level Agreement (SLA)
    - ◆ Responsibilities, performance requirements, penalties, bonuses
    - ◆ Another important component of SLA is metrics. An SLA needs to be measurable to be of use
- Most parties in strong relationships put the contract in the drawer and work from trust and agreed-upon rules
  - ◆ It is only when trust in one another breaks down that they turn to the contract

## Governance

FIGURE 8-4 Examples of Outsourcing Governance Rules

- Service levels must stay in the top 25 percent as benchmarked against the client's peers.
- Escalation of problems becomes more painful as it goes higher to encourage early resolution.
- The supplier is the grand project manager and is responsible for managing multiple vendors.
- Work style is based on respect and confidence; there should be no personalization of problems.
- Add significant value.
- Aim to operate in an "open book" manner, sharing key operating information with each other.
- New services can be put out for bid.
- No exclusive agreements.
- Meet our standards.
- Let us know about potential problems before they happen.
- Spend our money as if it were your own.

Source: Reprinted with permission of Sourcing Interests Group, Bell Canyon, CA, [www.sourcinginterests.org](http://www.sourcinginterests.org).

## Day-to-Day Working

- Recommendations to manage day-to-day interactions:
  - ◆ Manage expectations, not staff
    - ◆ Facilitation becomes the mode of working
  - ◆ Realize that informal ways of working may disappear
  - ◆ Loss of informal ways of working may add rigor
  - ◆ Integration of the two staffs requires explicit actions
  - ◆ The best way to manage day-to-day is communicate frequently
    - ◆ Preferably face to face

## Supplier Development

- A topic that is receiving increased attention
  - ◆ Buying parts and services that go into one's own products and services
  - ◆ Assisting one's suppliers to improve their product and services by generally improving their processes

## Offshoring

- Offshoring mean outsource work offshore, that is, turn work previously performed in-house over to a third party that performs that work in another country, across the ocean.
- Nearshore means outsourcing work to a nearby country. In reality, much outsourcing could include onshore, nearshore, and offshore. In IS, companies are offshoring application maintenance and development, call center work, and infrastructure as a way to cut costs and, perhaps, improve work quality.

## Why Offshoring?

- Offshore outsourcers became a desirable choice in late 1990s
  - ◆ A tight labor market due to Y2K
  - ◆ Lower cost and an ample supply of educated people
    - ◆ India, Ireland, Philippines, China



## What go Offshoring?

- The trickle in the late '90s has turned into a steady stream of white-collar work going offshore
  - ◆ Application maintenance and development, call centers, customer service, back office processing business process outsourcing (BPO), claims processing, etc.

## Offshore vs. Domestic Outsourcing

- Offshore outsourcing differs in some unique ways from domestic outsourcing. Some areas to be considered:
  - ◆ Offshoring Options are Broadening
  - ◆ Both Parties need Cultural Training to Bridge Cultural Differences
  - ◆ Communication Issues need to be Addressed from the Outset
  - ◆ Country Laws need to be Followed

## Offshoring Options are Broadening

- India has become the premier IT and BPO offshoring country because its huge, highly educated workforce speaks English and is hard working.
- The types of firms offering offshore options are broadening.
- U.S. outsourcers are building their own offshore capabilities, or acquiring existing offshore providers, often in India, sometimes in China, to lower their own costs.

As noted in the Sourcing Interest Group (SIG) reports, all large IT outsourcing deals will likely have an offshore component. Global sourcing is becoming the norm.

## Both Parties need Cultural Training to Bridge Cultural Differences

- Outsourcers and offshore advisory firms (who advise clients on the offshore marketplace) now realize that both parties need cultural training to overcome management and communication gaps.
- They therefore provide cultural integration training to their clients so that they better understand the offshore culture, and they provide their own people with accent neutralization and other cultural training so they understand their clients' culture

## Communication Issues need to be Addressed from the Outset

- Different cultures have different communication norms, even when they speak the same language.
- These differences show up immediately when people from two cultures try to negotiate an offshore contract.
- The differences need to be addressed, beginning with the negotiations.

## Country Laws need to be Followed

- Even though most offshoring contracts are now written in the client's country, the laws of the outsourcer's country need to be followed.
- Privacy laws may preclude moving client data offshore. Or if the offshore country does not enforce intellectual property rights, some work may not be moved there

## Use Offshoring to Advantage

- A main criticism of offshoring is that it decreases the skills and know-how of the client's IS organization.
  - ◆ This need not be so. One U.S. firm wanted to reduce its system development costs but also increase its in-house IS staff's knowledge – a fairly unusual dual goal.
- To do so it has formalized the knowledge transfer to its firm and it has created a dual project management hierarchy where each firm supplies members to a team based on the knowledge they have and the knowledge they need

## Redefine Services using Offshoring

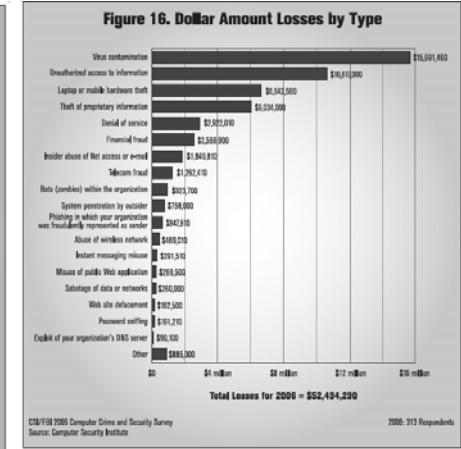
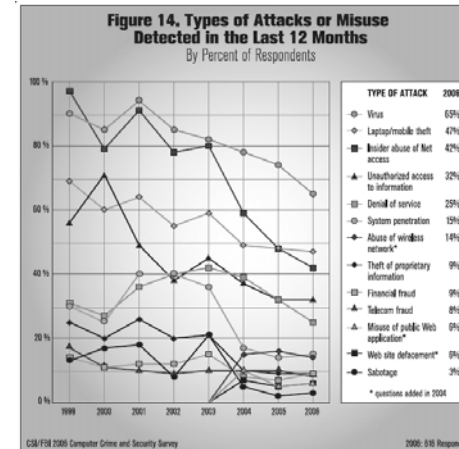
- The service economy is in the midst of restructuring.
- Offshoring, automation, and self service are all combining to cause “the industrialization of services.”
- To compete, they need to make use of these new approaches by reshaping their strategies by
  - ◆ Understanding customers
  - ◆ Understanding demographics
  - ◆ Staying in touch with customers
  - ◆ Offering end-to-end services
  - ◆ Dominating the screen (of the end users' devices)

# Information Security Management

- Information security management defines the controls we must implement to ensure we sensibly manage computer related risks
  - ◆ Not just technology, but people and processes too
  - ◆ An ongoing, continuous activity, you don't just do security as a one-off event
- Today even CEO need to know something about information security
  - ◆ Need to understand Internet-based threats and countermeasures and continuously fund security work to protect their businesses

# CSI Survey

- Since 1996 the Computer Security Institute (CSI) and FBI have conducted an annual survey of US security managers



# The Threats

- Losses are increasing dramatically because companies have rushed into e-commerce, often with applications that do not have security built into the architecture or procedures
  - ◆ People think security can be added later but it really can't be bolted on as an afterthought
  - ◆ Best security designed into applications via checks during processing and at data transfer points
- It is easier to guard a bank vault than to guard every house in town
  - ◆ That's why many companies are outsourcing their data center operations to data center specialists with vault-like security

# The Threats

- Mobile computing and telecommunications increase the possibility for crime
  - ◆ The greater number of network openings provides opportunities for illegal entry
- The rise of e-commerce and e-business put more communications online to the Internet, which is open to everyone including crackers (evil hackers)
- As the Internet doesn't have intrinsic security protocols this public space is vulnerable

## Approaches Hackers Use

- RSA Security Inc describes nine approaches hackers use
  - ◆ Cracking the password
  - ◆ Tricking someone
  - ◆ Network sniffing
  - ◆ Misusing administrative tools
  - ◆ Playing middleman
  - ◆ Denial of service
  - ◆ Trojan horse
  - ◆ Viruses
  - ◆ Spoofing

## Security's Five Pillars

- **Authentication** – Verifying the authenticity of users
- **Identification** – Identifying users to grant them appropriate access
- **Privacy** – Protecting information from being seen
- **Integrity** – Keeping information in its original form
- **Nonrepudiation** – Preventing parties from denying actions they have taken

## Management Countermeasures

- The major problem these days:
  - ◆ Enterprises cannot have both access to information and airtight security at the same time
- Companies must make tradeoffs between:
  - ◆ Absolute information security and
  - ◆ The efficient flow of information
- Because airtight security is not possible:
  - ◆ Companies need to prioritize their risks and work on safeguarding against the greatest threats

## Major Findings from the Computer Crime Survey

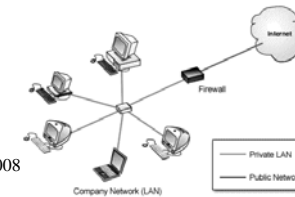
- Five major findings from the Computer Crime Survey:
  - ◆ Most organizations evaluate the return on their security expenditures
  - ◆ Over 80% conduct security audits
    - ◆ Including by outsiders (e.g. KPMG)
  - ◆ The percentage reporting cybercrimes to law enforcement declined
    - ◆ Damage to stock price / company reputation
    - ◆ Competitors using for their advantage
  - ◆ Most do not outsource cybersecurity
  - ◆ Most respondents view security awareness training as important

## Technical Countermeasures

- The trend in computer security is toward defining security policies and then centrally managing and enforcing those policies via security products and services or policy-based management.
- Three techniques used by companies to protect themselves
  - ◆ Firewalls
  - ◆ Encryption
  - ◆ Virtual Private Network (VPN)

## Firewalls

- Firewalls is a software on Internet servers that keep the public from accessing the company's intranet.
- Used to separate intranets and extranets from the Internet so that only employees and authorized business partners can access
- Implementation
  - ◆ Packet filtering to block illegal traffic, which is defined by the security policy
  - ◆ By using a proxy server, which acts as an intermediary

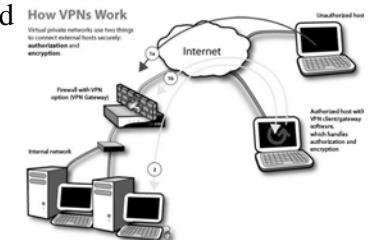


## Encryption

- Encryption coding and decoding documents for security. It used to protect against sniffing, messages can be encrypted before being sent
- Two classes of encryption methods are used today:
  - ◆ Secret Key encryption
    - ◆ Data Encryption Standard (DES)
  - ◆ Public Key encryption
    - ◆ RSA
    - ◆ Needs public and private key
    - ◆ Incorporated into all major Web browsers and is the basis for Secure Socket Layer (SSL)
    - ◆ Most individuals don't have such keys hence B2C applications are only secure from the consumer to the merchant

## Virtual Private Networks (VPN)

- Virtual Private Networks (VPN): maintains data security as it is transmitted by using:
  - ◆ Tunneling: creates a temporary connection between a remote computer and the ISP's local data center. Blocks access to anyone trying to intercept messages sent over that link
  - ◆ Encryption: scrambles the message before it is sent and decodes it at the receiving end



## Three ways to use VPN

- **Remote Access VPN:** give remote employees a way to access an enterprise intranet by dialing a specific ISP
- **Remote Office VPN:** give enterprises a way to create a secure private network with remote offices. The ISP's VPN equipment encrypts all transactions
- **Extranet VPN:** give enterprises a way to conduct e-business with trading partners

## The Balance between Security and Risk

- Information Security is a balancing act between ease of access to information and protecting that information from increasing threats
- The Information Security Manager must
  - ◆ Constantly bear in mind the organization's appetite for risk
  - ◆ Assess where the appropriate balance lies
  - ◆ Be prepared to press their case strenuously when they believe the risk is not within acceptable bounds.

## Planning for Business Continuity

- Business continuity is broader than disaster recovery because it includes:
  - ◆ Safeguarding people during a disaster
  - ◆ Documenting business procedures (instead of relying on certain employees who may become unavailable)
  - ◆ Giving employees the tools and space to handle personal issues first so that they can then concentrate on work

Business continuity is a business issue, because IT disaster recovery is just one component

## Using Internal Resources

- Organizations that rely on internal resources for IT disaster recovery generally see this planning as a normal part of systems planning and development
  - ◆ Multiple data centers
    - ◆ Do not have all computing in one location
  - ◆ Distributed processing
  - ◆ Backup telecommunication facilities
  - ◆ Local area networks
    - ◆ Servers on one LAN can be used to backup servers for other networks

## Using External Resource

- Cost vs. risk may not justify permanent resources so companies use the services of a disaster recovery firm
  - ◆ Integrated disaster recovery services
  - ◆ Specialized disaster recovery services
  - ◆ Online and off-line data storage facilities