

MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
SLOAN SCHOOL OF MANAGEMENT

**15.565 Integrating Information Systems:**

Technology, Strategy, and Organizational Factors

**15.578 Global Information Systems:**

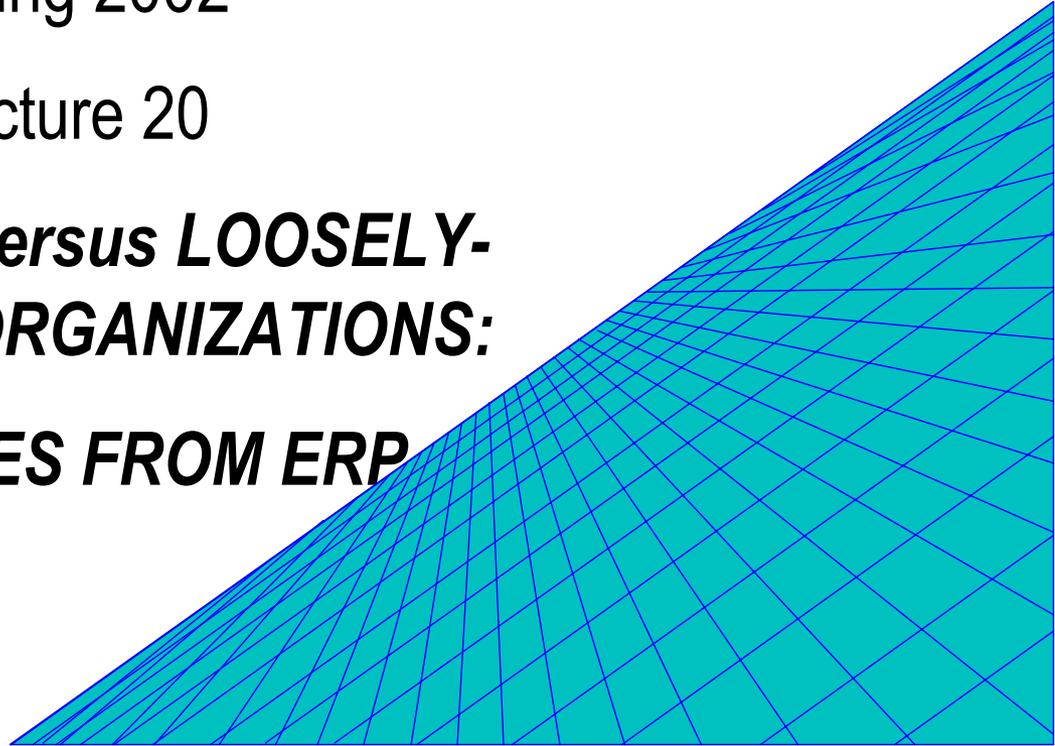
Communications & Connectivity Among Information Systems

Spring 2002

Lecture 20

***TIGHTLY- versus LOOSELY-  
COUPLED ORGANIZATIONS:***

***EXAMPLES FROM ERP***



# OUTLINE

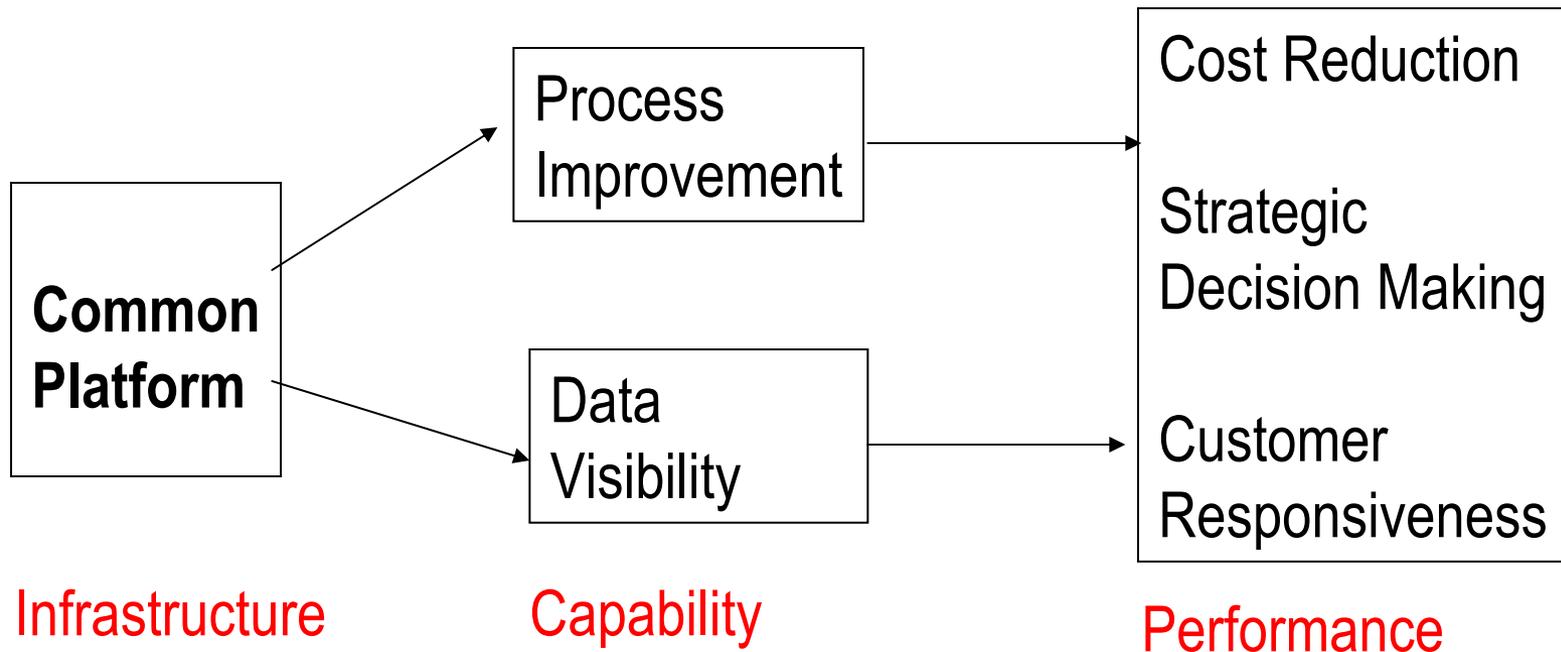
- Motivation for Enterprise Resource Planning (ERP)
- ERP Obstacles and Success Factors
  - Focus on “**Tightly-Coupled**” Organization
- Views of an Organization
- “**Loosely-Coupled**” Organizations & Benefits

# ENTERPRISE RESOURCE PLANNING (ERP) SYSTEMS

- Definition
- Purpose
- Experience

# MOTIVATIONS FOR ENTERPRISE RESOURCE PLANNING SYSTEM

- Replace legacy systems with integrated system
- Provide single face to customer



# ENTERPRISE INTEGRATION

See 10 “critical success factors” (*Computer World*)

# **OBSTACLES AND SUCCESS FACTORS**

## **1. Need Metrics**

- If vague, can not determine if benefiting

## **2. Need On-going Resource Requirements**

- but hard to keep top management attention

## **3. Need Management Report Requirements**

- ERPs best at transaction processing, not DSS

## **4. Address Resistance**

- Loss of control, broader process view, culture/politics

# **CONCLUSIONS**

- Discipline into Undisciplined Organizations
- Major Cultural Change to Organization
- Standardize Organization's Processes & Data  
==> Key to Flexibility & Success

# WHAT IS AN ORGANIZATION?

**COHEN, MARCH & OLSEN:** “AN ORGANIZATION IS A COLLECTION OF CHOICES LOOKING FOR PROBLEMS”

**EMERY:** “A SET OF RELATED TASKS DIRECTED TOWARDS A COMMON GOAL”

**WEICK:** “AN ORGANIZATION AS A NOUN IS A MYTH...IT IS EVENTS THAT ARE LINKED TOGETHER”

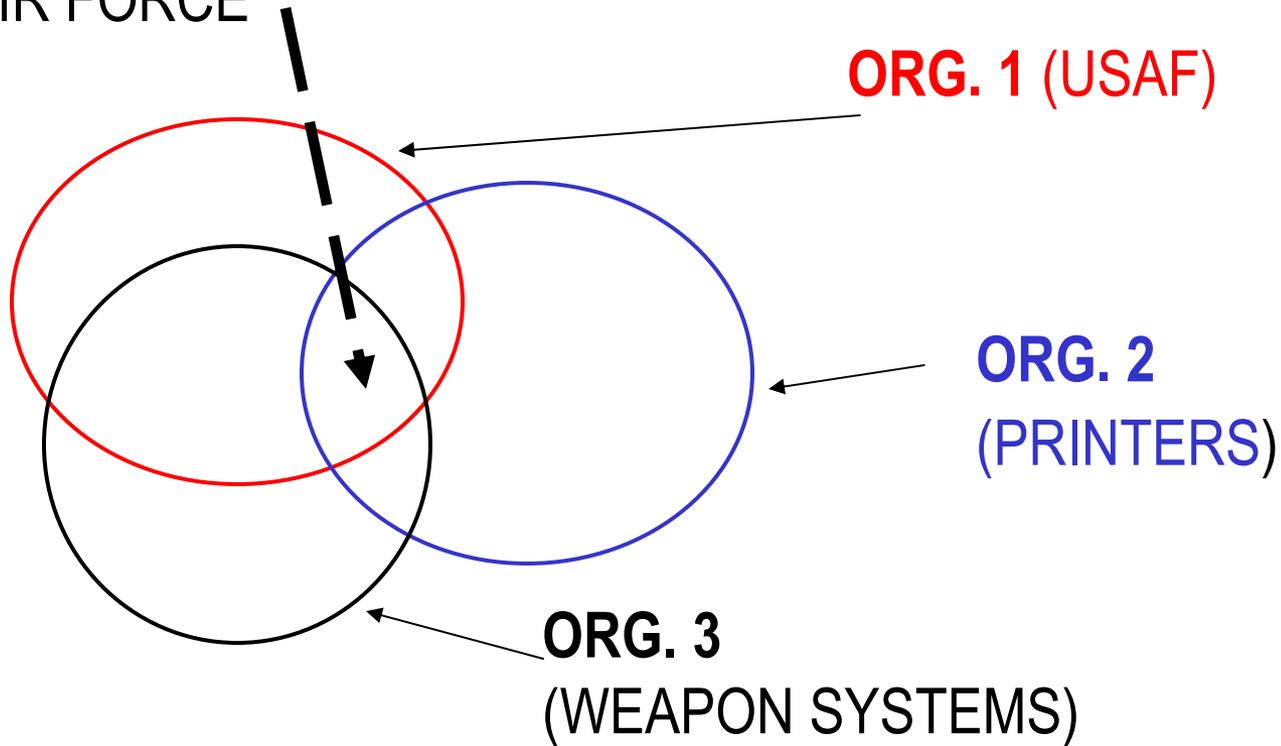
**MADNICK:** “AN ORGANIZATION IS A COLLECTION OF INDIVIDUALS THAT SHARE COMMON BELIEFS, GOALS, CUSTOMS AND/OR AUTHORITY.

## **CONVENTIONAL VIEW OF ORGANIZATION**

- **DISCIPLINED**
  - PLANS
  - COST-BENEFIT ANALYSIS
  - DIVISION OF LABOR JOB DESCRIPTIONS
  - EVALUATION AND REWARD SYSTEM
  
- **PRACTICE?**
  
- **UNPRODUCTIVE TO VIEW BEHAVIOR AS “ABSURD” OR “IRRATIONAL”**
  
- **BENEFITS OF LOOSE COUPLING?**

## EXAMPLE SITUATION:

AUTOMATING TECHNICAL ORDER (TO) PROCESSING IN THE  
US AIR FORCE



# VALUE OF “LOOSE COUPLING”

## 1. ALLOWS PORTIONS OF ORGANIZATION TO PERSIST

- + ELECTED OFFICIAL/ELECTORATE
- + DIMINSHES IMPACT OF VOLATILITY
- MAY PERSIST TOO LONG

## 2. SENSING MECHANISM

- + MORE INDEPENDENT SOURCES
- TOO VULNERABLE

## 3. LOCALIZED ADAPTION

- + SWIFT, ECONOMICAL ADAPTION
- OPPOSITE OF STANDARDIZATION

## 4. ALLOW LOCAL MUTATIONS AND NOVEL SOLUTIONS TO EXIST

- + CAN ADAPT TO RANGE OF CHANGES
- COULD SLOW SPREAD OF GOOD MUTATIONS

## 5. BREAKDOWN SEALED OFF

- + LOCALIZATION OF TROUBLE
- MAY BE HARD TO DIRECT AND REPAIR

## 6. SELF-DETERMINATION INCREASES SENSE OF EFFICACY

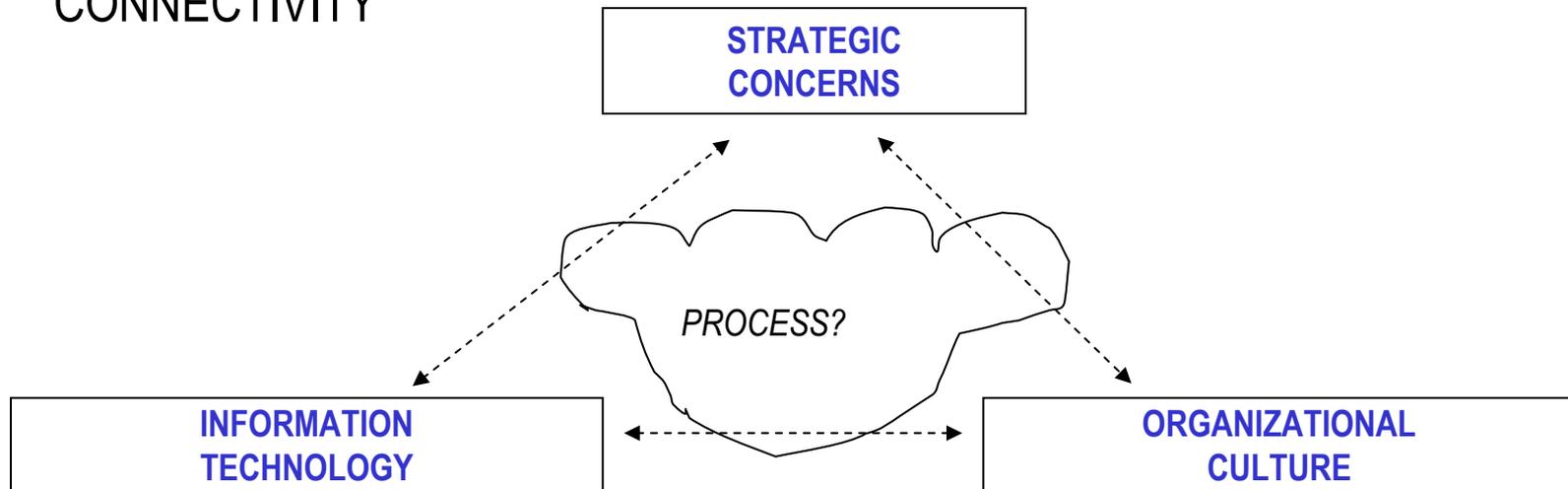
- + LINKS INTENTIONS AND ACTIONS
- STANDARDIZATION & MORE NEGOTIATION

## 7. REDUCED COORDINATION COST

- + LESS TIME AND MONEY ON COORDINATION
- MAY BE INEFFICIENT IN USE OF RESOURCES

# CONCLUSIONS

- NEED TO UNDERSTAND INTER-DEPENDENCY AMONG STRATEGIC CONCERNS, ORGANIZATIONAL CULTURE, AND TECHNOLOGY FOR CONNECTIVITY



- CAN START FROM ANY COMPONENT
- IN MANY CASES
  - STRATEGIC CONCERNS REQUIRE INTEGRATION
  - ORGANIZATIONAL CULTURE FAVORS AUTONOMY
  - TECHNOLOGY CAN PROVIDE INTEGRATION AS WELL AS AUTONOMY