ICS 132: Organizational Information Systems

Three Metaphors for Organizations

organizations

- organizational information systems
  - OIS support the needs of organizations
    - what they are
    - how they work
  - many perspectives
- today, three views of organizations
  - organizations as machines
  - organizations as organisms
  - organizations as cultures

metaphors

- three metaphors of organization
  - each metaphor suggests a way of thinking
  - none of them is absolutely right!
    - need to see all sides of the issues
    - useful in different circumstances
  - what varies?
    - historical period, relations to other disciplines, boundaries
    - implications for design
  - our questions for today:
    - how do these metaphors explain what organizations do?
    - how do they explain how people act in organizations?
    - how do they explain how organizations use information?

metaphors

- similes and metaphors
- metaphors are conceptual systems
  - a set of associations between one thing and another
  - framing ways of thinking
  - arguably, our brains are wired in terms of metaphors
    - Lakoff and Johnson, "Metaphors We Live By"
    - examples
      - time is money
      - argument is war
      - activities are containers
      - up is good, down is bad

organizations as machines

- basic idea
  - organizations are made up of many parts
  - these parts are put together to perform work
  - organizations transform inputs into outputs
    - e.g. raw materials to products
    - they do this more or less efficiently
      - efficiency can be measured and improved
  - studied and designed through applied science
    - observe, model, reason, predict
- this model is not restricted to organizations
  - we often use machine analogies...

basic principles

- primary principles
  - structure
  - efficiency
  - measurement
- the key is repeatability
  - first standardize, then optimize
    - the importance of interchangeable parts
      - not just components, but people too
- link between structure and performance
  - some structures maximize organizational performance
    - making the most effective use of resources
    - certain functions seen as being effective work
      - production, sales
      - addressing customer needs
    - others are not
      - internal communication
  - machines have parts
    - "this is metric #5 grommit"
    - what's significant about this view of parts?
      - we define equivalences between one part and another
      - all metric #5 grommets are created equal
      - parts can be substituted for each other
      - it's easier to manage individuals as instances of a class
### History of the Machine View

- **Adam Smith (1776)**
  - "Wealth of Nations"
  - Division of labor
- **Eli Whitney (1801)**
  - Demonstrated the value of mass production
- **Charles Babbage (1832)**
  - Scientific approach and the importance of planning
- **Frederick Taylor**
- **Herb Simon**

### Scientific Management

- **Frederick Taylor (1856-1915)**
  - Founder of "scientific management"
- **Taylor's principles**
  - Shift responsibility for organizing upwards
  - Use scientific methods to determine best way to work
  - Select the best person for the job
  - Train them to work efficiently
  - Monitor performance
- **Hero or villain?**

### Machines for What?

- What do machines do?
  - Turn some input into some output
- What do organizational machines do?

### Decision-Making Machines

- What do machines do?
  - Turn some input into some output
- What do organizational machines do?
  - Turn information into decisions
  - Supporting efficient communication up and down

### Herb Simon

- A renaissance figure
  - Computer science, cognitive science, psychology, economics...
- The rational model of organizations
  - Principal components
    - Formal goals
    - Operations to achieve them
    - Evaluating costs and benefits
    - Does this seem familiar, perhaps?
    - Bounded rationality -- planning as satisficing
    - No one has perfect knowledge
    - Continual process of adjustment and replanning

### Strengths and Weaknesses

- Can be very effective, in certain situations
  - Fast food, automated production, safety-critical
  - Situations where the parameters are known
- But...
  - Assumptions of homogeneity
  - Everyone shares the goals...
  - Encourages a "mindless" attitude
  - Hard for people to feel involved
  - Not suitable for all kinds of work
  - How about advertising? Law?
### Information and Systems

- **What's the role of information systems?**
  - Enforcing standardization
  - Conveying information through the organization
  - Monitoring and measuring performance
  - Maximizing efficiency

### Example: UCI

- How is UCI organized structurally?
- What are the formal processes?
- How is standardization achieved?
- How do information systems support them?

### Organizations as Organisms

- **Basic idea**
  - Organizations are made up of individuals who have different needs
    - It's about balance and harmony, not about regimentation
    - Organizations operate within an environment with which they interact
- **Going beyond machines**
  - Recognizing the needs of individuals
  - Recognizing the diversity of organizational elements
  - Recognizing the diversity of organizational forms

### Individual Needs

- **Hawthorne studies**
  - Hawthorne plant of Western Electric, 1920s
  - From Taylorism to motivations
    - Expanding focus to look at social attitudes and preoccupations
    - Human needs in the workplace
      - Informal organization alongside the formal
      - Friendship, social bonding, self-respect
      - Biological needs, just like food and shelter

### Environment

- **Organizations are environments**
  - Settings in which human actions take place
- **Organizations do not stand alone**
  - They operate in an environment
    - Factors?
    - They depend on the environment and react to it
      - Success depends on adaptation, not regularization
      - No "one best way" of organizing
- **How does this work?**
  - What are the mechanisms by which organizations respond to their environment?

### Key Concepts

- **Homeostasis**
  - Self-regulation
  - Maintaining a steady state
- **Differentiation and integration**
  - Think of cells and organs...
- **Requisite variety**
  - Internal complexity must match external complexity
- **Evolution**
  - Variation and selection
  - Driven by the (changing) environment
strengths and weaknesses

• a broader view
  – not just the organization but the environment
  – organizations as processes not just structures
  – attending to social and organizational needs
• accounting for diversity
  – explains different organizational forms & strategies
  – focus on innovation
• very concrete
  – hard to generalize
  – metaphor may be too compelling

information and systems

• emphasis is on interaction and adaptation
  – information about the environment
    • what's outside the organization: customers, clients, competitors, business trends...
  – information needs change
    • the role that information plays can change too
    • as the organization evolves, information systems must evolve too
    • information systems need to be designed to accommodate change

example: UCI

• what different constituencies operate within UCI?
• what sets of goals do they each have?
• what else is in the environment with which UCI interacts?
• how is balance maintained?
• how does UCI evolve?

organizations as cultures

• what is “culture”?
  – Beethoven’s Fifth?
  – E. coli?
  – a series of novels by Iain M. Banks?
  – the other meaning is harder to define...

organizations as cultures

• organizations are cultural phenomena
  – they exist within national cultures
  – the means through which cultural ends are achieved
    • e.g. wealth and status
    • organizations are not a feature of agrarian societies...
• organizations reflect cultural expectations
  – “job for life” or hopping from place to place
  – stability or “hotelling”/“hot desking”
  – innovation or tradition
  – personal responsibility or following orders
  – teamwork or individualism

organizations as cultures

• what is “culture”?
  – systems of meaning (the "web of signification")
  – Western culture, for example:
    • emphasizes personal achievement
    • values practicality
    • sets great store by wealth and possessions
  – these are all values and meanings that we associate with features of the world around us
    • the “meaning” of personal wealth is culturally defined
  – the value of objects or actions
    • the material value
    • the symbolic value
organizational cultures

- what do they make you think of...
  - Ben and Jerry’s?
  - Chase-Manhattan?
  - Microsoft?

organizational cultures

- what do they make you think of...
  - Ben and Jerry’s?
  - Chase-Manhattan?
  - Microsoft?
  - anything.com?

organizational cultures

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  - anything.com?
  - Boeing?

organizational cultures

- where do they come from?
  - cultures reflect history
    * meanings evolve over time
    * ideas become habits become traditions
    - attain more and more symbolic value until perhaps that’s all that’s left!
    - when does a meeting become a ritual?
  - cultures reflect individuals
    * the dynamic manager, the charismatic leader
    - how much of Microsoft is Bill Gates?
strengths and weaknesses

• important to recognize role of belief systems
  – paying attention to symbolic value
  – helps us question assumptions
  – insight into what happens when organizations interact
• dangers
  – culture isn’t homogeneous
  – culture is always changing
  – value-laden

information and systems

• systems reflect values
  – the processes
    – how does this reflect our organizational values?
      – customer-first; quality; assessing environmental impact…
  – information systems too
    • examples?
      • information has symbolic as well as material value
• cultural “fit” is important
  – again, the goal is not just to understand what the other guy does, but to understand his point of view

example: UCI

• what are UCI’s cultural values?
• how are those expressed in UCI’s structure?
• how are those expressed in UCI’s processes?

summing up

• each metaphor tells you part of the story
  – internals vs externals
  – actions vs attitudes
  – wholes vs parts
• each reveals something about information
  – the roles that information can play
  – the stability & partiality of representations
  – how information reflects assumptions and beliefs
• all three are relevant simultaneously
  – it’s a question of looking through the right lenses

your turn

• homework exercise
  – take two organizations
    • one of mine (IBM, Mafia, Apache)
    • one of your own
  – take four metaphors
    • three of mine (machine, organism, culture)
    • one of your own
  – view each organization with each metaphor
    • how does the metaphor fit?
    • what does the metaphor illustrate?
  – about a page each
    • eight pages total

what’s next

• Tuesday
  – no lecture
  – discussion session
• Thursday
  – homework due
  – some basic economics, performance, competition