ICS 132: Organizational Information Systems

Three Metaphors for Organizations

organizations

- organizational information systems
  - OIS support the needs of organizations
  - we need to understand organizations
    - what they are
    - how they work
  - mostly, we'll follow Alter, but not 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 standarize, then optimize
  - the importance of interchangeable parts
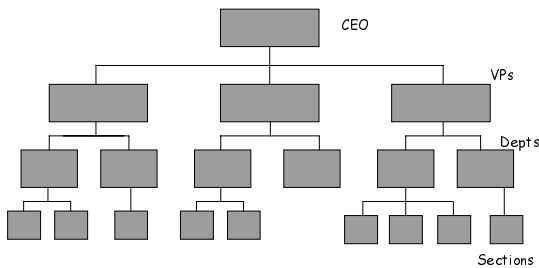   - not just components, but people too
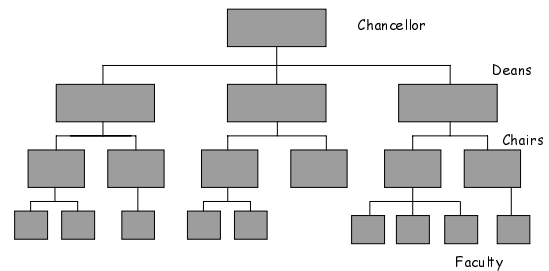
organizations as machines
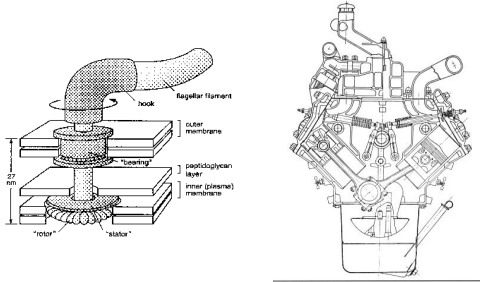
organizations as machines
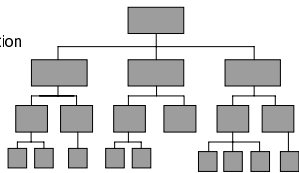

organizations as machines

CEO
VPs
Depts
Sections

organizations as machines

Chancellor
Deans
Chairs
Faculty
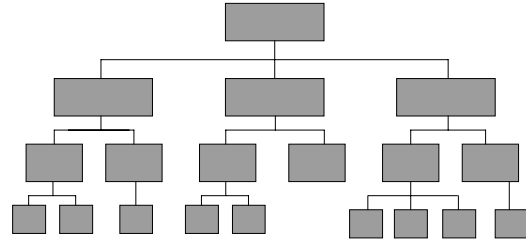
organizations as machines

- 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

organizations as machines

- 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 grommits 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
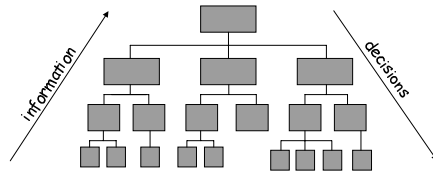 - monitor performance
- Hero or villain?

machines for what?

- what do machines do?
  - turn some input into some output
- what do organizational machines do?
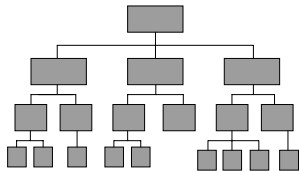
decision-making machines

- 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
    - noone 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

- 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

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

organizational cultures

- what do they make you think of...
  - Ben and Jerry's?

organizational cultures

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

organizational cultures

- what do they make you think of...
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  - Microsoft?

organizational cultures

- what do they make you think of...
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  - Chase-Manhattan?
  - Microsoft?
  - whatsit.com?

organizational cultures

- what do they make you think of...
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  - Chase-Manhattan?
  - Microsoft?
  - whatsit.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?

other examples?

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

what's next

- Friday
  - no discussion section this week
- next week:
  - Monday: homework due
    - describe two companies in terms of each metaphor
      - one from my list (IBM, Apache, UCI, Mafia)
      - one of your own
  - Monday: basic concepts in organizations
  - Read first two chapters of Alter BEFORE the class