

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

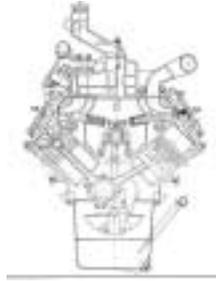
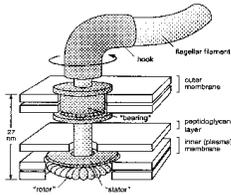
organizations as machines

- 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...

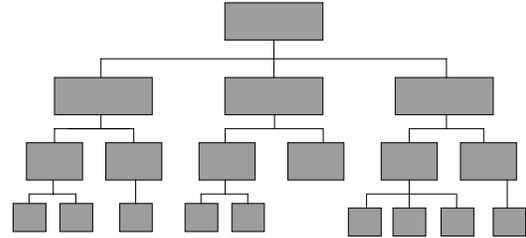
basic principles

- primary principles
 - structure
 - efficiency
 - measurement
- the key is *repeatability*
 - first standardize, then optimize
 - the importance of interchangeable parts
 - not just components, but people too

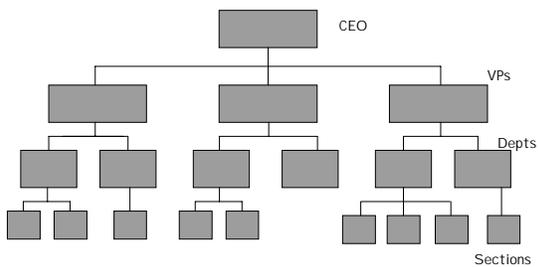
organizations as machines



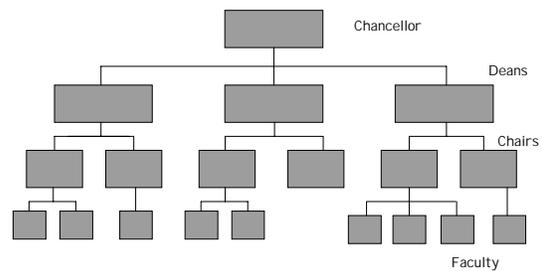
organizations as machines



organizations as machines

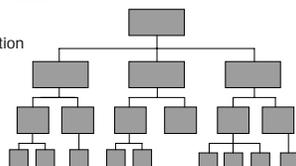


organizations as machines



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

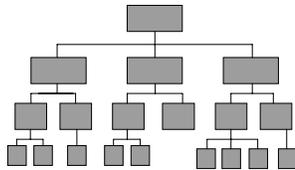
scientific management

- 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?



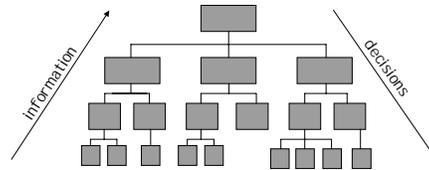
machines for what?

- 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?
 - Chase-Manhattan?
 - foobar.com?
 - Hewlett-Packard?
 - Microsoft?

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
 - discussion section
- next week:
 - Monday's a holiday (bummer!)
 - Wednesday: basic concepts in organizations
 - Read first two chapters of Alter BEFORE the class