Information Management and Database Systems

Informatics 162W

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Information Management

- Organizations depend on information
  - About their processes
  - About what's going on around them
  - To *monitor* and *plan*
- The dependence is fundamental
  - Modern organizational forms and practices are built around the idea that information is available

Keys to Information Management

- Scale: Information volume
- Flexibility: Need to deal with information in different ways
  - Questions you want to ask
  - Views from different people
- Consistency: Maintaining information quality and integrity
- Note the role of the machine metaphor:
  - Standardization, repeatability, consistency
  - *Form* more important than content in some ways

Organizational Factors

- Centralization and distribution
  - Balancing control and autonomy
  - Balancing individual and collective control
  - Making information more visible
- Standardization and classification
  - Need to come to agreement about what information means
  - Controlling the form is a very powerful position
  - There are a lot of examples in the International Classification of Diseases

Workflow Systems

- Information systems

- Give order to or record work over time

- Automate redundant tasks

- Ensure uncompleted tasks are followed up

Management Information System in the Print Industry

(Bowers et al paper)
- When working with the UK government, there is a lot of accountability required

- Workflow monitoring can provide that

- So can other systems…

Smooth Workflow

- People act dynamically

- Use different timing and machine/person configurations to keep working going

And then they introduced
PrintFlow PF2

- Administrative component
  - Jobs are registered by type, customer, cost code, delivery deadline
  - Information is stored in a searchable database

- Shopfloor component
  - "shopstations" around the floor
    - Keypads with names
    - Keypads referencing machines
    - Notify PF2 of progress of processes

Disrupting Smooth Flow

- Imposition of Procedure
- Work as Processes in Series
- Overhead of Use
- Individualization of Work

Workflow from…

- Within
  - Accomplishes the smooth flow of work through methods internal to the work
- Without
  - Seeks to order the work through methods other than those which the work itself provides
- Problem with PF2
  - workflow model was inserted into the work in a way that makes the accountability of workers and the work that they do problematic in new ways

Data, Databases, and DBMS

- DBMS: Database Management System
  - Set of programs to define, update, and control databases
  - Often what we mean when we say "database"
  - Sybase, Oracle, MySQL, etc.
- DBMS is responsible for laying out the information on the disk, getting from one piece of data to another, etc.
- Database designer is responsible for modeling the information, describing the relations, and creating queries

Database Styles

- DBMS store generic information
- Distinguishing characteristic is the basic data type

ER Modeling

- Identifying entities and their relationships
- Three elements
  - Entities: basic objects of the domain
  - Attributes: relevant features of those objects
  - Relationships: constrained ways in which objects related to each other

International Classification of Diseases

- Medical insurance companies need a standar list to lead to standard payment schedules
- Epidemiologists use it to track down causes of disease
- Create public health policy based on official health records
- Includes information about citizens within the US and all other countries

Modernity through Information

- The act of creating databases leads to creating the modern state

- Building the infrastructure and building the bureaucracy around it happened in unison

Evolution of the Information Infrastructure

- As causes of death evolved, the ICD did too
  – People used to die of a single disease
  – As that changed, the ICD moved to a model that looks for and records complex disease interactions
- As the technology evolved, so did the ICD
  – Automated computerization in the 1960s allowed for people to code for multiple diseases
- Now we have a professional class of medical coders

Midterm

- Two parts
  - Organizations as machines
  - Qualitative methods
- Mix of question types
  - Short answer
  - Fill in the blank
  - Multiple choice

Upcoming

- Friday: Discussion optional
  - Steve will do midterm prep if you want/need
- Monday: Midterm
- Wednesday: Organizations as organisms
- Your fieldwork:
  - Choose 2 or 3 things from your previous observation session that were really interesting.
  - Go back to your site and take field notes on JUST those issues/activities/phenomena