

Information Concepts

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Original Sense: Informing

- Information is what happens when some is informed of some useful piece of knowledge
 - Describes a process or event, not a thing
- Example, in the US Constitution

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Before 1950s, Nobody Talked About

- Information Systems
 - Information Processing
 - Information Storage or Retrieval
 - Information Professionals
 - Information Science
- Etc.

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New Ideas

- During 1950s, talking about computer, we have first use in business of terms
 - Information System
 - Information Technology
 - Information Engineering
 - Management Information

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A New Idea?

"only in the past dozen years has the concept of information--as distinct from the papers, forms, and reports that convey it--really penetrated management's consciousness. That is has done so is largely due to recent breakthroughs in cybernetics, information theory, operations research, and the electronic computer...."

Dun's Review and Modern Industry, 1958

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Information in the 50s

- "Information Theory" – fashionable & novel during late 1940s, early 1950s

The authors of information theory



Norbert Wiener of M.I.T., so-called prodigy and one of the world's foremost mathematicians, was the first to grasp clearly that communication of information is a problem in statistics.

Claude Shannon of Bell Laboratories, a thirty-seven-year-old engineer and mathematician, published his brilliant work, *A Mathematical Theory of Communication*, in 1948.

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Information

- Debut of “Information” in business culture
 - Fortune, December 1953



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Information Theory

- Stop to discuss...

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Information Retrieval

- Idea originating in the 1950s
- Described the use of new technologies (electronics, microfilm, etc) to automate processes
 - Particularly associated with scientific and technical fields

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Information as a Thing

- Old idea: information as a process
- New idea: information as a thing
 - E.g. might call the contents of a computer file or library “information” whether anyone is informed of anything by them or not.
- Gives rise to new ideas
 - “Information management” (organizing files)
 - “Information storage”
- Textbook tends to treat information as a thing

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Library & Information Science

- Practical stuff to do with libraries, such as
 - Introduction to Reference Services
 - Managing Library Collections
 - How to catalog books
- Increasing computer technology component
 - Especially things like digital libraries
 - Online information retrieval systems
- Theoretical work on classification, etc.

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Information Science - Origins

- Phrase first used in 1950s
 - Became popular as new name for specialized, technology oriented kinds of librarianship
- Gradually replaces “library science”
 - Sounds more general, more modern, more important
 - Most library schools rename as “Library and Information Science”

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Library and Information Science

➤ MLIS Degree

- Professional qualification for
 - Librarians
 - Archivists
- Working in
 - Universities
 - Public and school libraries
 - Corporate or government libraries/archives

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Part II: Computer and Information Concepts

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Key Applications of Computers

1. Calculation (since 1940s)
 - Simulation of things like hydrogen bomb, weather forecasts
2. Administration (since 1950s)
 - Originally called "Data Processing"
 - e.g. Payroll processing, stock control, bank account statements
3. On-line, Interactive Systems (primarily since 1970s)
 - e.g. Airline reservations, bank ATMs, on-line databases, more recently the Web
4. Personal Entertainment (since 1980s)
 - video games, music, e books
5. Personal Communication (primarily since 1990s)
 - email, instant messaging, news, video

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Previously Different Technologies in Each Niche

1. Calculation:
 - mechanical calculators, adding machines
2. Administration:
 - clerks, specialized machines
3. On-line, Interactive Processes
 - telex machines, forms, telegrams, telephone, clerks
4. Personal Entertainment
 - board games, record players, sports
5. Personal Communication
 - telephone, letters, face to face talking, TV

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The Computer Enters Business



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Organizational Place Unclear



- Where to put computer department?
- What duties to assign it?
- Are they management experts of machine operators?

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Management Information Systems

- First corporate use of computers called Data Processing, from mid-1950s
 - Mostly for routine stuff, like printing payroll checks
- More managerially oriented use was called “Management Information Systems”
 - Originally, idea was to produce a big System that would Inform Management
- By 1970s, Management Information Systems (MIS) was
 - New name for main corporate computer department
 - Name for department in business school studying/teaching computer use

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Your business.

Your business with a Univac Total Management Information System.

Management is no longer the simple gate of a gateway but the hub of a wheel. Lines of communication are direct. Every vital activity is monitored on an absolutely current basis. And centralized control of decentralized operations becomes a reality. Univac.

There are three divisions. Total Management Information Systems, Univac Business Systems, and Univac Data Systems. For information about them, get in touch with the Univac Division of Honeywell International.

Univac Advertisement, Business Week 1965

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Information Systems (IS)

- Shortened version of MIS
- Describes computer people and computer department in business
 - E.g. a low-level computer support job might be called “Information System Specialist I”

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Example from Monster.com

- “Manager of Information Systems” at RF Technologies in Brookfield
 - The Manager of IS is responsible for building, optimizing, managing, and monitoring the company’s network and systems as well as, directing the work flow of System administrators, and PC/Network Technicians.
- The qualified candidate will have 2-3 years supervisory experience, as well as, experience with administration, configuration, and maintenance of: Microsoft Windows NT/2000/2003 servers; Microsoft Windows 9X/NT/2000/XP workstations; Microsoft SQL Server 2000; Microsoft ISA Server 2000; Web applications, including remote monitoring, Corporate internet, ERP & CRM applications & associated reporting; Microsoft exchange server 2003; LAN topology and hardware; cisco network hardware; Cisco IP Telephony System.
- Needs Bachelor’s degree. Career level “Experienced (non-manager)”

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Responsibilities of an IS Dept

- Set IT policies for the whole organization
 - Supported hardware, software, etc.
- Manage core applications for whole firm
 - “ERP” systems, accounting, personnel, etc.
 - Business critical applications – e.g. reservations for Hertz, stock control for Wal-Mart, etc.
- Administer company wide networks
- Other tasks may be decentralized or outsourced
 - Training, web hosting, user support, applications used by specific parts of company

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Chief Information Officer

- New name for head of organization’s computer department
 - Name chosen to indicate responsibility for “information as a resource”
 - E.g. business value of data in data bases
- Supposed to understand technology and the broader business
 - In practice, doesn’t usually have much to do with the “information science” version of information professional

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Information Technology

- Idea first surfaced in 1950s
- Became popular in late 1970s
 - Time of first personal computers and microchips
- Most popular meaning in late 1970s:
 - Combination of computers with communication technologies
- Most popular meaning today:
 - Posh way of saying “computers”

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IT Ideas in Textbook

- Discuss...

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Part 3: Information and Careers

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Companies May Also Have

- Chief Technology Officer
 - Supposed to worry more about the technical policy stuff to free up CIO for business things
- Chief Knowledge Officer
 - Coordinating initiatives designed to make knowledge scattered around the company more useful and accessible
 - Goes with idea of “knowledge management”

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Information Worker

- Someone who relies on obtaining, processing or distributing information to do their job
 - Examples: journalists, professors, managers, doctors, scientists, etc.
- Originally called “Knowledge Worker”

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Informatics

- In France, Germany, Russia just means computer science
- In USA, now means hybrid field covering application of computers in specific disciplinary area
 - Medical Informatics
 - Chemical Informatics
 - Bioinformatics

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Informatics Schools

- New kind of academic program
 - Penn State, Indiana, etc.
 - Focused on computer applications in different areas, in practice basically applied computer science
- All students have “cognate area”
 - Study bioinformatics, or chemical informatics, etc.
 - Basically a double major

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Distinctive UWM Features

- BSIR (undergraduate) is very different from MLIS (masters)
 - More technology (Information Systems) focused
 - Required courses on data bases (410), systems analysis (340), web technologies (240 & 440) and capstone project
 - Informatics influence (“cognate area”)
 - But some information science
 - Required course on organization of knowledge (230), information retrieval (330) etc.

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Textbook

- Takes broad sense of information
 - Library and Information science perspective
 - Idea of “information professional” as a broad field
 - Journalists, researchers, archivists, etc.
 - Also computer people as a special case
- A different vision from either
 - Computer science
 - Programming as part of rigorous, mathematically oriented discipline, less interest in users and applications
 - Management information systems
 - Computing as a specialist kind of business skill, less interest in non-business applications

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Information Professionals

- Term usually used in library/MLIS context
 - Primarily librarians and people with LIS training
 - But some definitions very broad – as in Ch. 6 of textbook

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User Focus

- Organizational IT applications?
- User related IT jobs
 - Help desk?
 - Training?
- Library positions with IT component
 - Public, universities, corporate, etc.

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Need to Define to Employers

- Gives some flexibility, e.g.
 - “It’s about applying computers in particular areas, and I specialized in business...”
 - “It’s all about

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