

Managing Information/ Informing Managers

I303, Fall 2003
Session 9
Thomas Haigh

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In This Session

- Data, Information & Knowledge
 - Differences
 - How they got that way
- Tension between
 - Managing Information
 - Informing Managers
 - Managing Information Technology
- Mostly on my paper
 - "How the Computer Became Information Technology"
- Introduces a number of topics for future weeks
 - Data bases
 - Knowledge Management
 - Role of the CIO

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My Paper

- Key points
 - Idea of information is now bound up deeply with computer technology
 - Two different meanings are being confused
 - 1: What happens when somebody is informed of some thing useful (old sense)
 - 2: The stuff stored inside a computer (new sense)
 - Ideas like IT, CIO, Information Systems Dept etc blur these two senses
 - Hope was to make computers more respectable
 - Created huge contradictions in mission

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Paper is Aimed at Historians

- Convince them that information idea is
 - Important
 - Bound up with technology
 - Has changed meaning relatively "recently"
- A lot of historical books on information themes recently
 - I think they're missing something....
- But for you, emphasis is different

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Relevance

- CIO and IS groups today are responsible for
1. Informing managers of what they need to know to make decisions on daily basis
 - And keep operational enterprise systems going, which are informing as well as running business
 2. Managing information resources
 - Data bases, data warehouses, etc.
 3. Managing information technology
 - Managing core information technology infrastructure
 - Setting policy & standards for personal computer systems – ie managing IT

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Combination is Tricky

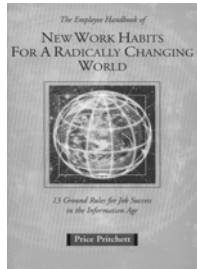
- Idea of "information" holds these together
 - Anything computerized is "information technology" or "information system" by definition
- In reality, may be more separate
- Another lesson
 - Information (in old sense) cannot be stockpiled or processed
 - Have to focus on human needs & business context
 - (Will see more in knowledge management part)

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Information Age

- Information society?
- Information revolution?
- Is information any more important than 50 years ago?
- Can we quantify information?



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Information Enters Business

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The Idea of Information

- Early 20th century – process by which someone is informed of something
 - “Information Officer”
 - Newspaper/Encyclopedia as “agent of information”
- 1940s – Shannon’s information theory
- 1950s – Scientific Information
 - Information Science
 - Fear of “information explosion”

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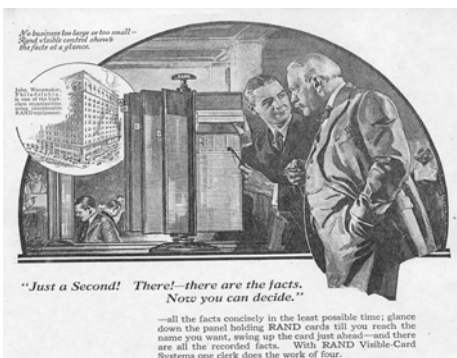
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As we saw earlier

- Ideas of
 - System
 - Science
 - Efficiency
- were important in business in early 1900s
- Managers also liked facts
 - & wanted to be well informed
- **But** idea of information technology, information system just did not exist

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Systems, Facts – NOT information

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1950, Note the “Fact-troller”



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So, Modern Info/Data Split

- Taken for granted (e.g. by textbook)
- Is a “frozen” result of struggle of now forgotten struggle by systems men
 - They want to be more important than data processing people
 - So they say that “information” is more important than “data”
 - And that they are information people

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..."

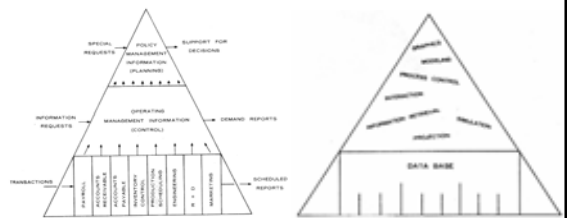
Dun's Review and Modern Industry, 1958

MIS: Facts Speak for Themselves

"When complete information is available, the policy or decision may already have been made. Another way to say this is the facts speak for themselves and require only a formal acceptance and stamp of approval by the line executive rather than a decision."

(McDonough, Adian. "The Scope of Management Systems: Past, Present and Future." In Total Systems, edited by Alan D. Meacham and Van B. Thompson, 20-24. Detroit, MI: American Data Processing, Inc., 1962.)

MIS & Data Base, 1960s



Data Base concept originates as support for MIS: pool of all data from operational systems

Information Systems

- Study of applications of IT
 - In business schools
 - In library and information science schools
- In practice, usually means study of computer technology
 - How much does it have to do with informing people?

Information Technology & The Chief Information Officer

Ideas of 1980s

- Information Technology becomes hot phrase around 1980
- Chief Information Officer idea invented around same time
 - Initially slow to spread
 - Takes off in late 1980s as new name for top computer manager

Information Technology Origin

- 1958 – Harvard Business Review – “Management in the 1980s”.
 - First use of phrase “Information Technology” for computers.
 - Extremely influential
- Business school professors and computers as new managerial elite

Harvard Business Review
November-December 1958

MANAGEMENT in the 1980's

By Joseph E. Looney and
"The 1980's: A New Era of
Management" is a special issue of
the Harvard Business Review, the
leading journal of business thought
and practice. It is published
quarterly by the Harvard Business
School, a leading center for
business education and research.
The Harvard Business School is
one of the world's leading
business schools, and its
publications are widely read
and cited. The Harvard Business
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Association to Advance Collegiate
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Business Schools (ABS). It is also
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Forgotten until around 1980

- Not one use of “information technology” in top business sources in 1977
 - Widely used by 1983
 - Idea of convergence of computers and communication
- At around same time
 - Lots of discussion of “information society”, Computer revolution, etc.
 - Personal computer is hot new technology

The “Information Business”



Chief Information Officer

- "A quiet revolution is occurring in the data processing industry. The computer era of the 1960s and 1970s is giving way to the information era of the 1980s."
- New term for top computer manager
 - Deliberately promoted by authors of a book
 - Spreads from mid-1980s
 - What is computer manager for when everyone has a computer?
- Supposed to
 - Manage ALL information, not just electronic
 - Have strong business background

Biggest Issue

- Should CIO know computers at all?
 - Some said disadvantage
 - Gets in way of applying to business
 - Makes hard to relate to other managers
 - Overreaction to technical culture?
- Not entirely clear today
 - People tend to keep changing minds

The CIO in Practice

Title Spreads Rapidly

- By late 1990s, almost universal
 - Many firms have multiple CIOs
- But duties do not usually match original idea
 - Often just a new name for computer manager
- More on this in later sessions...

Problems of the CIO

- High turnover
 - Budgets constantly rising
 - Big projects still late, expensive, often fail
 - Still responsible for technology
- Who to hire?
 - Computer person or general manager.
- Obsessed with reporting relationship
 - Seat on board
 - Being listened to by other managers, etc

Top Skills for CIO: 2002

- Poll of 500 CIOs shows top three
 - Communication (70%)
 - Understanding Business Processes (58%)
 - Strategic Thinking and Planning (46%)
- Only 10% say "Technical Proficiency"
- MBA is valuable qualification
- Yet
 - Most CIOs still have technical background
 - Hopping between industries is common

Data vs. Information

Chief information officers are really chief technology officers; business analysts are usually just systems analysts. Our entire field is a misnomer. It's called information systems or management information systems, but I would argue that the old term "data processing" is still a better fit for how we work most of the time. And the Information Age has really been the Data Age.

Davenport, Tom. "From Data to Knowledge." *CIO Magazine*, 1 April 1999.

One Lesson

- Be skeptical about newness
 - Hot new idea is often repackaging of old one
 - If it failed before, maybe it'll fail now!
- Basic ideas are very old
 - Hot new technologies don't change as much as people expect
 - Easier to change title than address substance

Beyond Information

Information Technology

- By 1990s, IT accepted as general term for a computer
 - Is it information if nobody is being informed?
 - Does something become information by being put inside an information system?

Information Becomes Too Technical

- Just a new name for data
 - CIO as new name for data processing manager
 - Hasn't really solved problems of business/tech integration, just papered over
- People start looking for new names
 - Business Intelligence
 - Knowledge Management
- To describe original goal of high level, business oriented environment

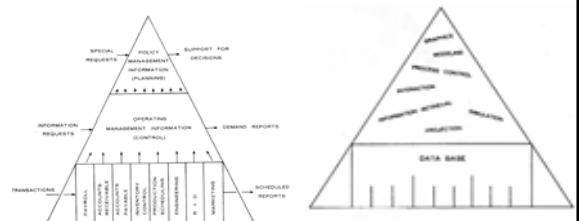
Important Issue

- Is information (the stuff in a computer) really fuel for decision making?
 - Can we store reservoirs of it?
 - Can we pipe it to managers as needed?
- "Managing information" viewpoint says yes
 - "Informing managers" viewpoint says no
 - Ties into Mintzberg reading & next time

Modern Information Pyramid



MIS & Data Base, 1960s



Data Base concept originates as support for MIS:
pool of all data from operational systems

In New Pyramid

- Progressive elevation
 - Computerized processing at each step
 - E.g. (from a consultant) Information from a database, Knowledge from data mining, etc.
- Only "wisdom" is in the human mind
 - Idea of information as something happening to a person is lost totally
- Everyone wants to be higher on pyramid
 - E.g. Chief Knowledge Officer, Wisdom Tools

Another Example

- Trying to estimate the "volume of information in the world"
 - According to how much space it would take to digitize
 - All the recorded sounds
 - All the computer data
 - All the videotape
 - All the photographs, etc.
- Respected paper from Berkeley Dean

Recent Trends

- Recent trends in CIO job
 - Creation of separate CTO (T = technology)
 - Proliferation of CIO job title (division, region)
 - CKO to look after less routine stuff
 - Unclear relationship to e-business, Internet
- Position may be fragmenting
 - How much will consultants be relied on?
 - How much outsourced?

In My View

- Fragmentation of job is a good thing
 - Splitting Chief Technology Officer makes sense
 - Maybe CIO could really focus on information?
- But
 - Real value is informing management
 - Not "managing" or sockpiling information
 - Must focus on integration with business processes and core mission of firm
 - Will return to with data mining...