Introduction

Companies Want To “Manage” Knowledge

- Knowledge cannot be controlled or engineered, so the mechanical metaphor is wrong: it can only be leveraged through processes and culture
- Knowledge exists in two states, tacit and explicit, and effective knowledge management requires transferring knowledge between these two states
  - Tacit knowledge exists within a person’s mind and is private and unique to each person
  - Explicit knowledge has been articulated, codified, and made public
- Western management practices have concentrated on managing explicit knowledge; but cultivating and leveraging tacit knowledge is just as important

A Model for Managing Knowledge

- The model is circular with four stages, which represent what people generally do with knowledge
  1. First they create it, or capture it from a source
  2. Second, they organize it and put it into categories for easy retrieval
  3. Third, they distribute it (push) or access it (pull)
  4. Fourth, they absorb another’s knowledge for their own use or to create more new knowledge
- Thus, the cycle begins again
- These four stages create three types of capital:
  1. Human capital
  2. Structural capital, and
  3. Customer capital

A Model for Managing Knowledge

Building Human Capital

- Human capital is the knowledge, skills, and innovativeness of employees as well as company values, culture, and philosophy
- Creating it focuses on getting people together to share knowledge

1. Knowledge Creation and Capture
   - This phase deals with generating knowledge, either by nurturing employees to create it or by acquiring it from outside

BUCKMAN LABORATORIES

Case Example: Knowledge Creation and Capture

- This industrial chemical company, with employees around the world, brings the knowledge of all its employees to bear on a customer problem anywhere in the world via a knowledge transfer system
- When employees need information or help, they ask via forums, which are Buckman-only online forums over the Internet
- The online conversations are the basis for transferring knowledge around the company, important threads being captured and stored in the forum library
- The prime benefit is timely, high-quality responses to customer needs
A Model for Managing Knowledge

Building Human Capital cont.

2. Knowledge Absorption and Reuse
   • This phase of building human capital addresses the notion of getting knowledge into people's heads where it can be enhanced and reused
   • One of the problems is that management often does not realize which employees are vital to information sharing because they house the organizational memory
   • One way to foster sharing is via T-managers
     – These are executives who have both a vertical role (such as running a business unit) and a horizontal role (such as sharing knowledge with their peers in other business units)

A Model for Managing Knowledge

Building Structural Capital

• Structural capital is the capabilities embedded in hardware, software, databases, organizational structure, patents, and trademarks that support employees as well as relationships with customers

  • It moves knowledge from people's heads to a tangible company asset

1. Knowledge Organization and Categorization
   • This phase is often handled by creating best practices knowledge bases

A PHARMACEUTICAL COMPANY

Case Example: Improving a Knowledge Support Process

• A project at a major pharmaceutical company aimed at improving the process of developing new drugs and getting them approved by the U.S. Food and Drug Administration (FDA)
• The team found the filed files were not complete, so it created a generic knowledge tree of the questions the FDA asks when deciding whether to approve a drug
• The team also commissioned their 10-year drug study beforehand, so they were clear about the data they needed to gather and present to the FDA, creating the report template publicly as a team
• The result: faster reports and faster approvals
  – Submit 3 months Vs. 18
  – Approved 18 months Vs. 3 years

A U.S. ENERGY COMPANY

Case Example: Knowledge Distribution and Access

• To instill a sharing culture in this highly autonomous energy company where the business units each focused on their own performance, management focused on promulgating best practices
• It defined them as a practice, know-how, or experience that had proven effective or valuable in one organization, and might be applicable to another
• A number of programs to collect best practices arose, but they were disparate. So a booklet was created based on TQM principles; it became the guide for sharing best practices
• Certain people were designated "technical knowledge experts" because they knew about best practices across the company, so their job was to disseminate tacit knowledge

Knowledge Brokers
• Can't 'appoint'!!!
• When you find one – look after him/her

Discovering "who" has the problem is a step in the right direction. Create environment that supports knowledge sharing and emergence of knowledge brokers

Successfully transferring knowledge depends 90% of having the right culture, and 10% on technology
**A Model for Managing Knowledge**

**Building Customer Capital**
- Customer capital is the strength of a company’s franchise with its customers, and is concerned with its relationships and networks of associates.
- When customers are familiar with a company’s products or services, the company can call that familiarity customer capital.
- This form of capital may be either:
  - Human (relationships with the company) or
  - Structural (products used from the company).

**A NORTH AMERICAN BANK**

**Case Example: Building Customer Capital**
- The vice president wanted to find a way to value intangibles so the bank would have a sounder means for evaluating potential loan customers than simply look at the tangible assets they possessed.
  - Intellectual capital had to be worth something!
- In addition to defining human and structural capital, he defined customer capital and measured three aspects:
  1. Depth of knowledge about the bank in a customer organization.
  2. Breadth of knowledge by a customer, and
  3. Loyalty to the bank.

**A NORTH AMERICAN BANK**

**Case Example: Building Customer Capital cont.**
- To strengthen these aspects, the vice president believed the bank needed to assist its customers in learning:
  - Such as learning more about the bank, requiring the bank’s values and strategies to be congruent with its customers.
- This helped senior bank officers focus more on customers.

**A Model for Managing Knowledge**

**The Cultural Side of Knowledge Management**
- Success in knowledge management comes as much from changing organizational behavior as it does from implementing new technology.
- Knowledge management work must tap people’s motivations to share and cooperate.

**Red Flags – Cultural barriers:**
- Being seen as a whistle blower or messenger of bad news.
- Losing ones place as a knowledge gatekeeper.
- Time implications:
  - Knowledge sharing really does take time.

**Design the System to Match What the Users Value**
- A knowledge management system needs to be designed to fit the people who will use it and gain value from it.
- One system that works:
  - Is demand driven.
  - Roots out tacit knowledge.
  - Is in members’ e-mail box every day, and
  - Is full of intriguing opinions.
- It’s a conversation rather than a library, which is just what these professionals need.
PARTNERS HEALTHCARE SYSTEM
Case Example: Design the System to Match What the Users Value

- This hospital and physician group system is delivering just-in-time knowledge to physicians by way of their online order entry system, notifying them of drug interactions when they enter a prescription order.
- The system can also tell the doctor about a newer, more effective drug or warn the doctor that the prescribed medication could worsen a patient disease, making the system a recommender system.
- It also has an event-detection mechanism, which alerts a physician when it learns of an event that can endanger the health of a patient.
- Committees of top clinicians identify the knowledge that needs to be in the knowledge bases and keeps it up to date.
- Bottom line = improves individuals’ and organization’s performance.

Intellectual Capital Issues

Value Issues

- Information’s value depends on the recipient and the context; most people cannot put a value on a piece of information until they have seen it.
- The only practical way to establish the value of information is to establish a price for it and see if anyone buys.
- A number of tools are being used within companies to increase the value of information:
  - Information maps
  - Textual charts, diagrammatic maps etc. that point to location of information
  - Information guides
  - People who know where the information is
  - Business documents, and
  - Groupware
  - Lotus Notes

Usage Issues

- Information management is a management issue because it deals with how people use information.
- Information use is difficult to manage because:
  - The information’s complexity must be preserved.
  - People do not share easily, and
  - Technology does not change culture.
- Just building an information system doesn’t mean that people will use it!!!

Sharing Issues

- A sharing culture must be in place or the existing disincentives will thwart using a sharing system.
- But forcing employees to share information with those above them can lead to intrusive management.
- Unlimited sharing also does not work, so there need to be limits.

The Vast Arena of Computer Ethics
A Little History

- New technologies pose ethical issues when they open up new possibilities for human action.
- In the mainframe era, the perceived threat was invasion of privacy.
- In the PC era, attention turned to the ethical issues of property rights.
- In the Internet era, all the concerns of the past have resurfaced and become global.
The Vast Arena of Computer Ethics
What is Computer Ethics?
- New technologies raise ethical issues because they create policy vacuums: ethical issues are the vacuums, and the role of computer ethics is to fill them
- Areas of ethical concern include:
  - Privacy
  - Property rights
  - Liabilities
  - Free speech, and
  - Professional ethics
- Some examples from Pg.551

What is Computer Ethics? cont.
- The question becomes “Should we fill the vacuums with laws or something else?”
- The ethical questions surround what people do to one another, so they involve such concepts as:
  - Harm
  - Responsibility
  - Privacy, and
  - Property

The Vast Arena of Computer Ethics
Information Privacy
- Privacy includes:
  - Freedom from intrusion
  - The right to be left alone
  - The right to control information about oneself, and
  - Freedom from surveillance
- New technologies e.g. RFID worry privacy advocates
  - Can industry, retailers etc. monitor personal belongings after they have been purchased?

Information Privacy cont.
- But the argument for personal information privacy has not “won the day,” since a much stronger argument for the right to privacy can be made if privacy is seen as a social good, rather than as an individual good
- Five ways to increase information privacy protection include things that can be done:
  1. At the national level
  2. By computer professionals
  3. By technology
  4. In Institutions, and
  5. By individuals

The Vast Arena of Computer Ethics
Intellectual Property Rights
- The protection of intellectual property is critical in an Internet-based world because many products and services contain intellectual property, and copies are easy to make and are often as good as the original
- There are four types of legal protection for intellectual property:
  - Copyrights
  - Patents
  - Trademarks, and
  - Trade secrets

Legal Jurisdiction
- Laws are written for particular jurisdictions with clear geographic boundaries, so how do those laws apply in cyberspace, which has no geographic boundaries?
- Faced with the inability to control the flow of electrons across physical boundaries, some authorities strive to impose their boundaries on cyberspace
- Internationally, the United Nations Commission on International Trade Law has developed a model law that supports the commercial use of international contracts in electronic commerce
The Vast Arena of Computer Ethics

Online Contracting

- Contract law looks for evidence that the parties have mutually assented to the terms of a particular set of obligations before it will impose those obligations on them.

- In e-business, evidence of acceptance of a contract can be a simple click on a button saying "I Accept" or "I Agree."

CLICKWRAP AGREEMENTS

Case Example: Online Contracting

- This "clickwrap contract" is an example of what the law calls a "contract of adhesion" – A contract you did not really bargain over in any way, but which was presented as more of a take-it-or-leave-it offer.

- Generally speaking, adhesion contracts are legally enforceable.

Conclusion

- To properly support knowledge work, companies need to understand the life cycle of knowledge because each phase is best supported by specific approaches:
  - Two by high-touch people approaches, and
  - Two by high-tech approaches.

- Likewise, it behooves management to understand the vast arena of computer ethics.

- IT adds new twists and, often, greater ramifications to long-standing ethical issues.

- Ethical use of IT is creeping into corporate policies, sometimes due to regulation.

Conclusion cont.

- Companies in some countries are now required to state their privacy policies with respect to the personally identifiable information they handle.

- Many companies have also decided whether or not e-mail is company or private property, and made their stance known to employees.

- It would be wise for CIOs to bring up other ethical issues and see that company policies are set, promulgated, and enforced, so that knowledge and other forms of intellectual property are properly used for good, not harm.