



Week 1: Chapter 1

Introducing Knowledge Management

Becerra-Fernandez, et al. -- Knowledge
Management



Chapter Objectives

- Describe **what KM is** and what the forces are that drive KM.
- Discuss **organizational issues** related to KM.
- Explain **knowledge management systems** (KMS) and their role in the organization.
- Discuss the relevance of KM in today's dynamic environments augmented with increasing technological complexity.
- Present the **benefits and considerations** about KM, including an overview of the nature of the KM projects currently in progress at public and private organizations around the world, and the important role that IT plays in KM



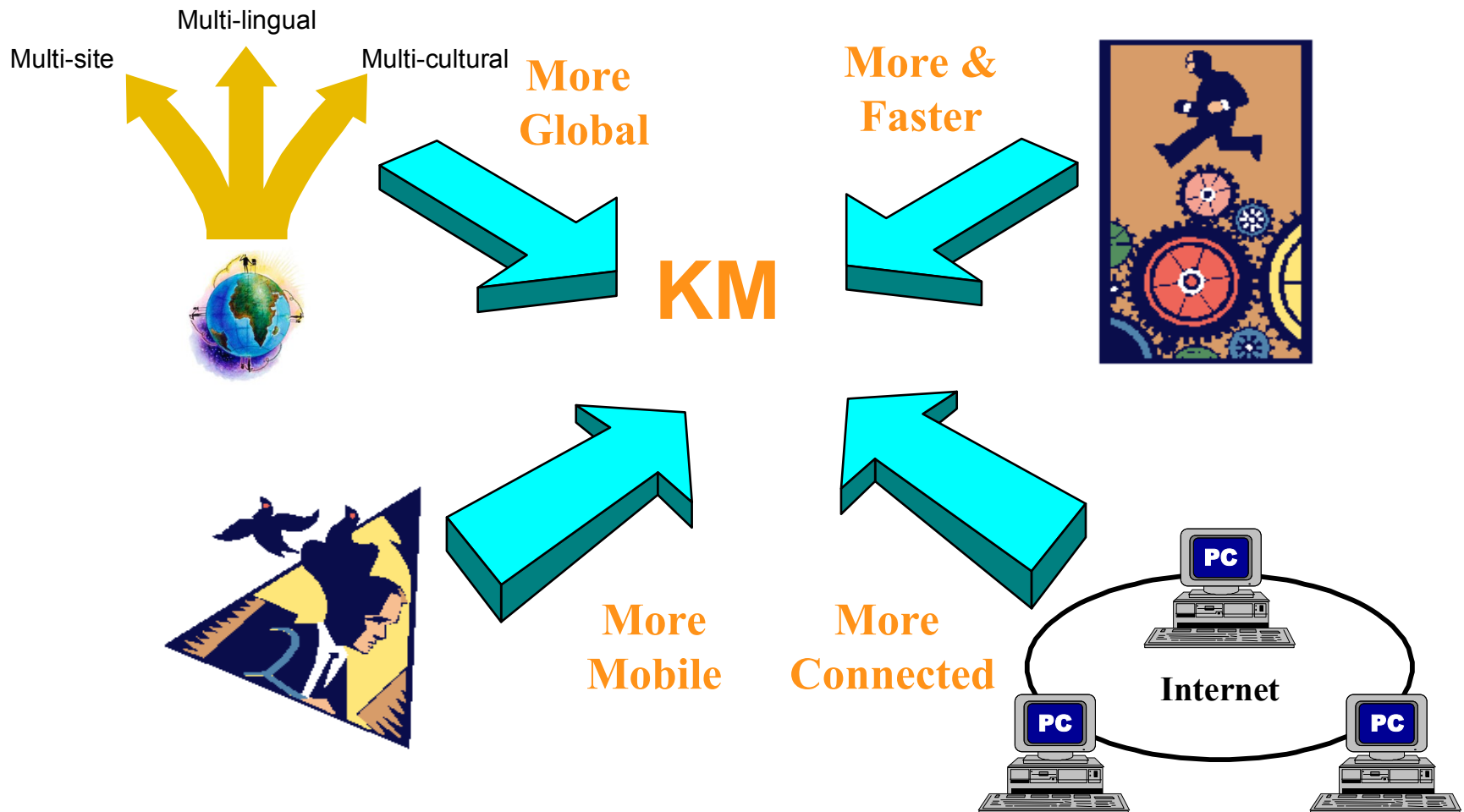
Introduction



- When asked, most company executives say their greatest asset is knowledge held by their employees
- They also state they have no idea how to manage this knowledge



Today's Working Environment





Knowledge Management – Motivation: Increasing Complexity

- Today's work environment is more complex due to an increase in the number of *subjective* knowledge items we need to attend to everyday
 - ♦ Filtering over 200 emails, faxes, voicemail messages on a daily basis – how to prioritize?
 - ♦ Having to “think on our feet” as expected response time has greatly decreased as well
 - ♦ KM is a response to the challenge of trying to manage this complexity amidst information overload
 - A “science of complexity”
 - Knowledge and entropy production have an inverse relationship



Knowledge Management - Motivation

- In 1969, the achievement of the first **American walking on the moon** and return back safely to Earth.
- This was a promise from JFK in 1961.
- Necessary science and technology (**Knowledge**) had to be discovered and developed to accomplish this extraordinary task.
- The following is the words of Sylvia Fries, NASA's Chief historian 1983-1990 who interviewed 51 engineers worked in the Apollo program



Knowledge Management - Motivation

- “The 20th anniversary of the landing of an American on the surface of the Moon occasioned many bittersweet reflections. Sweet was the celebration of the historic event itself... Bitter, for those same enthusiasts, was the knowledge that during the twenty intervening years much of the national consensus that launched this country on its first lunar adventure had evaporated... a generation of men and women who had defined their lives to a large extent in terms of this nation's epochal departure from Earth's surface was taking its leave of the program they had built” [Fries, 1992].



Importance of Knowledge to Dubai

- Think of something that put Dubai in the leadership which needed Knowledge?



Importance of Knowledge to Dubai

- Think of something that put Dubai in the leadership which needed Knowledge?
 - ♦ Palm
 - ♦ Metro
 - ♦ Emirates Aviation (airlines, airport, etc.)
 - ♦ Burj Al-Arab & Burj Khalifa
 - ♦ Atlantis
 - ♦ Stock Market
 - ♦ Shopping Malls
 - ♦ Exhibition and shows
 - ♦ ...



Hiring Scenario

- You have been asked to hire an assistant
- What sorts of things would you require from human resources?
 - ♦ What questions would you ask HR?
 - ♦ What would you require from all applicants?



Applicant Information

- Curriculum vitae (resume)
- References
- Test results (e.g. language, aptitude)
-



Hiring Scenario Continued

- You have selected 3 of the applicants to go to the next stage – the interview.
- Write down 3-4 questions that you would ask of the candidate during the interview.



Need for Knowledge Management

- “Knowledge has become the key resource, for a nation’s **military strength** as well as for its **economic strength**... is fundamentally different from the traditional key resources of the economist – **land**, **labor**, and even **capital**...we need systematic work on the **quality of knowledge** and the **productivity of knowledge**... the performance capacity, if not the survival, of any organization in the knowledge society will come increasingly to depend on those **two factors**” [Drucker,1994] (the father of KM)



What is Knowledge Management?

- Knowledge management (KM) may simply be defined as *doing what is needed to get the most out of knowledge resources*.
- In general, KM focuses on **organizing** and **making available** important knowledge, *wherever* and *whenever* it is needed.
- In practice, KM encompasses both *technological tools* and *organizational routines* in overlapping parts.



What is Knowledge Management?

- KM is the **systematic**, explicit and deliberate building, renewal and application of knowledge to maximize an enterprise's knowledge-related effectiveness and returns from knowledge assets (K. Wiig)
- KM is the **process** of capturing a company's collective expertise wherever it resides: in databases, on paper, in **people's heads** – and distributing it to wherever it can help produce the biggest payoff. (Hibbard)
- A systematic approach to manage the use of information in order to provide a continuous flow of knowledge to the right people at the right time enabling **efficient and effective decision making** in their everyday business (Payne & Britton, 2010).



More KM Definitions

- It is the attempt to recognize what is essentially a **human** asset buried in the minds of individuals, and leverage it into an organizational asset that can be accessed and used by a broader set of individuals on whose decisions the firm depends. —Larry Prusak
- KM applies systematic approaches to find, understand and use knowledge to create value (O'Dell)
- KM is the explicit control and management of knowledge within an organization **aimed at** achieving the company's objectives (van der Spek)
- KM is the formalization of and access to experience, knowledge, and expertise that create new capabilities, enable superior performance, encourage innovation and enhance customer value (Beckman)



More KM Definitions

- Process of capturing and making use of a firm's collective expertise anywhere in the business
- Doing the right thing, NOT doing things right
- Viewing company processes as knowledge processes
- Knowledge creation, dissemination, upgrade, and application toward organizational survival
- Part science, part art, part luck



Most vital resource of today's enterprise = Knowledge

- **Individual knowledge:** Collective knowledge **residing** in the minds of the organization's employees, customers, and vendors
- **Organization knowledge:** Many **benefits** to learning how to effectively manage organizational knowledge
 - ◆ Leveraging core business competencies
 - ◆ Accelerating innovation and time to market
 - ◆ Improving cycle times and decision making
 - ◆ Strengthening organizational commitment
 - ◆ Building sustainable competitive advantage [Davenport & Prusak 1998]



Valuation of Intellectual Capital

Knowledge = money!

- Organizations are increasingly valued for their intellectual capital.
- Globally, knowledge-intensive companies are valued at 3 to 8 times their financial capital
- Case: **Microsoft**
 - ♦ valued at US\$285B
 - ♦ much more than worth of its buildings, computers, physical assets
 - ♦ also represents estimate of its intellectual assets
(**Structural capital & Human capital**)



Intellectual Capital: Human vs. Structural Capital

- **Human capital**
 - ♦ The body of knowledge the company possesses
 - ♦ Knowledge in the **minds** of developers, researchers, academic collaborators, business managers, ...
 - ♦ Also, knowledge in the minds of vendors and customers
- **Structural capital**
 - ♦ Everything that remains after the employees go home
 - Copyrights, customer files, business process software, databases, software manuals, trademarks, organizational structures, ...
 - ♦ In other words, organizational capability



Forces Driving Knowledge Management

- **What makes the organization better suited to compete successfully in a much more demanding environment.**
 - 1. Increasing Domain Complexity**
 - 2. Accelerating Market Volatility**
 - 3. Intensified Speed of Responsiveness**
 - 4. Diminishing Individual Experience**



1. Increasing Domain Complexity (1)

- Fact: **Complexity** of the underlying **knowledge domains** is increasing.
- Thus, **complexity** of the **knowledge required** to complete a specific business process task has increased as well.
- Intricacy (complicated details) of internal and external processes, increased competition, and the rapid advancement of technology all contribute to increasing **domain complexity**.



1. Increasing Domain Complexity (2)

- Example: New product development now typically requires...
 - ♦ *not only* brainstorming sessions by freethinking product designers
 - ♦ *but also* partnership of inter-organizational teams representing many various functional subunits (finance, marketing, engineering, ...)
- Professional recruiters increasingly emphasize not just excellent educational and professional qualifications, but also have outstanding communication and team collaboration skills...
 - ♦ ... enabling them to **share** their **knowledge** for the benefit of the organization.



2. Accelerating Market Volatility

- The **pace of change**, or volatility, within each market domain has increased rapidly in the past decade.
- Market and environmental influences can result in overnight changes in an organization.
- Stock prices have become increasingly volatile in recent years
 - ♦ A result of “day trading” phenomenon (sharp increase in nonfinancial professionals who are making a living from exploiting steep market fluctuations).



3. Intensified Speed of Responsiveness

- The **time required to take action** based upon subtle changes within and across domains is decreasing.
- Rapid advances in technology is continually changing the decision-making landscape.
 - ♦ Decisions must be made and implemented quickly – otherwise the window of opportunity closes.
- Example: hotel booking business ...



Intensified Speed of Responsiveness: Example: hotel booking business

- A hotel manager that participates in an Internet auctioning market of hotel rooms
- Yesterday... **low-tech**...
 - ♦ **customer** makes a **request**
 - ♦ individual **sales** representatives return to the **office**
 - ♦ discuss the opportunity with their **manager**
 - ♦ draft a **proposal**
 - ♦ **mail** the proposal to the client
 - ♦ client **accepts** or rejects the offer
- Today... with online auctioning/bidding markets...
 - ♦ hotel manager: “should I book a \$200 room for the bid offer of \$80 and fill the room, or risk not accepting the bid hoping to get a walk-in customer that will pay the \$200?”
 - ♦ **manager only has minutes** after a bid offer to make the **decision!**



4. Diminishing Individual Experience (1)

- High employee turnover rates have resulted in individuals with decision-making authority having less tenure within their organizations than ever before.
- Example: In Fortune 300 companies, average age of Chief Executive officers (CEOs)
 - ♦ Proportion below age 50:
 - 2000: 5%
 - 2018: 15% (increase)
 - ♦ Median tenure in office:
 - 2000: 7 years
 - 2018: 5 years (decrease)



4. Diminishing Individual Experience (2)

- Because trends change so rapidly, a decision-maker's **experience** may **not be relevant to the decision** that needs to be made (even when the individual has been with the organization for years).
- This creates a great disadvantage when making mission-critical decisions. Effects include:
 - ♦ **Immature intuition** – the decision maker is less likely to understand the nuances of domain inputs, due to the complexity in specific domains and their own tenure within an organization.
 - ♦ **Pressure for faster responsiveness** – when facing external pressures, the need to respond is more urgent due to competitive pressures such as shortening product development cycles.
 - ♦ **Higher risk of wrong or unclear decision responses** – the need for swiftness in implementing an action after a decision has been made allows little market tolerance



So, what does this mean?

- Face with increased complexity, market volatility and accelerated responsiveness, today's **younger manager feels less adequate to make the difficult decisions faced each day.**
 - ♦ Solution: there is a need to provide them with the requisite **knowledge** for making correct and timely decisions.
- KM is important for organizations that continually face **downsizing or a high turnover percentage** due to the nature of the industry in order to survive against competitors.

Downsize → reduce cost without sacrificing knowledge



Case: Corporate Downsizing

Trend followed by Growth again (1)

- Need for KM became even more evident in the “reengineering” era of recent times.
- Dominant driver of downsizing in most organizations: rapidly reduce costs to survive against competitors.
- Obvious negative side effect: dissipation of the knowledge resources of the organization.
- Results in a devitalized organization:
 - ♦ decreased morale
 - ♦ reduced commitment
 - ♦ inferior quality
 - ♦ lack of teamwork
 - ♦ lower productivity
 - ♦ loss of innovative ability



Case: Corporate Downsizing Trend followed by Growth again (2)

- Fact: many laid-off individuals performed significant tasks and had acquired considerable and valuable skills over the years.
- Many companies are typically not prepared for downsizing
 - ♦ Few take steps to **prevent** the escape of knowledge
 - ♦ Should first identify what skills and information resources are needed to meet **mission-critical objectives**
- Now, with growth again, how and by whom can new employees be trained?
- Effective methodologies, including tools and techniques to **capture vital knowledge**, are essential for an organization to maintain its competitive edge.



Knowledge Management Systems

- Information technology
 - ♦ facilitates **sharing** as well as accelerated **growth** of **knowledge**.
 - ♦ allows the **movement** of **information** at increasing **speeds** and **efficiencies**.
- *“Today, knowledge is accumulating at an ever increasing rate. It is estimated that **knowledge is currently doubling every 18 months** and, of course, the pace is increasing... Technology facilitates the speed at which knowledge and ideas proliferate”*
Bradley [1996]



Knowledge Management Systems

- Knowledge management **mechanisms** are organizational or structural means used to promote knowledge management.
- The use of leading-edge **information technologies** (e.g., Web-based conferencing) to support KM mechanisms enables dramatic improvement in KM.
- *knowledge management systems* (KMS): the synergy between latest technologies and social/structural mechanisms

$$\text{Latest Technology} + \text{Social/Structural Mechanisms} = \text{Knowledge Management Systems}$$



Knowledge Management Systems

- **KM systems classification** based on observations on the KM systems implementations:
 - ♦ *Knowledge Discovery Systems*
 - ♦ *Knowledge Capture Systems*
 - ♦ *Knowledge Sharing Systems*
 - ♦ *Knowledge Application Systems*



Essence of KM: important human component in KM

1. Knowledge is first created in the people's minds. KM practices must first identify ways to encourage and stimulate the ability of employees to develop new knowledge.
2. KM methodologies and technologies must enable effective ways to elicit, represent, organize, re-use, and renew this knowledge.
3. KM should not distance itself from the knowledge owners, but instead celebrate and recognize their position as experts in the organization.



Conclusions

In this Chapter, we...

- Described KM ranging from the system to the organizational perspective.
- Explained the relevance of KM in today's dynamic environments augmented with increasing technological complexity
- Explained the benefits and considerations about KM, including an overview of the nature of the KM projects currently in progress at public and private organizations around the world.
- Described that information technology plays an important role in KM. The enabling role of IT is discussed, but the old adage of "KM is 80% organizational, and 20% about IT" still holds today.



Chapter 1

Introducing Knowledge Management

Becerra-Fernandez, et al. -- Knowledge
Management