Management Information Systems

Management Information Systems

B09. Knowledge Management

- Code: 166137-01+02
- Course: Management Information Systems
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Contents

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Learning Objectives

• 01. Define knowledge and describe the different types of knowledge.
• 02. Describe the activities involved in knowledge management.
• 03. Describe different approaches to knowledge management.
• 04. Describe the issues associated with implementing knowledge management in organizations.
• 05. Describe the technologies that can be utilized in a knowledge management system.
• 06. Describe the activities of the chief knowledge officer and others involved in knowledge management.
• 07. Describe benefits as well as drawbacks to knowledge management initiatives

01. Knowledge Management

- Knowledge Management (KM)
  - Knowledge management (KM) is a process that helps organizations identify, select, organize, disseminate, and transfer important information and expertise that are part of the organization's memory.

http://www.gdrc.org

01. Knowledge Management

- Knowledge Management (KM)
  - Structuring of knowledge enables
    - Effective and efficient problem solving
    - Dynamic learning
    - Strategic planning
    - Decision making.
  - Knowledge management initiatives focus on
    - Identifying knowledge
    - How it can be shared in a formal manner
    - Leveraging its value through reuse.
  - Knowledge management can
    - Promote organizational learning
    - Help solve problems

http://www.vdocs.org

02. Knowledge

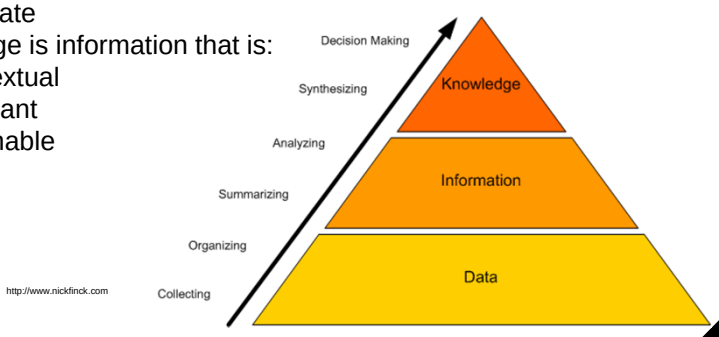
- Knowledge
  - Knowledge is very distinct from data and information and provides a higher level of meaning about that data and information.
  - The ability to act is an integral part of being knowledgeable.
  - Having knowledge implies that it can be exercised to solve a problem, whereas having information does not.

http://firmerground.wordpress.com

02. Knowledge

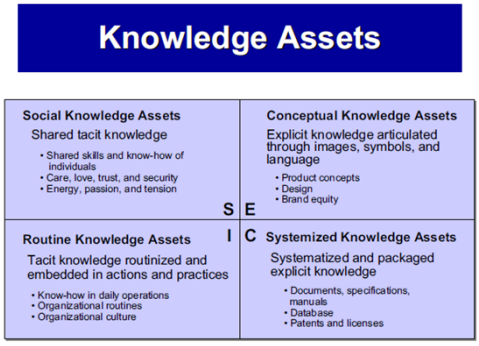
- Data vs. Information vs. Knowledge
  - Data are a collection of:
    - Facts
    - Measurements
    - Statistics
  - Information is organized or processed data that are:
    - Timely
    - Accurate
  - Knowledge is information that is:
    - Contextual
    - Relevant
    - Actionable

http://www.nickfinck.com



02. Knowledge

- Corporate Asset
  - Knowledge has the following characteristics that differentiates it from an organization's other assets.
  - Intellectual capital or intellectual assets

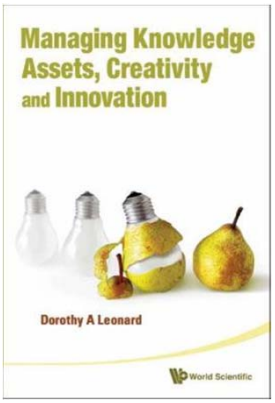


http://alistair.cockburn.us

© Nonaka I.

02. Knowledge

- Corporate Asset
  - Extraordinary leverage and increasing returns
    - Knowledge is not subject to diminishing returns.
    - When it is used, it is not consumed.
    - Its consumers can add to it, thus increasing its value.
  - Fragmentation, leakage, and the need to refresh
    - As knowledge grows, it branches and fragments.
    - Knowledge is dynamic; it is information in action.
    - Thus, an organization must continually refresh its knowledge base to maintain it as a source of competitive advantage.



http://www.borders.com.au

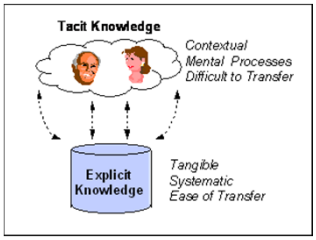
02. Knowledge

- Corporate Asset
  - Uncertain value
    - It is difficult to estimate the impact of an investment in knowledge.
    - There are too many intangible aspects.
  - Uncertain value of sharing
    - Similarly, it is difficult to estimate the value of sharing the knowledge, or even who will benefit most.
  - Rooted in time.

http://blog.vsharing.com/km_practicer

03. Explicit or Implicit Knowledge

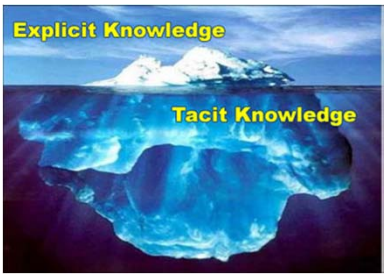
- Explicit Knowledge
  - Explicit knowledge has been codified (documented) in a form that can be distributed to others or transformed into a process or strategy without requiring interpersonal interaction.
  - The more that knowledge is made explicit, the more economically it can be transferred.



http://www.codeproject.com

03. Explicit or Implicit Knowledge

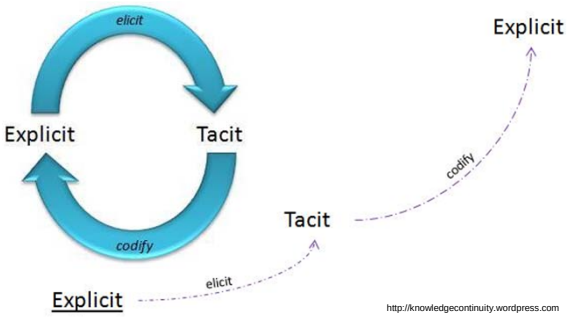
- Explicit Knowledge
  - Explicit knowledge (or leaky knowledge) deals with objective, rational, and technical knowledge
    - Data
    - Policies
    - Procedures
    - Software
    - Documents
    - Products
    - Strategies
    - Goals
    - Mission
    - Core competencies



http://www.vettech.ku.ac.th

03. Explicit or Implicit Knowledge

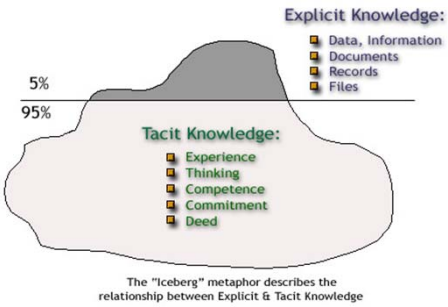
- Tacit (= Implicit) Knowledge
  - Tacit knowledge is usually in the domain of subjective, cognitive, and experiential learning; it is highly personal and difficult to formalize.
  - It is also referred to as embedded knowledge since it is usually either localized within the brain of an individual or embedded in the group interactions within a department or business unit.
  - Tacit knowledge is generally slow and costly to transfer and can be plagued by ambiguity.



http://knowledgecontinuity.wordpress.com

03. Explicit or Implicit Knowledge

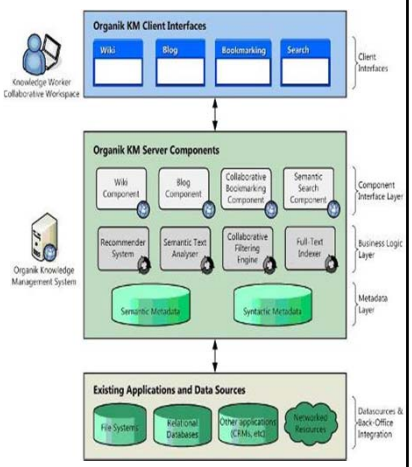
- Tacit (= Implicit) Knowledge
  - Tacit knowledge is the cumulative store of
    - The corporate experiences
    - Mental maps
    - Insights
    - Acumen
    - Expertise
    - Know-how
    - Trade secrets
    - Skill sets
    - Learning of an organization
    - The organizational culture



http://www.cognitivedesignsolutions.com

04. Knowledge Management Systems

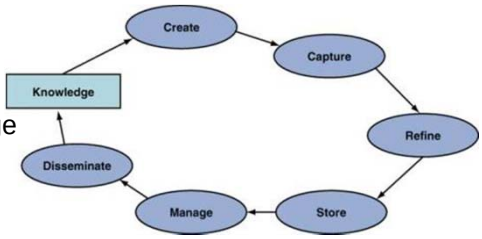
- Knowledge Management Systems (KMS)
  - The goal of knowledge management is for an organization to be aware of individual and collective knowledge so that it may make the most effective use of the knowledge it has.
  - Firms recognize the need to integrate both explicit and tacit knowledge into a formal information systems - Knowledge Management System.
  - As knowledge is disseminated, individuals develop, create, and identify new knowledge or update old knowledge, which they replenish into the system.



http://organik-project.eu

04. Knowledge Management Systems

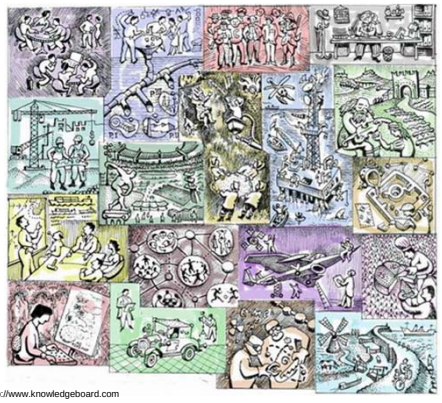
- Knowledge Management Systems (KMS)
  - A functioning knowledge management system follows six steps in a cycle dynamically refining information over time
    - Knowledge management cycle
      - Create knowledge
      - Capture knowledge
      - Refine knowledge
      - Store knowledge
      - Manage knowledge
      - Disseminate knowledge



Information Technology for Management, Ed. 5, Efraim Turban et al., Wiley

05. Knowledge Management Initiatives

- Knowledge Management Initiatives
  - Knowledge management initiatives have one of three aims:
    - To develop a knowledge-intensive culture
    - To build a knowledge infrastructure
    - To make knowledge visible mainly through
      - Maps
      - Yellow pages
      - Hypertext



http://www.knowledgeboard.com

05. Knowledge Management Initiatives

- Knowledge Management Initiatives
  - There are several activities or processes that surround the management of knowledge.
    - 1) Knowledge creation
    - 2) Knowledge sharing
    - 3) Knowledge seeking

http://www.kmnews.com

05. Knowledge Management Initiatives

- Knowledge Management Initiatives
  - 1) Knowledge Creation
    - Knowledge creation or knowledge acquisition is the generation of new insights, ideas, or routines.
      - Socialization mode refers to the conversion of tacit knowledge to new tacit knowledge through social interactions and shared experience.
      - Combination mode refers to the creation of new explicit knowledge by merging, categorizing, reclassifying, and synthesizing existing explicit knowledge
      - Externalization refers to converting tacit knowledge to new explicit knowledge
      - Internalization refers to the creation of new tacit knowledge from explicit knowledge.

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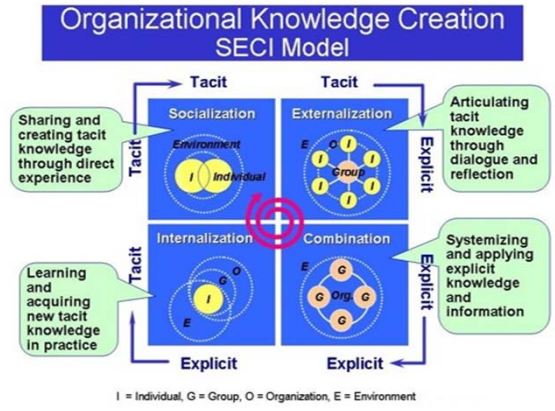
05. Knowledge Management Initiatives

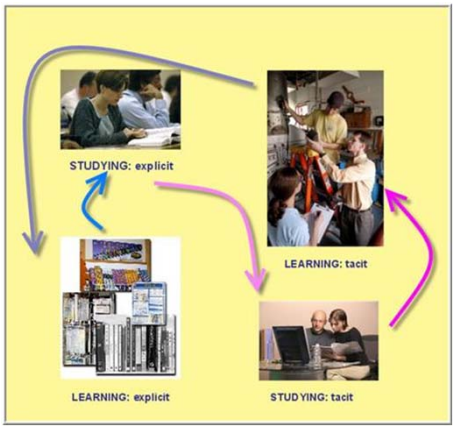
- Knowledge Management Initiatives
  - 1) Knowledge Creation
    - Knowledge Creation Model



http://www.apo-tokyo.org

05. Knowledge Management Initiatives

- Knowledge Management Initiatives
  - 2) Knowledge Sharing
    - Knowledge sharing is the exchange of ideas, insights, solutions, experiences to another individuals via knowledge transfer computer systems or other non-IS methods.



http://www.daveswhiteboard.com

05. Knowledge Management Initiatives

- Knowledge Management Initiatives
  - 3) Knowledge Seeking
    - Knowledge seeking is the search for and use of internal organizational knowledge.

http://vcareyux.wordpress.com

06. Knowledge Management Approaches

- Knowledge Management Approaches
  - There are two fundamental approaches to knowledge management:
    - A process approach
    - A practice approach
  - Since the two are not mutually exclusive a knowledge management initiative will probably involve both approaches.

http://firmerground.wordpress.com

Process(Codification)

Practice(Personalization)

http://www.robinchung.com

06. Knowledge Management Approaches

- A Process Approach
  - The process approach attempts to codify organizational knowledge through formalized controls, processes, and technologies frequently through the use of information technologies to enhance the quality and speed of knowledge creation and distribution.
  - The process approach is favored by firms that sell relatively standardized products since the knowledge in these firms is fairly explicit because of the nature of the products & services.
  - These technologies include:
    - Knowledge repositories
    - Decision support tools
    - Data warehousing
    - Groupware
    - Intranets

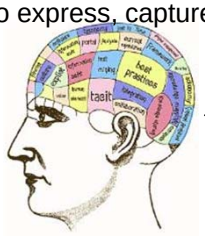
http://firmerground.wordpress.com

Process(Codification)

http://www.robinchung.com

06. Knowledge Management Approaches

- A Practice Approach
  - The practice approach to knowledge management assumes that organizational knowledge is tacit in nature and formal controls, processes, and technologies are not suitable for transmitting this type of understanding.
  - Rather than building formal systems to manage knowledge, this approach builds social environments or communities to facilitate the sharing of tacit understanding.
  - The practice approach is typically adopted by companies that provide highly customized solutions to unique problems.
  - The valuable knowledge for these firms is tacit in nature, which is difficult to express, capture, and manage.



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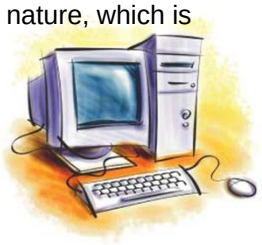
Practice(Personalization)



http://www.robinchung.com

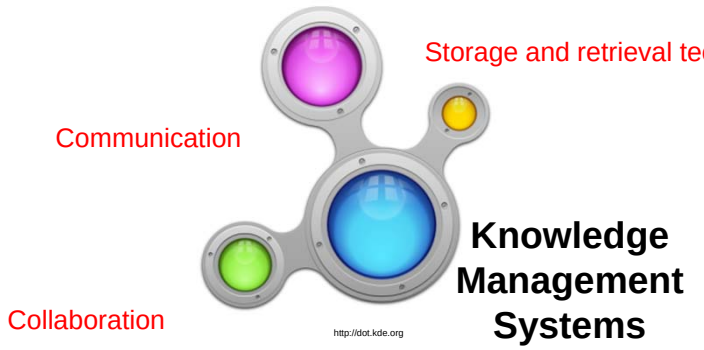
07. Knowledge Management Technology

- Information Technology
  - Knowledge management is more than a technology or product, it is a methodology applied to business practices.
  - However, information technology is crucial to the success of knowledge management systems.

http://www.koolgrapsite.com

07. Knowledge Management Technology

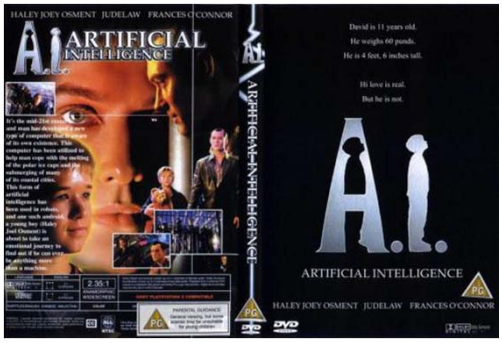
- Components of Knowledge Management Systems
  - Communication technologies allow users to access needed knowledge and to communicate with each other.
  - Collaboration technologies provide the means to perform group work.
  - Storage and retrieval technologies (database management systems) to store and manage knowledge.



http://dot.kde.org

07. Knowledge Management Technology

- Supporting Technologies
  - Artificial Intelligence (AI methods: expert systems, neural networks, fuzzy logic, genetic algorithms, etc.)
    - Assist in identifying expertise
    - Elicit knowledge automatically and semi-automatically
    - Provide interfacing through natural language processors
    - Enable intelligent searches through intelligent agents



http://sa-os.blogspot.com

07. Knowledge Management Technology

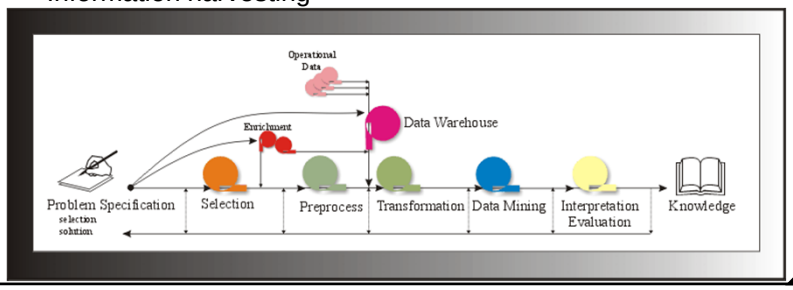
- Supporting Technologies
  - Intelligent agents are software systems that learn how users work and provide assistance in their daily tasks.

http://www.sytronics.com

07. Knowledge Management Technology

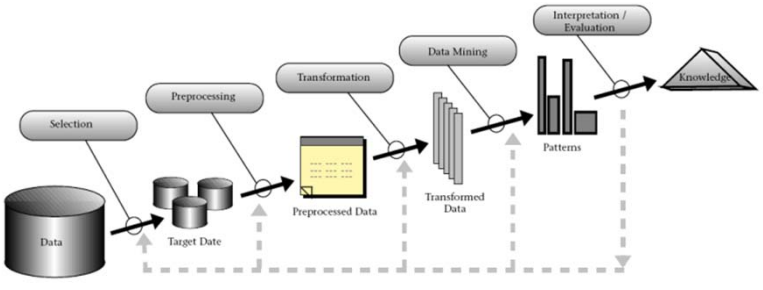
- Supporting Technologies
  - Knowledge Discovery in Databases (KDD) is a process used to search for and extract useful information from volumes of documents and data. It includes tasks such as:
    - Knowledge extraction
    - Data archaeology
    - Data exploration
    - Data pattern processing
    - Data dredging
    - Information harvesting

https://www.cs.indiana.edu



07. Knowledge Management Technology

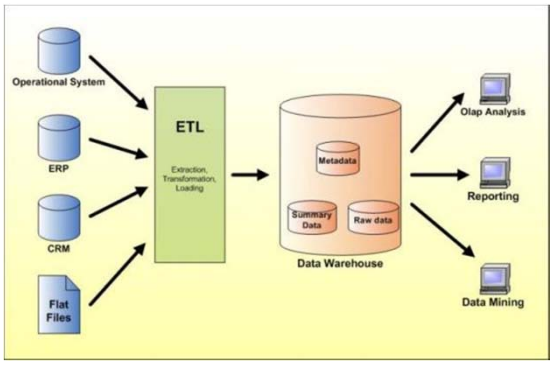
- Supporting Technologies
  - Data mining the process of searching for previously unknown information or relationships in large databases, is ideal for extracting knowledge from databases, documents, e-mail, etc.



http://www.amateurvoetbalinnederland.nl

07. Knowledge Management Technology

- Supporting Technologies
  - Model warehouses & model marts extend the role of data mining and knowledge discovery by acting as repositories of knowledge created from prior knowledge-discovery operations.



http://www.databaseanswers.org

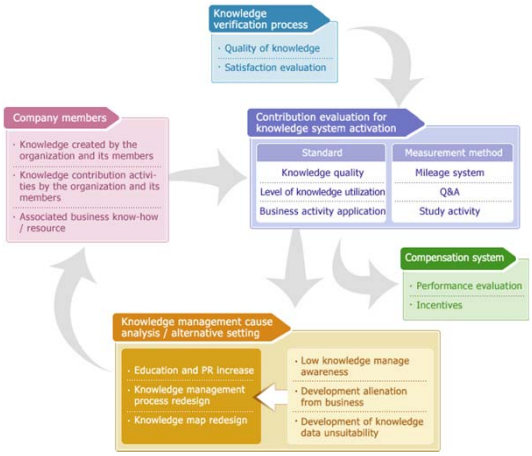
07. Knowledge Management Technology

- Supporting Technologies
  - Extensible Markup Language (XML) enables standardized representations of data structures, so that data can be processed appropriately by heterogeneous systems without case-by-case programming.

http://www.prlog.org

08. Knowware

- Knowware
  - Technology tools that support knowledge management are called knowware.
  - Types of knowware
    - IT Products
    - IT Services



http://en.enage.com

08. Knowware

- IT Products
  - Most knowledge management software packages include one or more of the following tools:
    - Collaborative computing tools
    - Knowledge servers
    - Enterprise knowledge portals
    - Electronic document management systems
    - Knowledge harvesting tools
    - Search engines
    - Knowledge management suites

http://www.crmsocialmedia.com

08. Knowware

- IT Services
  - Application service providers (ASPs) have evolved as a form of KMS outsourcing on the Web.
  - Offering a complete knowledge management solution, including a KM suite and the consulting to set it up.
  - Consulting firms provide assistance in
    - Establishing knowledge management systems
    - Supporting for vertical market software.
    - Measuring their effectiveness

http://www.design4life.jp

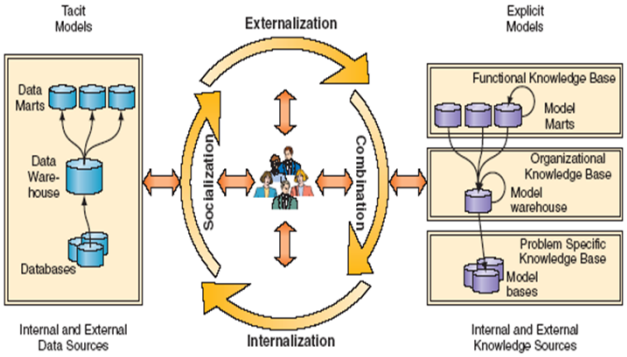
09. Knowledge Management Integration

- Knowledge Management Integration
  - Knowledge management systems are enterprise-wide and must be integrated with other information systems in an organization.
    - Customer Relationship Management Systems (CRM)
    - Supply Chain Management Systems (SCM)
    - Decision Support Systems (DSS)
    - Artificial Intelligence (AI)
    - Corporate Intranets
    - Extranets

http://www.informationarchitected.com

09. Knowledge Management Integration

- Knowledge Management Integration



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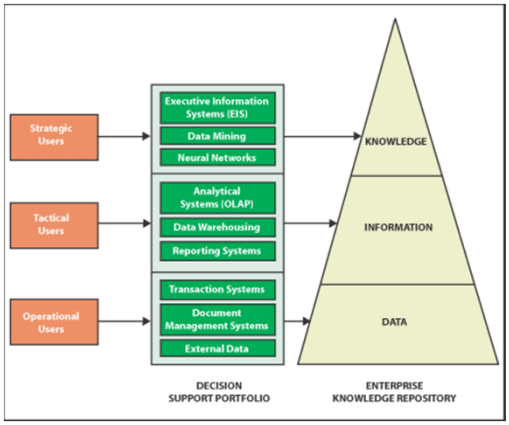
10. Knowledge Management People

- Knowledge Management People
  - Managing a KMS requires great effort. Many issues related to management, people, and culture must be considered to make the system a success.
  - Some of those issues concern implementation and effective use of the system.



http://www.information-management.com

10. Knowledge Management People

- Types of Knowledge Management People
  - Chief knowledge officer's (CKO) role are to maximize the firm's knowledge assets, design and implement knowledge management strategies, effectively exchange knowledge assets internally and externally, and promote system use.
  - Chief executive officer's (CEO) is responsible for championing the KM effort.

http://www.e-mentor.edu.pl

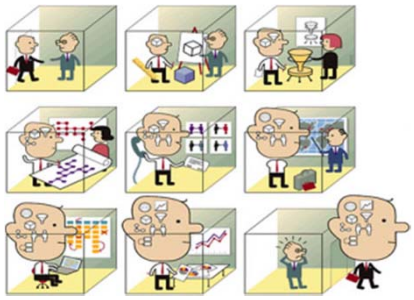
10. Knowledge Management People

- Types of Knowledge Management People
  - Chief financial officer (CFO) must ensure that the financial resources are available.
  - Chief operating officer (COO) must ensure that people begin to embed knowledge management practices into their daily work processes
  - Chief information officer (CIO) is responsible for the IT vision of the organization and the IT architecture, including databases, application software, etc.

http://www.adcotech.com

10. Knowledge Management People

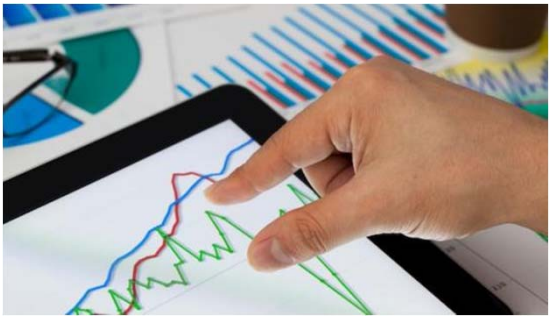
- Types of Knowledge Management People
  - KMS developers are the individuals who actually develop the system
  - KMS staff catalogue and manage the knowledge, train users.



https://community.kinaxis.com

11. Knowledge Management Metrics

- Knowledge Management Metrics
  - Organizations can gain several benefits from implementing a knowledge management strategy.
  - This valuation can be based upon an asset-based approach or one that links knowledge to its applications and business benefits.



http://www.mashable.com

11. Knowledge Management Metrics

- Knowledge Management Metrics
  - Asset-based approach starts with the identification of intellectual assets and then focuses management's attention on increasing their value.
  - The second uses variants of a balanced scorecard, where financial measures are balanced against customer, process, and innovation measures.
  - Types of Metrics
    - Financial Metrics (tangible benefits)
    - Non-Financial Metrics (intangible benefits)

http://www.mashable.com