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MGTE630

Knowledge Management

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MGTE630 Knowledge Management in Education

Handouts

Topic 1-111

Topic 1

Concepts of Data and Information

Why the Concepts of Data and Information are Necessary

To understand the concepts of knowledge and knowledge management (KM) the concepts of data and information are necessary to understand

All these concepts have a logical relationship with each other

Data

Data is the lowest point

An unstructured collection of facts and figures

Facts and figures which convey something specific, but which are not organized in any way and which provide no further information regarding patterns, context, etc.

Represent raw numbers or statements

Data can be easily captured, stored and communicated using electronic or other media

Examples of Data

Sales order at a restaurant included two large burgers and two medium-sized vanilla milkshakes

Observation that upon tossing a coin it landed heads or tails

Information

Information is the next level in a hierarchy of concepts

Structured data

Data become information when they are contextualized, categorized, calculated, and condensed

Data with relevance and purpose

Information is useful for decision making

Examples of Information

Numbers indicating the daily sales (in dollars, quantity, or percentage of daily sales) of burgers, vanilla milkshakes and other products. The manager can use such information to make decisions regarding the pricing and purchase of raw materials

When a coin was tossed for 100 times, how many times it landed heads and how many times it landed tails. This information is useful for players of a game in making decisions (to calculate the probability of heads and tails)

Topic 2

What is Knowledge?

Knowledge

The highest level in a hierarchy

The richest and deepest of the three, and is the most valuable

Information that enables action and decisions or information with direction

Knowledge in an area is "justified beliefs about relationships among concepts relevant to that particular area"

Information about information

Wiig's Definition of Knowledge

Knowledge consists of truths and beliefs, perspectives and concepts, judgments and expectations, methodologies, and know-how. It is possessed by humans, agents, or other active entities and is used to receive information and to recognize and identify; analyze, interpret, and evaluate; synthesize and decide; plan, implement, monitor, and adapt—that is, to act more or less intelligently. In other words, knowledge is used to determine what a specific situation means and how to handle it.

Longman's Definition of Knowledge

The information, skills and understanding that you have gained through learning or experience.

Gamble & Blackwell's Definition of Knowledge

Knowledge is a fluid mix of framed experience, values, contextual information, expert insight, and grounded intuition that provides an environment and framework for evaluating and incorporating new experiences and information.

It originates and is applied in the mind of the knowers. In organizations it often becomes embedded not only in documents or repositories, but also in organizational routines, practices and norms.

An Example of Knowledge

Data refers to bare fact without context, for example a phone number

Information is data in context, for example a phone book

Knowledge is information that facilitates action, for example, recognizing that a phone number belongs to a good client who needs to be called once a week to get his orders

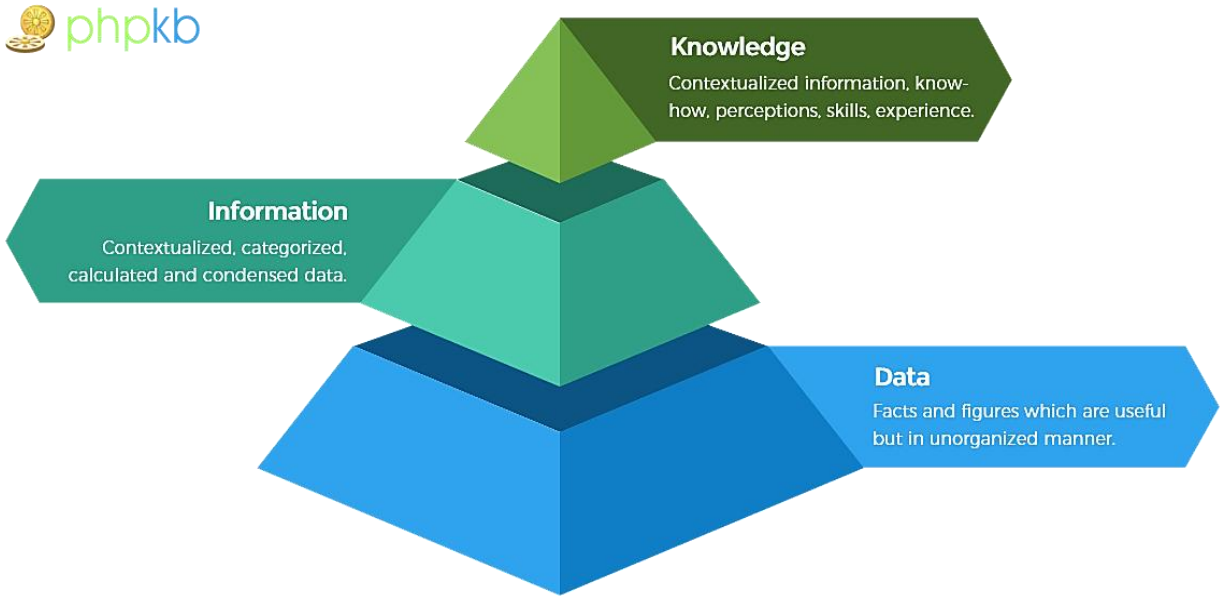
Knowledge helps produce information from data or more valuable information from less valuable information

Another Example of Knowledge

The daily sales of burgers can be used, along with other information (e.g. information on the quantity of bread in the inventory), to compute the amount of bread to buy

The relationship between the quantity of bread that should be ordered, the quantity of bread currently in the inventory, and the daily sales of burgers is an example of knowledge

Understanding of this relationship helps to use the information



Topic 3

Types of Knowledge

Different Types of Knowledge

Knowledge has been classified and characterized in several different ways

For example, knowledge has been categorized as individual, social, causal, conditional, relational, and pragmatic, and also as embodied, encoded, and procedural

Declarative vs. Procedural Knowledge

Declarative knowledge (facts) is also called substantive knowledge

It focuses on beliefs about relationships among variables

For example, a greater price charged for a product would cause some reduction in its number of sales

It can be stated in the form of propositions, expected correlations, or formulas relating concepts represented as variables

Procedural knowledge (how to ride a bicycle)

It focuses on beliefs relating sequences of steps or actions to have desired outcomes

For example, the set of justified beliefs about the procedure that should be followed in a government organization in deciding on whom to award the contract for a particular area (e.g., information system development)

General vs. Specific Knowledge

General knowledge is possessed by a widely large number of individuals and can be transferred easily across individuals

For example, knowledge about the rules of cricket, especially among the spectators at a cricket ground.

Specific knowledge is also called idiosyncratic knowledge

It is possessed by a very limited number of individuals, and is expensive to transfer

For example, the knowledge of a professional cricket coach

Specific knowledge is of three types.

Technically-specific knowledge is deep knowledge about a specific area

It includes knowledge about the tools and techniques that may be used to address problems in that area

This kind of knowledge is often acquired as a part of some formal training and is then augmented through experience in the field

Examples include the scientific knowledge possessed by a physicist and the knowledge about computer hardware possessed by a computer engineer

Context-specific knowledge refers to the knowledge of particular circumstances of time and place in which work is to be performed

It pertains to the organization and organizational subunit within which tasks are performed.

For example, a detailed knowledge a design engineer possesses about the working style of the particular design group in which he is working.

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Context-and-technology-specific knowledge is specific in terms of both the context and technical aspects

It simultaneously involves both rich scientific knowledge and an understanding of the particular context

For example, knowledge of how to decide on the stocks (shares) to acquire within an industry is context-and-technology-specific; it blends an understanding of that industry's dynamics as well as the tools used to analyze stock performance.

Topic 4

Difference between Tacit and Explicit Knowledge

Explicit Knowledge

Explicit knowledge refers to knowledge that has been expressed into words and numbers

Such knowledge can be shared formally and systematically in the form of data, specifications, manuals, drawings, audio and videotapes, computer programs, patents, and the like

For example, the basic principles for stock market analysis contained in a book or manual are considered explicit knowledge. This knowledge can be used by investors to make decisions about buying or selling stocks

Tacit Knowledge

Tacit knowledge includes insights, intuitions, and hunches

It tends to reside within the heads of knowers

It is difficult to express and formalize, and therefore difficult to share

Tacit knowledge is more likely to be personal and based on individual experiences and activities

For example, through years of observing a particular industry, a stock market analyst might gain knowledge that helps him make recommendations to investors in the stock market regarding the likely short-term and long-term market trends for the stocks of firms within that industry. Such knowledge would be considered tacit, unless the analyst can verbalize it in the form of a document that others can use and learn from.

Tacit knowledge may also include expertise that is so specific that it may be too expensive to make explicit; therefore, the organization chooses to let it reside with the expert.

Properties of tacit knowledge	Properties of explicit knowledge
Ability to adapt, to deal with new and exceptional situations	Ability to disseminate, to reproduce, to access and re-apply throughout the organization
Expertise, know-how, know-why, and care-why	Ability to teach, to train
Ability to collaborate, to share a vision, to transmit a culture	Ability to organize, to systematize; to translate a vision into a mission statement, into operational guidelines
Coaching and mentoring to transfer experiential knowledge on a one-to-one, face-to-face basis	Transfer knowledge via products, services, and documented processes

Topic 5

Need for Knowledge Management

Why KM is Needed

The ability to manage knowledge is becoming increasingly more crucial in the today's knowledge economy (The Knowledge Age has replaced the Industrial Era)

Knowledge is considered a valuable commodity or intellectual asset embedded in products and the tacit knowledge of employees

The advent of the Internet, the World Wide Web, has made unlimited sources of knowledge available to us all.

The sustainable advance a firm has comes from what it collectively knows, how efficiently it uses what it knows, and how quickly it acquires and uses new knowledge

The most valuable benefits from KM arise from sharing knowledge with current fellow employees (use) as well as sharing knowledge with future (often unknown) employees (reuse)

Two major goals for KM: improving organizational efficiency, through knowledge use and reuse, and increasing the organizational capacity to innovate, through knowledge use and reuse

In order to ensure that KM creates value, there is a strong need for a deliberate and systematic approach to cultivating and sharing a company's knowledge base—one populated with valid and valuable lessons learned and best practices

A business firm can be defined as an organization that knows how to do new things well and quickly

Knowledge management solutions have proven to be most successful in the capture, storage. and subsequent dissemination of knowledge that has been rendered explicit—particularly lessons learned and best practices

When asked, most executives often state that their greatest asset is the knowledge held by their employees. "When employees walk out the door, they take valuable organizational knowledge with them."

Managers also add that they have no idea how to manage this knowledge

Objectives of KM

Facilitate a smooth transition from those retiring to their successors who are recruited to fill their positions.

Minimize loss of corporate memory due to attrition and retirement.

Identify critical resources and critical areas of knowledge so that the corporation knows what it knows and does well—and why.

Build up a toolkit of methods that can be used with individuals, with groups, and with the organization to stem the potential loss of intellectual capital.

Topic 6

What is Knowledge Management?

Definitions of Knowledge Management

100+ definitions of KM

Indicates that KM is a very interdisciplinary field of study

Many distinct perspectives on KM and each leads to a different definition

KM Definition from Business Perspective

"Knowledge management is a business activity with two primary aspects: treating the knowledge component of business activities as an explicit concern of business reflected in strategy, policy, and practice at all levels of the organization; and, making a direct connection between an organization's intellectual assets—both explicit (recorded) and tacit (personal know-how)—and positive business results."

Knowledge management is the process by which we manage human centered assets … the function of knowledge management is to guard and grow knowledge owned by individuals, and where possible, transfer the asset into a form where it can be more readily shared by other employees in the company.

"The knowledge management focus is on obtaining and synthesizing intellectual capital to maximize decision making and innovation across diverse functions and disparate locations, thus enabling the clients to become high-performance businesses and governments. Far more than a cluster of simple processes, the KM program is also about developing and rewarding a culture of knowledge-sharing—encouraging collaboration among their people to problem solve and build capabilities, regardless of their location."

KM Definition from Intellectual Assets Perspective

"Knowledge management develops systems and processes to acquire and share intellectual assets. It increases the generation of useful, actionable, and meaningful information and seeks to increase both individual and team learning. In addition, it can maximize the value of an organization's intellectual base across diverse functions and disparate locations. Knowledge management maintains that successful businesses are a collection not of products but of distinctive knowledge bases. This intellectual capital is the key that will give the company a competitive advantage with its targeted customers. Knowledge management seeks to accumulate intellectual capital that will create unique core competencies and lead to superior results."

KM Definition from Cognitive Science Perspective

"Knowledge—the insights, understandings, and practical know-how that we all possess—is the fundamental resource that allows us to function intelligently. Over time, considerable knowledge is also transformed to other manifestations—such as books, technology, practices, and traditions—within organizations of all kinds and in society in general. These transformations result in cumulated expertise and, when used appropriately, increased effectiveness. Knowledge is one, if not THE, principal factor that makes personal, organizational, and societal intelligent behavior possible."

KM Definition from Process/ Technology Perspective

"Knowledge management is the concept under which information is turned into actionable knowledge and made available effortlessly in a usable form to the people who can apply it."

"The tools, techniques, and strategies to retain, analyze, organize, improve, and share business expertise."

"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."

"The creation and subsequent management of an environment that encourages knowledge to be created, shared, learnt, enhanced, organized, and utilized for the benefit of the organization and its customers."

Topic 7

Multidisciplinary Nature of Knowledge Management

Diverse Fields of KM

Organizational science

Cognitive science

Computer science

Linguistics and computational linguistics

Information technologies

Information and library science

Technical writing and journalism

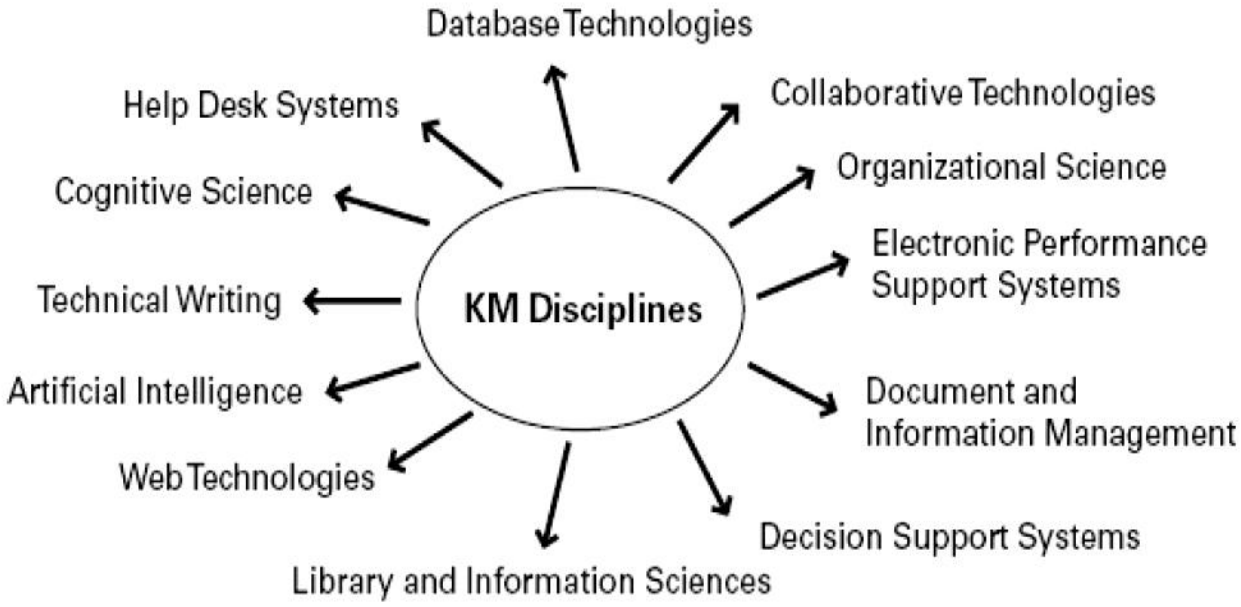
Anthropology and sociology

Education and training

Storytelling and communication studies

Collaborative technologies such as groupware, intranets, extranets, portals and other web technologies

Disciplines that have Contributed to KM



Topic 8

Key Attributes of Knowledge Management

Generating new knowledge

Accessing valuable knowledge from outside sources

Using accessible knowledge in decision making

Embedding knowledge in processes, products, and services.

Representing knowledge in documents, databases, and software

Facilitating knowledge growth through culture and incentives

Transferring existing knowledge into other parts of the organization

Measuring the value of knowledge assets and impact of knowledge management.

Topic 9

History of

Knowledge Management

The phrase "Knowledge Management" was in popular use in the late 1980s (conferences, books, journals, etc.)

In fact, KM has been around for ages—librarians, philosophers, teachers, and writers have been making use of many of the same techniques

Some forms of sharing experiences included town meetings, workshops, seminars, and mentoring sessions

The primary technology used to transfer knowledge consisted of people themselves

Wells (1938) shared his vision of a "World Brain"

Drucker was the first to coin the term "knowledge worker" in the early 1960s

Senge (1990) focused on the learning organization as one that can learn from past experiences stored in corporate memory systems

Barton-Leonard (1995) documented the case of Chapparal Steel as a knowledge management success story

Nonaka and Takeuchi (1995) studied how knowledge is produced, used, and spread within organizations and how this contributed to the diffusion of innovation

A cross-industry benchmarking study was led by the president of American Productivity & Quality Center (APQC), Carla O'Dell and completed in 1996. It focused on the following KM needs:

Knowledge management as a business strategy

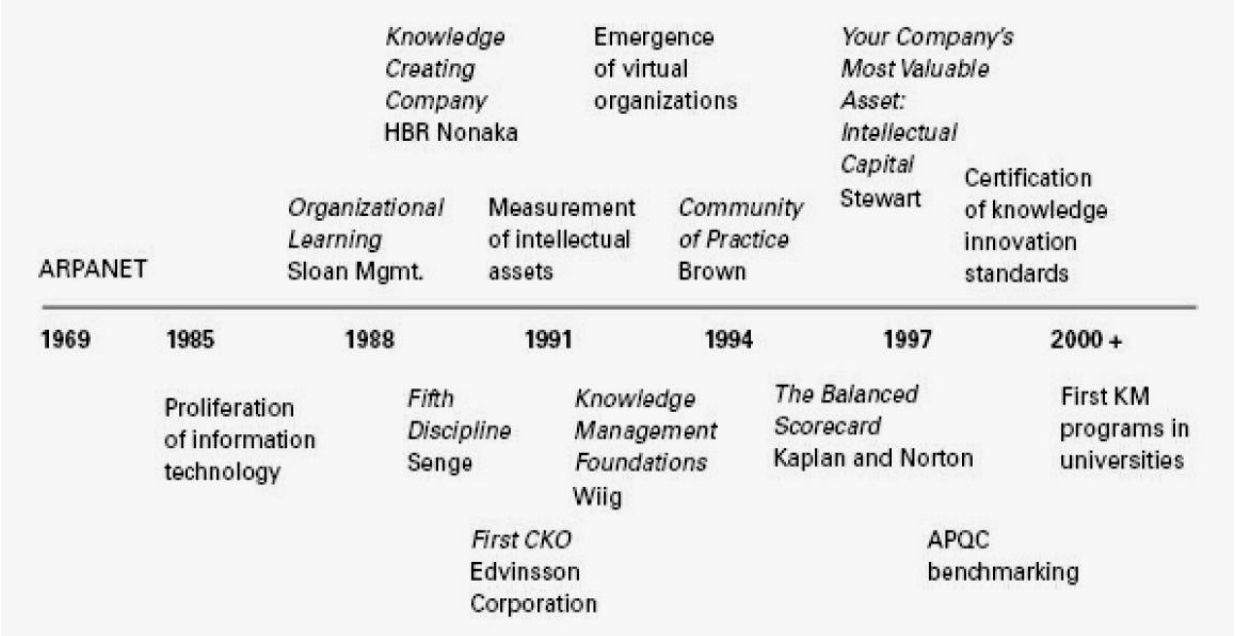
Transfer of knowledge and best practices

Customer-focused knowledge

Personal responsibility for knowledge

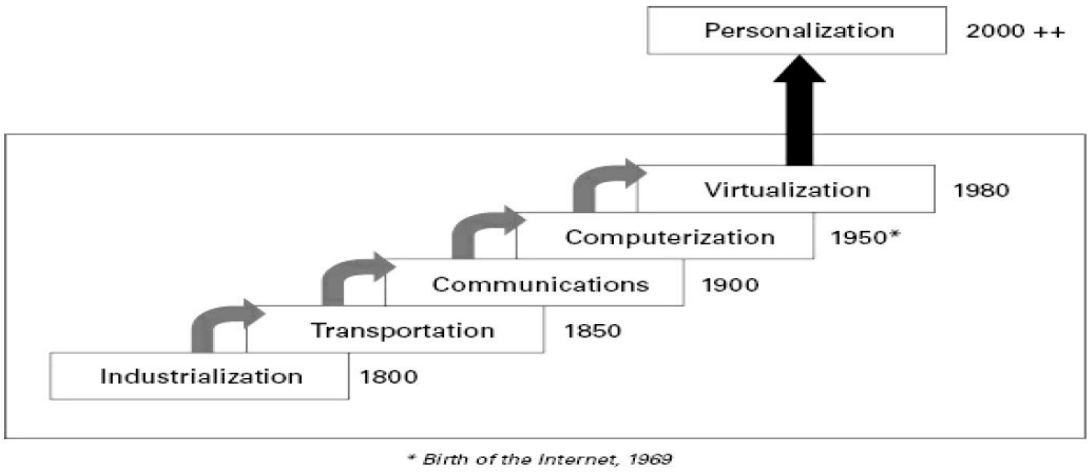
Intellectual asset management

Innovation and knowledge creation



Topic 10

Developmental Phases in KM History



Industrialization – 1800

With the advent of steam engine, industrial revolution began in Britain and spread in rest of the world, including USA

Shifted from agrarian to manufacturing economy

Production at large scale

Development of a large working class

Increased demand of new skills

Migration from rural to urban areas

Transportation – 1850

Application of steam engine in rail transport made land transport independent of human or animal power

Speed and capacity increased

Steam ships sped up global transport

Invention of combustion engine and automobiles around 1900

Invention of aircraft after 1900

More interaction in society, more knowledge sharing.

Communications – 1900

Telegraph in 1844

Telephone in 1876

Radio in 1894

Radio broadcast in 1922

TV broadcast in 1940

Telecommunication and mass communication made people closer to each other

More knowledge sharing

Computerization – 1950

Modern computers in 1945

Personal computers in 1975

Home laser printers in 1980

CDs in 1983

DVDs in 1997

High speed processing of large data sets, large storage capacity.

Virtualization – 1980

Virtual workplaces integrate hardware, people, and online processes

Virtual teams

Personalization – 2000+

Fulfilling individual needs

Profiling technology

Increase in sales and credibility

Topic 11

Standardization of KM Practices and Education

ISO 9001 Standard for Quality Management

KM was included in this standard in 2015

Clause 7.1.6. Knowledge – covers the maintenance and availability of knowledge necessary in a business organization

It also focuses on the need to acquire new knowledge

This standard legitimizes the KM practice in an organization.

Standards for KM Education

The Association for Information and Image Management (AIIM) established, in 2013, a Committee on KM Education and Training Standards.

The objective was to develop a framework of standards for the field of knowledge management.

The AIIM's standards development infrastructure will support development of three standards.

1.Standards and credentialing of competencies for individuals as knowledge management professionals, including different levels of professional development, variety of areas of specialization

2.Standards and certification of organizations as knowledge organizations, with reference to different levels of maturity and various efforts of specializations

3.Standards and credentialing of education and training programs, with reference to different levels of intensity and coverage.

Topic 12

From Physical Assets to Knowledge Assets

Knowledge Becomes More Valuable

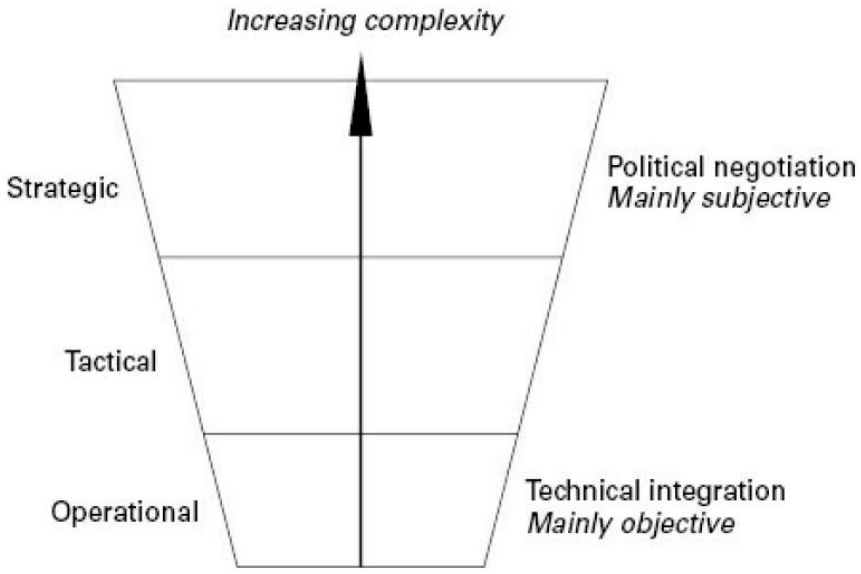
It is more valuable than traditional physical or tangible assets

For example, traditional asset of an airline is an inventory of airplanes. Today, the greatest asset is a software to manage passenger reservations.
In manufacturing sector, the Just-In-Time (JIT) inventory management system has become more valuable.

Intellectual Capital

Difference between the book value and the market value of an organization
Also called 'goodwill'
Sum of what employees of the organization know and know how to do.

Three Levels of Intellectual Capital



Examples of Intellectual Capital

Competence – skills necessary to achieve a certain level of performance
Capability – strategic skills necessary to integrate and apply competencies
Technologies – tools and methods required to produce certain physical results.

Topic 13

Why Is Knowledge Management Important?

Major Drivers Behind the Application of KM.
Globalization of business – multisite, multilingual, and multicultural.
Leaner organizations – increased pace and workload.

Corporate amnesia – increased job mobility, loss of knowledge.

Technological advances – more connectivity, expectation of 24/7 service.

KM Deals with a Complex Environment

Increase in the number of knowledge items we have to attend everyday.

Many emails and voice messages on daily basis.

Good time management and filtering practices are needed.

Knowledge workers have little time to retrieve, access, and apply relevant knowledge.

KM tries to manage this information-overloaded work environment.

KM also Deals with Tacit Knowledge

Handling information overload is only the tip of the iceberg

KM must deal with the yet to be articulated or tacit knowledge

It is more complex as we may not be aware of all the tacit knowledge that exists

We may not "know that we don't know"

Three Generations of KM

In the first generation, the emphasis was on containers of knowledge or information technologies (e.g., intranet)

The second generation focused on people (e.g., communities of practice)

The third generation focuses on content – how to describe and organize content so that intended users be aware of its existence, can easily access and apply this content

Knowledge should be put to work.

Another Take on Three Eras of KM

Leveraging explicit knowledge (1995-2000)

Leveraging experiential knowledge (2000-2005)

Leveraging collective knowledge (2005-present)

Characteristics of Third Generation of KM

More focus on tacit knowledge

Less focus on documenting everything

Conversation-based knowledge management (e.g., appreciative inquiry, knowledge cafés)

More use of social media

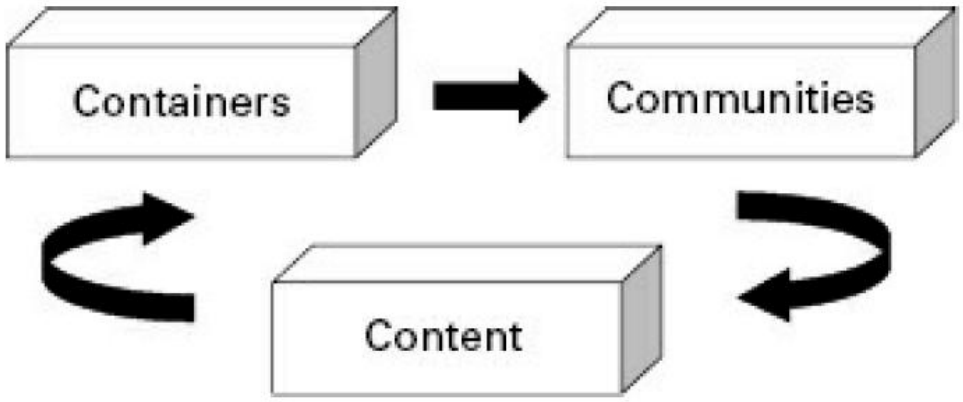
Promotion of organizational innovation

More externally focused KM

Topic 14

KM for Individuals, Groups, and Organizations

Three Major Components of KM



KM for Individuals

Helps people do their jobs and save time through better decision making and problem solving

Builds a sense of community bonds within an organization

Helps people to keep up to date

Provides challenges and opportunities to contribute

KM for Groups

Develops professional skills

Promotes peer-to-peer mentoring

Facilitates more effective networking and collaboration

Develops a professional code of ethics that members can adhere to

Develops a common language.

KM for Organizations

Helps drive strategy

Solves problems quickly

Diffuses best practices

Improves knowledge embedded in products and services

Cross-fertilizes ideas and increases opportunities for innovation

Enables organizations to better stay ahead of the competition

Builds organizational memory.

Topic 15

Knowledge Management Processes

Knowledge-Information Cycle

The route information follows in order to become transformed into a valuable strategic asset for the organization via a knowledge management cycle.

Aims of KM Processes

Identify and locate knowledge and knowledge sources within the organization

Translate valuable knowledge into explicit form (codification of knowledge) to facilitate widespread dissemination

Institute networks, practices, and incentives to facilitate person-to-person knowledge transfer

Make person-knowledge content connections to make decisions.

A comparison of key KM processes

Wiig (1993)	McElroy (1999)	Bukowitz and Williams (2000)	Meyer and Zack (1996)	Carlile and Rebentisch (2003)	Evans, Dalkir, and Bidian (2015)
Creation	Individual and group learning	Get	Acquisition	Identify explicit, create tacit knowledge	
Sourcing	Knowledge claim validation	Use	Refinement		
Compilation	Information acquisition	Learn	Store/ retrieve	Store	Store
Transformation	Knowledge validation	Contribute	Distribution	Share	
Dissemination	Knowledge integration	Assess	Presentation		
Application		Build/sustain		Use	Retrieve
Value realization		Divest		Learn	Transform

Criteria for Selection of KM Frameworks

Implemented and validated in real-world settings

Comprehensive with respect to the different types of steps found in the KM literature

Included detailed descriptions of the KM processes involved in each of the steps.

Topic 16

Meyer and Zack KM Cycle: Introduction

Introduction

Presented in "Meyer, M., & M. Zack. (1996). The design and implementation of information products. Sloan Management Review."

Lessons learned from the cycle of physical products can be applied to the management of knowledge assets

Information products are broadly defined as any information sold to internal or external customers such as databases, news synopses, customer profiles, and so forth.

The authors propose that research and knowledge about the design of physical products can be extended into the intellectual realm to serve as the basis for a KM cycle

This approach provides a number of useful analogies such as the notion of a product platform (the knowledge repository) and the information process platform (the

knowledge refinery) to emphasize the notion of value-added processes required in order to leverage the knowledge of an organization.

The KM cycle consists primarily of creating a higher value-added knowledge product at each stage of knowledge processing

For example, a basic database or repository may represent an example of knowledge that has been created

Value can then be added by extracting trends from this data

The original information has been repackaged to provide trend analyses that can serve as the basis for decision making within the organization.

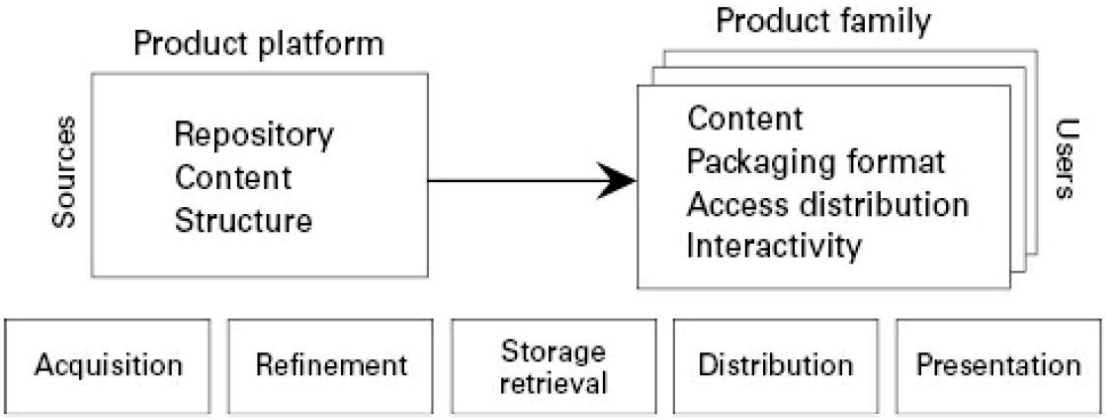
Sample Screen of a Repository for Railway Administration

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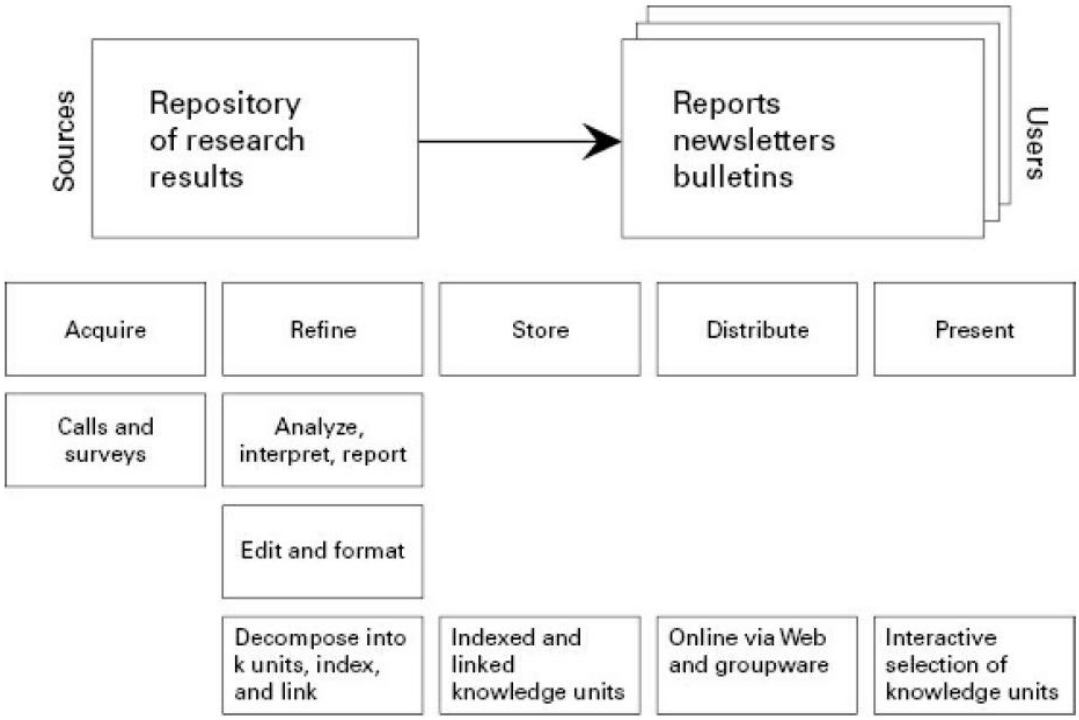
Topic 17

Meyer and Zack KM Cycle: Steps

High-level View of Meyer and Zack Information Cycle



Detailed View of Meyer and Zack Information Cycle



Acquisition

The issues regarding sources of raw materials such as scope, breadth, depth, credibility, accuracy, timeliness, relevance, cost, control, exclusivity, and so on

Source data must be of high quality, otherwise the intellectual products will be inferior

Refinement

The primary source of value added

Physical (migrating from one medium to another)

Logical (restructuring, relabeling, indexing, and integrating)

Cleaning up (sanitizing content so as to ensure complete anonymity of sources and key players involved)

Standardizing (conforming to templates of a best practice or lesson learned as used within that particular organization)

Statistical analyses (high-level summary of key themes, or patterns found in a collection of knowledge objects).

Storage/Retrieval

A bridge between the upstream acquisition and refinement stages that feed the repository and downstream stages of product generation and delivery.

Storage may be physical (file folders, printed information) or digital (database, KM software).

Distribution

How the product is delivered to the end user (fax, print, email)

Delivery timing, frequency, form, language, and so on.

Presentation or Use

Does the user have a sufficient context to be able to make the use of information product

Rules on how the content may be used (copyright, attribution, confidentiality, etc.).

Topic 18

Bukowitz and Williams KM Cycle: Introduction

Introduction

Bukowitz, W., & R. Williams. (2000). The knowledge management fieldbook. London: Prentice-Hall.

This framework outlines "how organizations generate, maintain, and deploy a strategically correct stock of knowledge to create value"

KM initiatives are the result of the response to tactical and strategic changes and needs.

This model provides an overview of the strategy behind KM and depicts the process that defines the management strategy in order to build, sustain, divest and enhance assets.

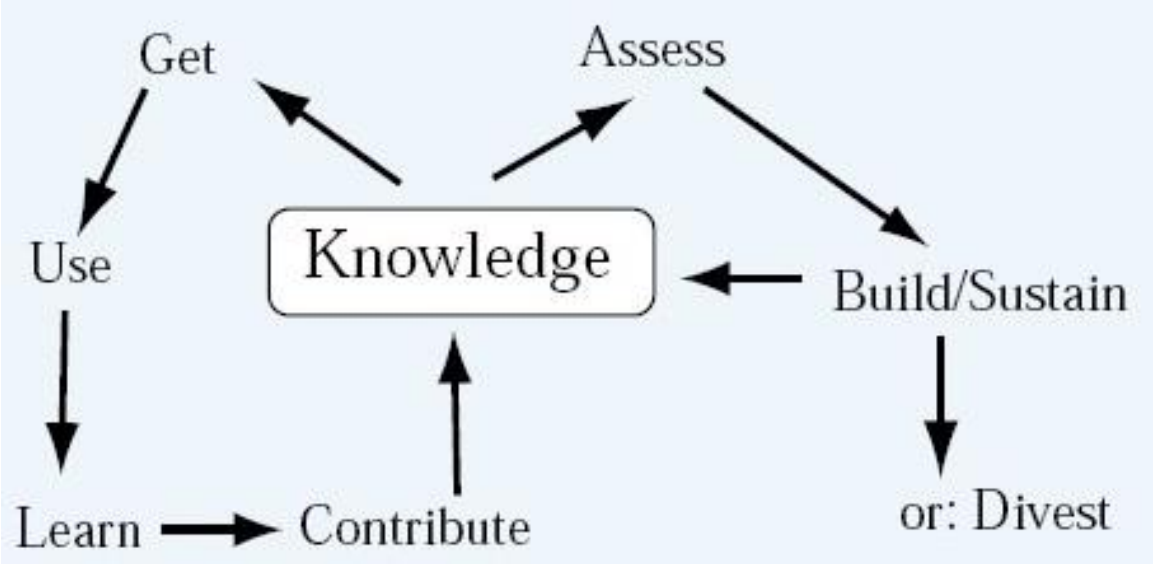
The model is based on the tactical processes of get, use, learn and contribute.

It emphasizes the 'why' and 'when' aspects.

The strength of this model rests on its strategic focus based on the tactical processes, which puts KM action into context.

Topic 19

Bukowitz and Williams KM Cycle: Stages



Knowledge Consists of:

Knowledge repositories

Relationships

Information technologies

Communication infrastructures

Functional skill sets

Process know-how

Environmental responsiveness

Organizational intelligence

External sources

Tactical Phases

Get, Learn, and Contribute

Triggered by market-driven opportunities or demands

Typically result in day-to-day use of knowledge to respond these demands.

Use

How to combine information to foster innovation

Focus is on individuals and groups

Use of intellectual assets only for innovation is a limitation of this framework.

Learn

Formal process of learning from experiences as a means of creating competitive advantage

Use of knowledge can result in successes (best practices) or failures (lessons learned)

Learning is essential after getting and using knowledge.

Contribute

Employees post what they have learned to the repository

A way to make individual knowledge visible and available across the entire organization

Posting everything is not needed

Only best practices and lessons learned should be added

A good organizational memory management system is needed.

Assess

Evaluation of intellectual capital

Organization should define mission-critical knowledge and map current intellectual capital against future knowledge needs

Metrics should be made to measure impact of knowledge on organizational performance.

Build/Sustain

Ensures that future intellectual capital will keep the organization viable and competitive

Resources must be allocated to grow and maintain knowledge assets (to gain new knowledge and reinforce existing knowledge).

Divest

Not holding unnecessary knowledge and sending it somewhere outside the organization

Cost/benefit of holding and divesting should be considered

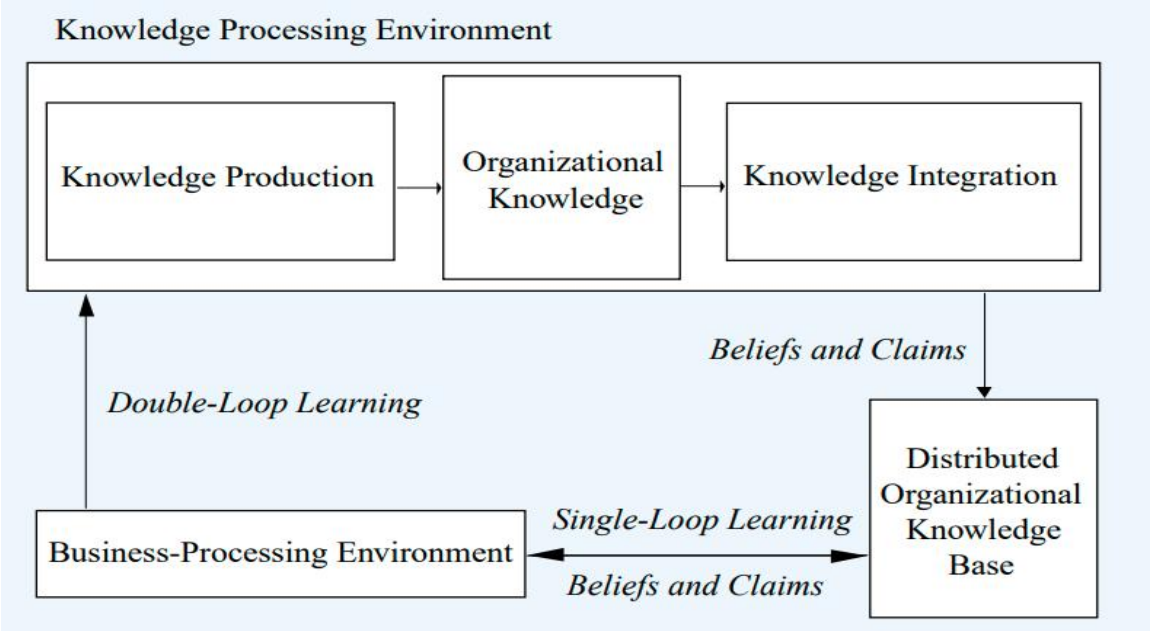
Topic 20

McElroy KM Cycle: Introduction

Introduction

McElroy, M. (1999). The knowledge life cycle. Presented at the ICM Conference on KM, Miami, FL.

Consists of knowledge production and knowledge integration, with a series of feedback loops to organizational memory, beliefs, claims, and business processing environment.



This model emphasizes that organizational knowledge is held both subjectively in the minds of individuals and groups and objectively in explicit form

Knowledge is also available in the distributed organizational knowledge base of the company

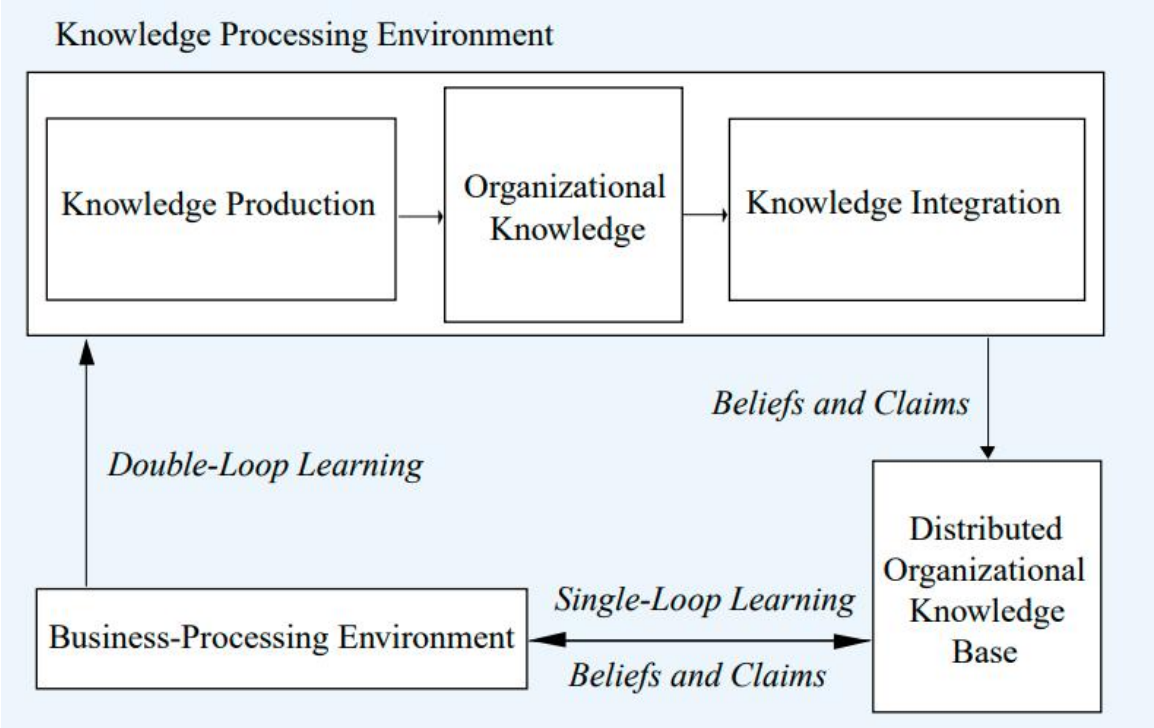
Knowledge use in the business processing environment results in outcomes that either match expectations or outcomes that fail to do so

Matches reinforce existing knowledge, leading to its reuse. Mismatches lead to adjustments in business processing behavior, via single loop learning.

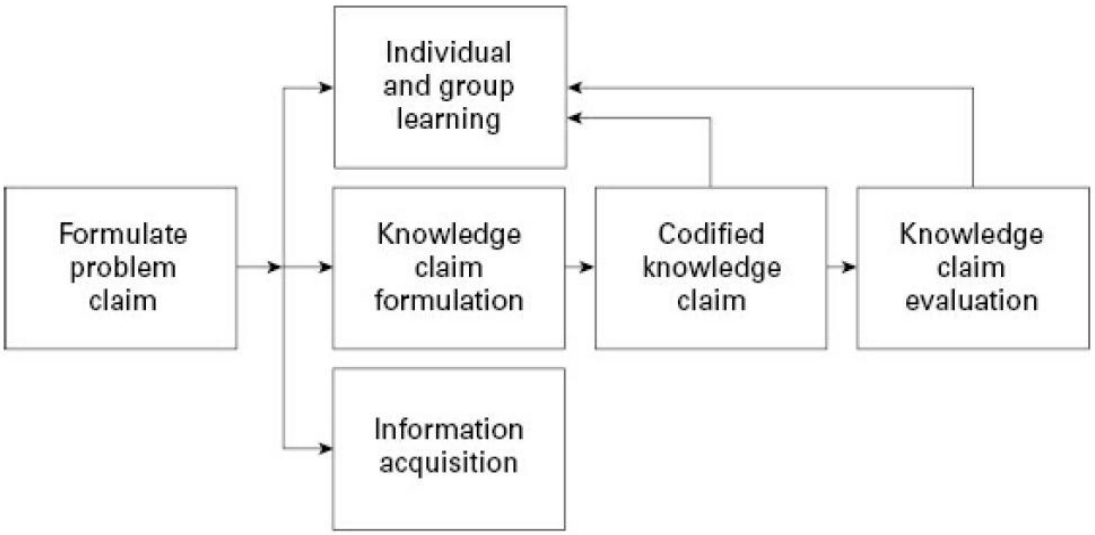
Successive failures lead to doubt and ultimately rejection of existing knowledge, which triggers the creation and integration of new knowledge, via double loop learning.
A great strength of McElroy cycle is the clear description of how knowledge is evaluated to make, or not to make, it the part of organizational knowledge.

Topic 21

McElroy KM Cycle: Processes



Knowledge Production Processes



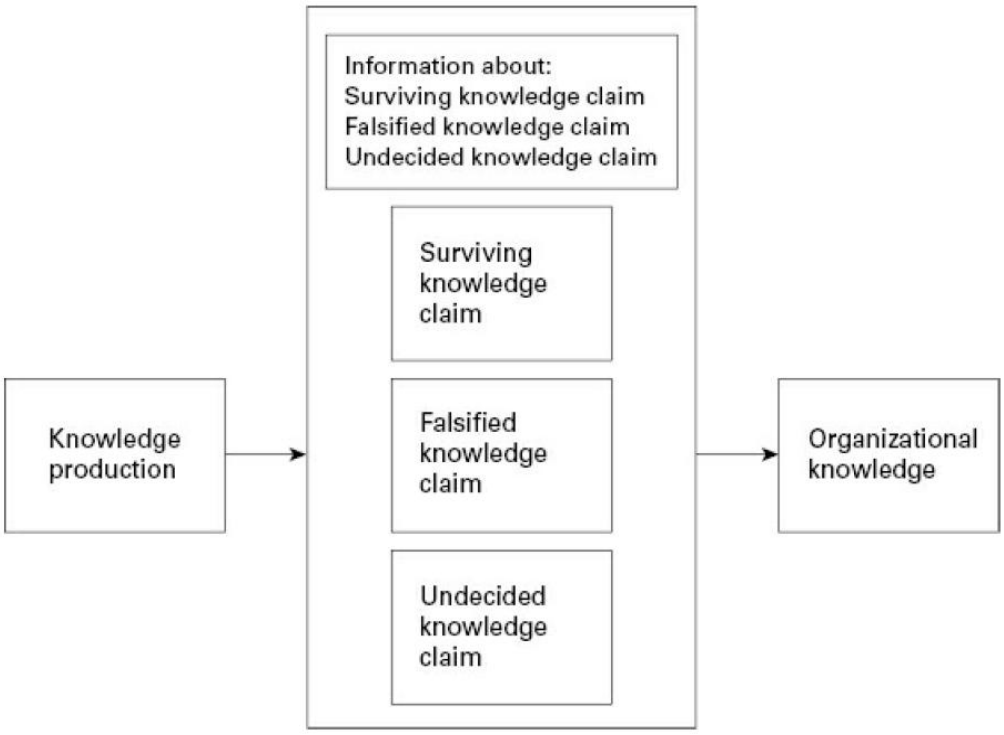
Individual and group learning is the first step in organizational learning

Knowledge is information until it is validated

Knowledge claim validation involves codification

Information acquisition is a process to acquire information from external sources, e.g., competitive intelligence, subscription services, library services, research initiatives, think tanks, consortia, and personalized information services.

Knowledge Claim Evaluation Processes



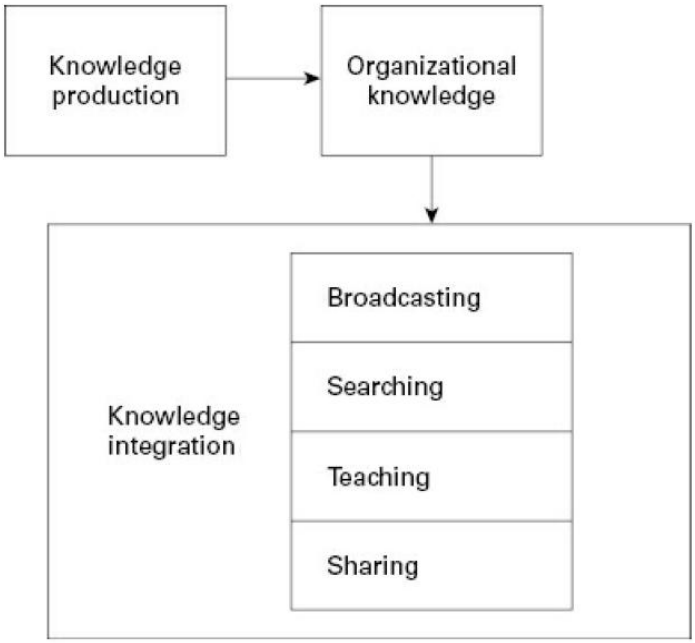
Problem claim formulation is an attempt to learn and state the specific nature of the detected knowledge gap

Knowledge claim formulation is a response to approved problem claims via information acquisition and individual and group learning

New knowledge claims are tested and evaluated via knowledge claim evaluation processes

Evaluation leads to surviving knowledge claims which will be integrated as new organizational knowledge or falsified/undecided knowledge claims.

Knowledge Integration Processes



Topic 22

Wiig KM Cycle: Introduction

Introduction

Wiig, K. (1993). Knowledge management foundations. Arlington, TX: Schema Press.

Focuses on three conditions for business:

It must have a business (products and services) and customers

It must have resources (people, capital, facilities)

It must have the ability to act (This point is emphasized in the KM cycle).

Wiig identifies the major purpose of KM as an effort "to make the enterprise intelligent-acting by facilitating the creation, cumulation, deployment, and use of quality knowledge"

Working smarter "involves making use of all the best knowledge we have available"
Wiig's KM cycle addresses how knowledge is built and used as individuals or as organizations

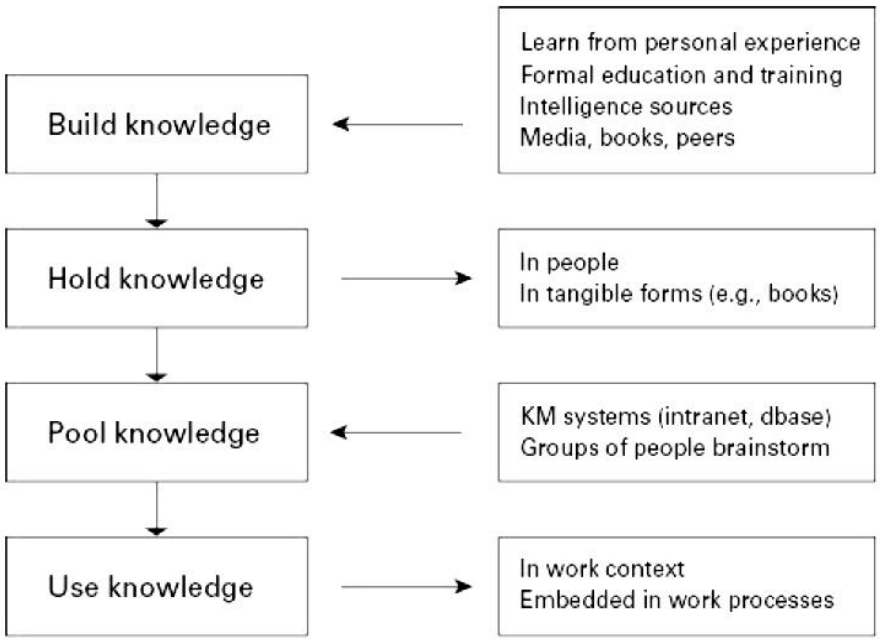
Advantages

A clear and detailed description of how organizational memory is put into use in order to generate value for individuals, groups, and the organization itself
Wiig also emphasizes the role of knowledge and skill, the business use of that knowledge, constraints that may prevent that knowledge from being fully used, opportunities and alternatives to managing that knowledge, and the expected value added to the organization

Topic 23

Wiig KM Cycle: Steps

Four Steps



Building Knowledge

Consists of five major activities

Obtain knowledge

Analyze knowledge

Reconstruct/synthesize knowledge

Codify and model knowledge

Organize knowledge

Knowledge creation may occur through:

R&D projects

Innovations by individuals

Experimentation

Reasoning with existing knowledge

Hiring new people

Knowledge importing

Observing the real world (site visits, observing processes).

Knowledge analysis consists of:

Extracting knowledge from obtained material

Abstract extracted knowledge (form a model or theory)

Identify patterns

Explain relations between knowledge fragments

Verify extracted knowledge with the meaning of original sources.

Knowledge synthesis/reconstruction consists of:

Generalizing analyzed material to obtain broader principles

Generating hypotheses to explain observations

Establishing conformance between new and existing knowledge

Updating the total knowledge pool by incorporating the new knowledge.

Codifying or modeling knowledge addresses:

How we represent knowledge in our minds (mental models)

How we assemble knowledge into a coherent model

How we document knowledge in books and manuals

How we encode it to post it to a knowledge repository.

Knowledge organization consists of:

Organization for specific uses

Examples include a help desk service, a list of FAQs on company's intranet, etc.

This organization is usually done using some form of knowledge ontology (conceptual model) and taxonomy (classification rules)

Examples include an official list of key words or categories, knowledge object attribute specifications, and guidelines for translation.

Holding Knowledge

Remember knowledge (internalization of knowledge by individuals)

Accumulate knowledge in repositories (Computer-resident knowledge base)

Embed knowledge in repositories (added to business procedures like procedures manual, training course)

Archive knowledge (create a library for future use)

Examples of knowledge holding are intellectual property, patents, research reports, and technical papers.

Pooling Knowledge

Coordinate knowledge (formation of collaborative teams to work on specific content)

Assemble knowledge (assemble into references for a library or repository)

Access and retrieve knowledge (using a knowledge-based system to obtain advice or a knowledge document).

Using Knowledge

Perform a routine task

Survey exceptional situations

Describe situation and scope

Select relevant knowledge to handle the situation

Observe and characterize situation with specific knowledge

Analyze situation with knowledge

Synthesize alternative solutions

Evaluate potential alternative solutions

Use knowledge to decide what to do

Implement selected alternatives .

Topic 24

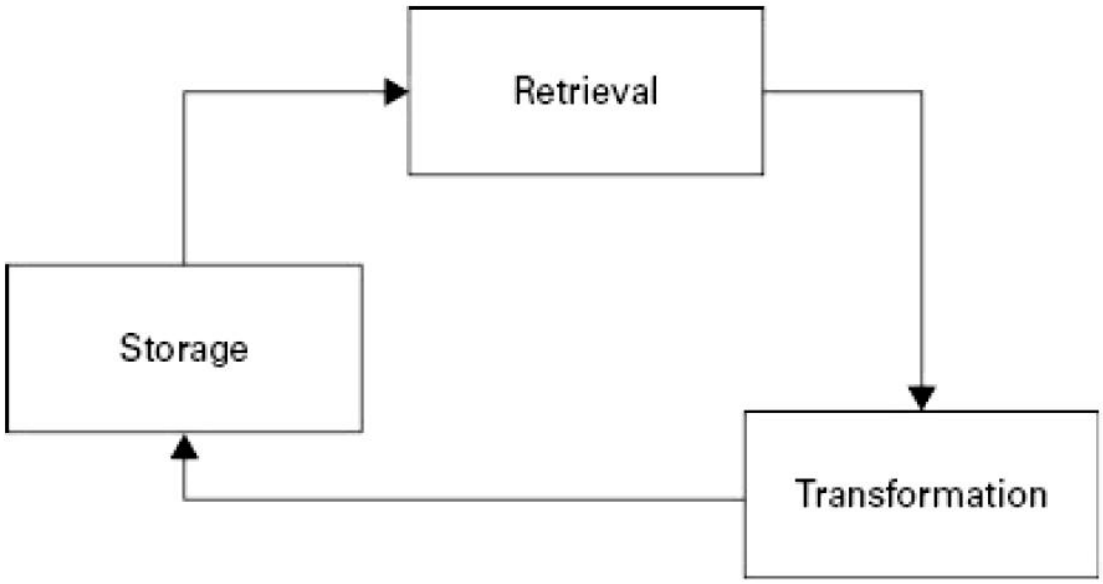
Carlile and Rebentisch Knowledge Transformation Cycle

Introduction

Carlile, P., & E. Rebentisch. (2003). Into the black box: The knowledge transformation cycle. Management Science.

It emphasizes path-dependent nature of knowledge transfer from one organizational group to another

Three Stages of Knowledge Transformation Cycle



Storage

Adding new knowledge to existing knowledge

There is always some organizational knowledge that already exists (although it may not be systematic and complete).

Retrieval

Knowledge can be retrieved from explicit store (databases, reports, etc.) and tacit knowledge from people.

Steps involved are identification, searching, finding, and assessing needed knowledge.

Transformation

When acquired knowledge is found useful transformation stage begins

It involves documenting previously undocumented knowledge, refining it, adding new metadata, and updating the knowledge.

Topic 25

Evans, Dalkir, and Bidian KM Cycle

Introduction

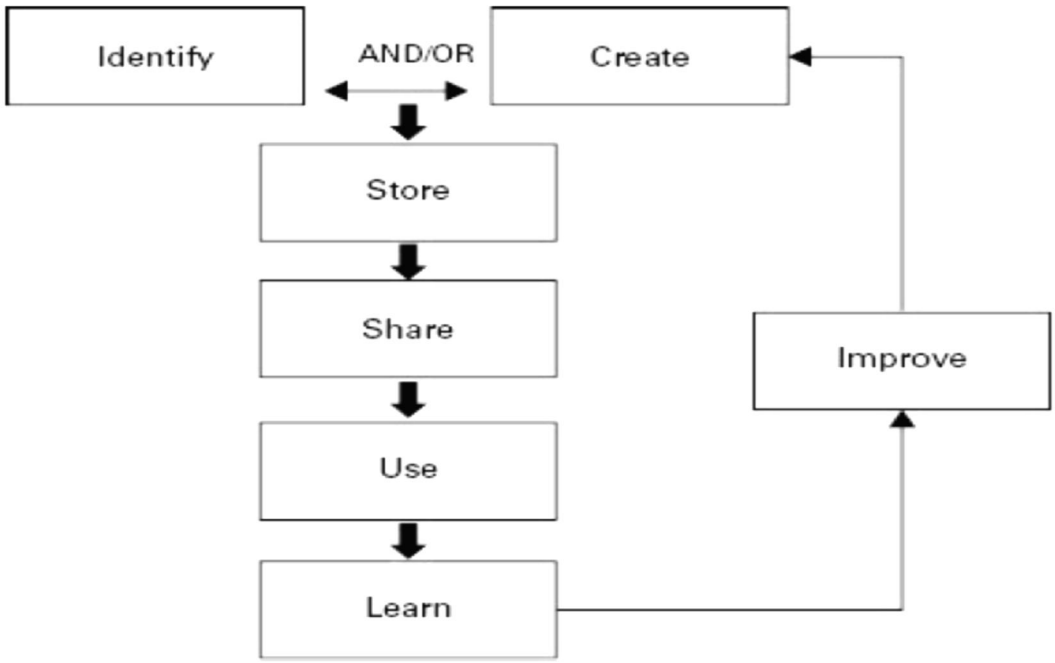
Evans, M., K. Dalkir, & C. Bidian. (2015). A holistic view of the knowledge life cycle: The knowledge management cycle (KMC) model. Leading Issues in Knowledge Management.

KMC is a holistic view of KM processes

A clear distinction between identifying existing knowledge and creating new knowledge

A double-loop process of learning and improving.

Seven Processes in KMC



Topic 26

An Integrated KM Cycle: Summary of Cycles

Summary of Six Approaches

Please refer to Table 2.2 in the textbook

Heisig summarized the steps presented in six KM approaches.

- Create, generate, develop, build, produce, acquire, collect, import, get, gather
- Use, apply, leverage, reuse, exploit, derive value, deploy
- Store, retain, capture, codify, package, archive, document, maintain, preserve

- Share, transfer, distribute, communicate, diffuse, disseminate
- Identify, organize, classify, structure, review, analyze, screen, categorize, map

Topic 27

An Integrated KM Cycle: Synthesis of Steps

Steps in com mon	Steps added by
1. Knowledge c apture	Evans et al.
2. Knowledge c reation	Evans et al.
2a. Knowledge contribution	Bukowitz and Williams
2b. Knowledge filtering and se	Bukowitz and Williams

lection	
3. Knowledge codification	
3a. Knowledge refinement	Meyer and Zack; Bukowitz and Williams; Carlile and Rebentisch
4. Knowledge sharing	

Steps in common	Steps added by
5. Knowledge access	
5a. Knowledge learning	Bukowitz and Williams; Evans et al.

6. Knowledge application	
6a. Knowledge evaluation	McElroy; Bukowitz and Williams
7. Knowledge reuse	
7a. Knowledge reuse or divestment	Bukowitz and Williams

Regrouping Steps after Merging Alternatives

Knowledge capture/ creation/ contribution

Knowledge filtering/selection

Knowledge codification

Knowledge refinement

Knowledge sharing

Regrouping Steps after Merging Alternatives

Knowledge access

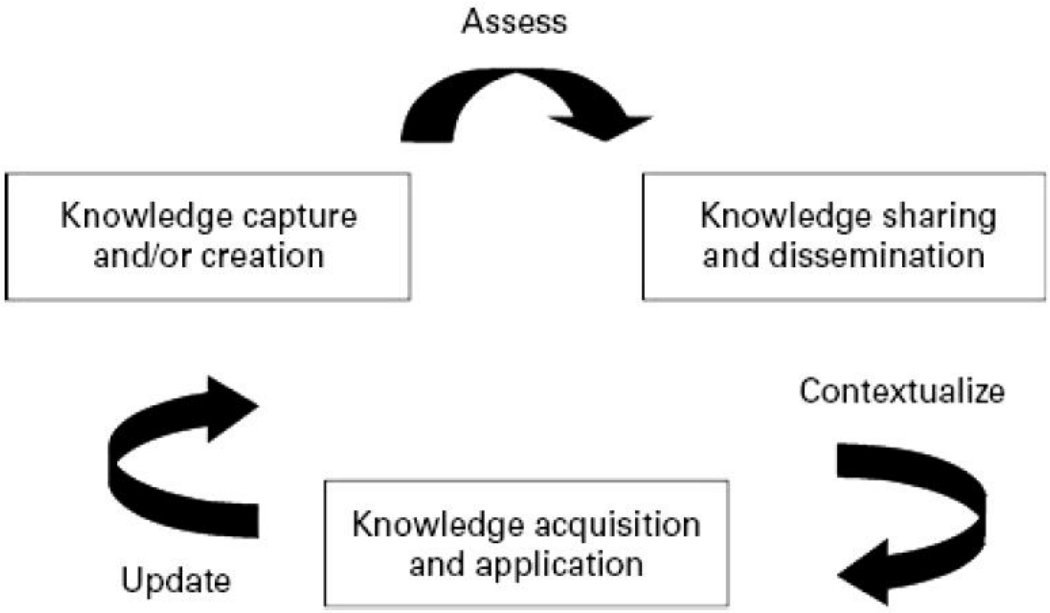
Knowledge learning

Knowledge application

Knowledge evaluation

Knowledge reuse/divestment

An Integrated KM Cycle



Topic 28

Von Krogh, Roos, and Kleine Model of Organizational Epistemology

Introduction

The first model that clearly distinguishes between individual knowledge and social knowledge

It takes an epistemological approach to managing organizational knowledge

Issues to be Addressed

How and why individuals within an organization come to know

How and why organizations, as social entities, come to know

What counts for knowledge of the individual and the organization

What are the barriers of organizational knowledge management

Cognitive Perspective

A cognitive system, no matter if it is a human brain or a computer, creates representations (models) of the reality, and the process of learning appears when this representations are manipulated

Cognitive Organizational Epistemology

It views organizational knowledge as a self-organizing system in which humans are transparent to the information from the outside (i.e., we take in information through our senses and use this information to build our mental models)

The brain is a machine based on logic and deduction that does not allow any contradictory propositions

The organization picks up information from its environment and processes it in a logical way.

Connectionist Approach

It is more holistic than the reductionist approach

The brain is not assumed to sequentially process symbols but to perceive wholeness

Learning rules govern how the various components of these whole networks are connected

Information is not only taken in from the environment but also generated internally.

Familiarity and practice lead to learning

Individuals form nodes in a loosely connected organizational system

Knowledge does not reside only in the minds of individuals but also in the connections among these individuals

A collective mind is formed as the representation of this network and it is the core of organizational knowledge management.

Barriers in KM

Mindset of the individuals

Communication in the organization

Organizational structure

Relationship among the members

Management of human resources

Topic 29

Nonaka and Takeuchi Knowledge Spiral Model: Background

Introduction

Nonaka, I., & H. Takeuchi. (1995). The knowledge-creating company: How Japanese companies create the dynamics of innovation. New York: Oxford University Press.

The most popular KM model

They studied how Japanese companies were successful in achieving creativity and innovation
They found that the organizational innovation often stemmed from highly subjective insights.

Nonaka and Takeuchi KM Model

A holistic model of knowledge creation
A management of 'serendipity'
The tacit/explicit spectrum of knowledge forms (epistemological dimension) and the individual/ group/ organizational or three-tier model of knowledge sharing and diffusion (ontological dimension) are both needed to create knowledge and create innovation.

They argue that a key factor behind innovation in Japanese companies is a tacit-driven approach
The Western culture considers knower and known as separate entities
The Japanese culture considers that there is a oneness of humanity and nature, body and mind, self and other
Knowledge is principally 'group knowledge' easily converted and mobilized (from tacit to explicit) and easily transferred and shared (from individual to group).

Knowledge creation always begins with the individual (tacit in nature)
Then this private knowledge is translated into valuable, organizational knowledge
This type of knowledge creation is a continuous process, and it takes place at all levels of the organization
In many cases, the knowledge creation occurs in an unexpected and unplanned way.

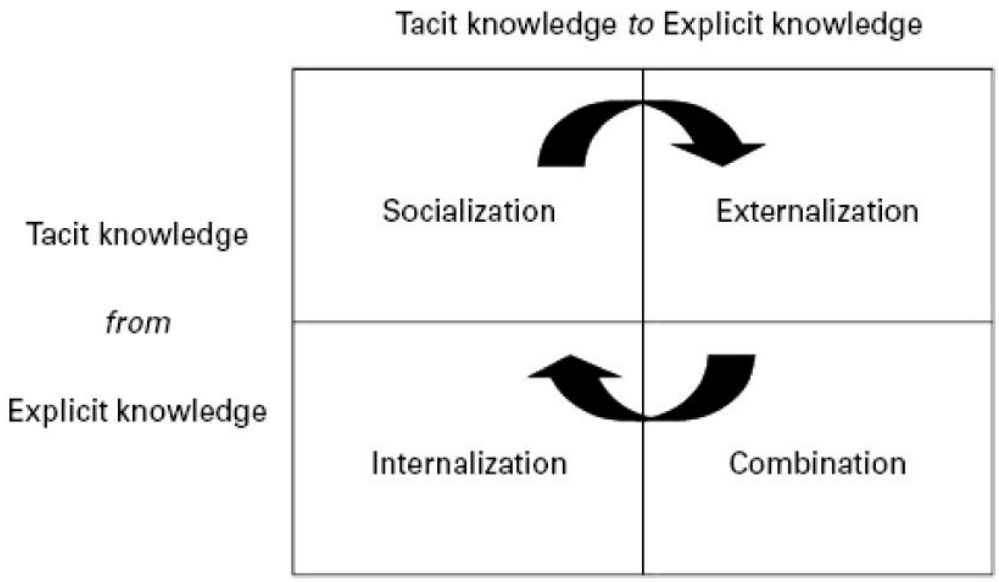
Topic 30

Nonaka and Takeuchi Knowledge Spiral Model: Details

Four Modes of Knowledge Conversion

From tacit knowledge to tacit knowledge: process of socialization
From tacit knowledge to explicit knowledge: process of externalization
From explicit knowledge to explicit knowledge: process of combination
From explicit knowledge to tacit knowledge: process of internalization
Called 'SECI model'

Nonaka and Takeuchi Model of Knowledge Conversion



Socialization (tacit-to-tacit)

Sharing of knowledge in face-to-face, natural, and typically social interactions

Arriving at a shared understanding through the sharing of mental models

Brainstorming to come up with new ideas

Apprenticeship or mentoring interactions

Externalization (tacit-to-explicit)

A process that gives a visible form to tacit knowledge and converts it to explicit knowledge in the shapes of metaphors, analogies, concepts, hypotheses, or models

Individuals articulate the knowledge and know-how and, in some cases, the know-why and the care-why

Previously tacit knowledge can be written down, taped, drawn, or made tangible or concrete in some manner.

An intermediary is often needed at this stage because it is always more difficult to transform one type of knowledge into another

A knowledge journalist is someone who can interview knowledgeable individuals in order to extract, model, and synthesize in a different way (e.g., format, length, level of detail, etc.) in order to increase its scope (i.e., so that a wider audience can understand and apply this content now)

Combination (explicit-to-explicit)

The process of recombining discrete pieces of explicit into a new form

A synthesis in the form of a review report, a trend analysis, a brief executive summary, or a new database to organize content

No new knowledge is created per se—it is a new combination or representation of existing knowledge

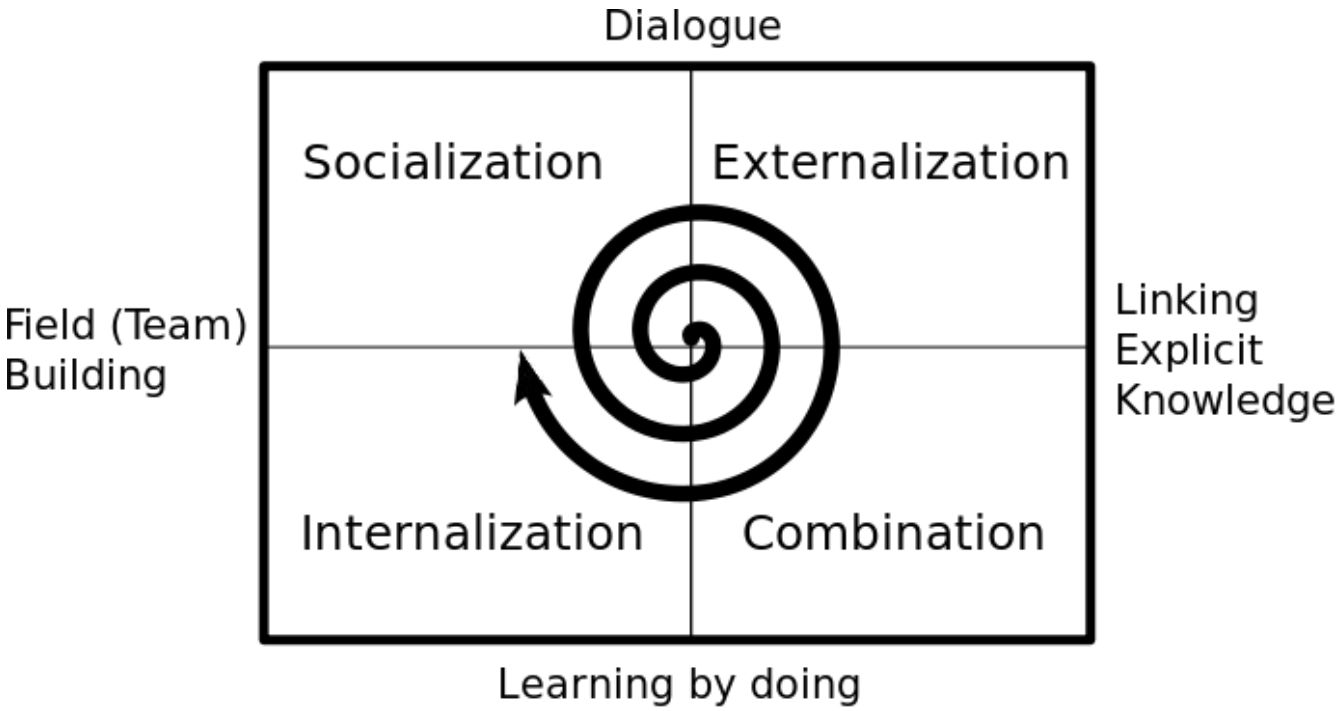
Combination happens when concepts are sorted and systematized in a knowledge system.

Internalization (explicit-to-tacit)

The diffusion and embedding of newly acquired behavior and newly understood or revised mental models
It is very strongly linked to "learning by doing"
Internalization converts or integrates shared and/or individual experiences and knowledge into individual mental models.

Once new knowledge has been internalized, it is then used by employees, who broaden it, extend it, and reframe it within their own existing tacit knowledge bases
They understand, learn, and buy into the new knowledge and this is manifest as an observable change, that is, they now do their jobs and tasks differently

Nonaka and Takeuchi Knowledge Spiral

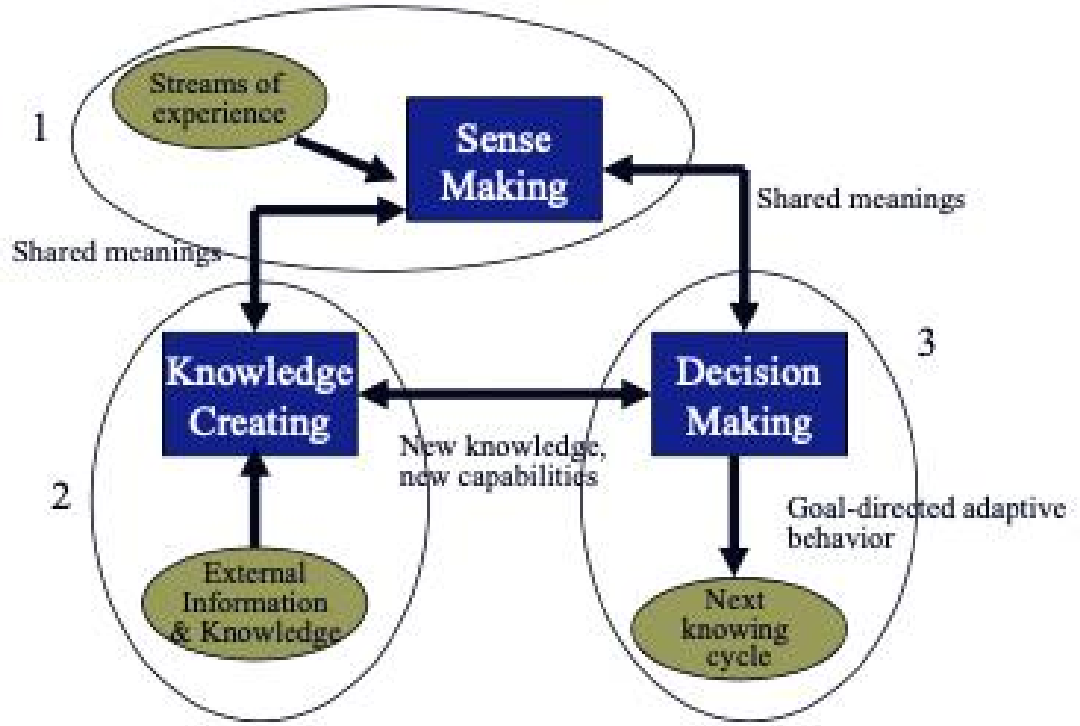


Topic 31

Choo Sense-Making KM Model

Introduction

Choo, C. (1998). The knowing organization. New York: Oxford University Press.
The model stresses sense making, knowledge creation, and decision-making
It focuses on how information elements are selected and subsequently fed into organizational actions. Organizational action results from the concentration and absorption of information from the external environment into each successive cycle.



(Case study-based question for analytical assessment – C1)

Sense Making

Making sense of the information coming from external environment

Filtering information

Constructing common interpretations by individuals by combining new information with previous experiences

Four Processes of Sense Making

Ecological change: A change in the external environment

Enactment: People try to construct, to rearrange, to single out, or to demolish specific elements of content

Selection: Selection of useful knowledge

Retention: Creation of an organizational memory of successful sense making experiences.

Knowledge Creating. Transformation of personal knowledge between individuals through dialogue, discourse, sharing, and storytelling. Provision of new potential choices in decision making.

Decision Making. Rational decision making. Identify and evaluate alternatives by processing the information and knowledge collected. There are many decision-making theories, e.g., theory of games and economic behavior, chaos theory, emergent theory, complexity theory, and garbage can theory of decision making.

Topic 32

Topic 32:Wiig Model for Building and Using Knowledge

Wiig, K. (1993). *Knowledge management foundations: Thinking about thinking. How people and organizations create, represent and use knowledge.* Arlington, TX: Schema Press

In order for knowledge to be useful and valuable, it must be organized. Knowledge should be organized differently depending on what the knowledge will be used for. In our mental models, we tend to store our knowledge and know-how in the form of semantic networks. We can then choose the appropriate perspective based on the cognitive task at hand.

Strengths of Wiig Model. It gives a powerful theoretical approach of categorizing the types of knowledge. It is the most pragmatic model and can easily be integrated into any other model. It enables practitioners to adopt a more detailed or refined approach to managing knowledge.

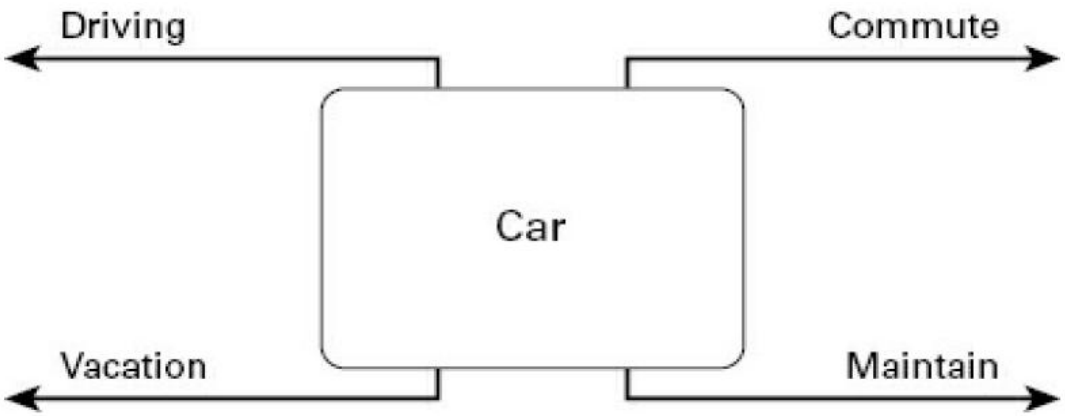
Knowledge in Semantic Network. Knowledge organized in a semantic network way can be accessed and retrieved using multiple entry paths that map onto different knowledge tasks to be completed. Useful dimensions include: Completeness: How much relevant knowledge is available from a given source. Connectedness: Well-understood and defined relations between the different knowledge objects. Congruency: All the facts, concepts, perspectives, values, judgments, and associative and relational links between the knowledge objects are consistent. Perspective and purpose: A particular point of view or a specific purpose we have in mind.

Topic 33

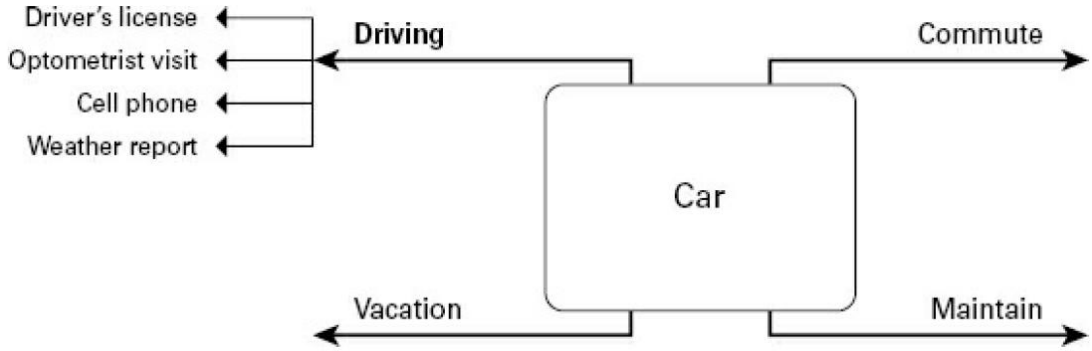
Topic 33:Wiig Model for Building and Using Knowledge: Details

Knowledge in Semantic Network. Knowledge organized in a semantic network way can be accessed and retrieved using multiple entry paths that map onto different knowledge tasks to be completed. Useful dimensions include: Completeness: How much relevant knowledge is available from a given source. Connectedness: Well-understood and defined relations between the different knowledge objects. Congruency: All the facts, concepts, perspectives, values, judgments, and associative and relational links between the knowledge objects are consistent. Perspective and purpose: A particular point of view or a specific purpose we have in mind.

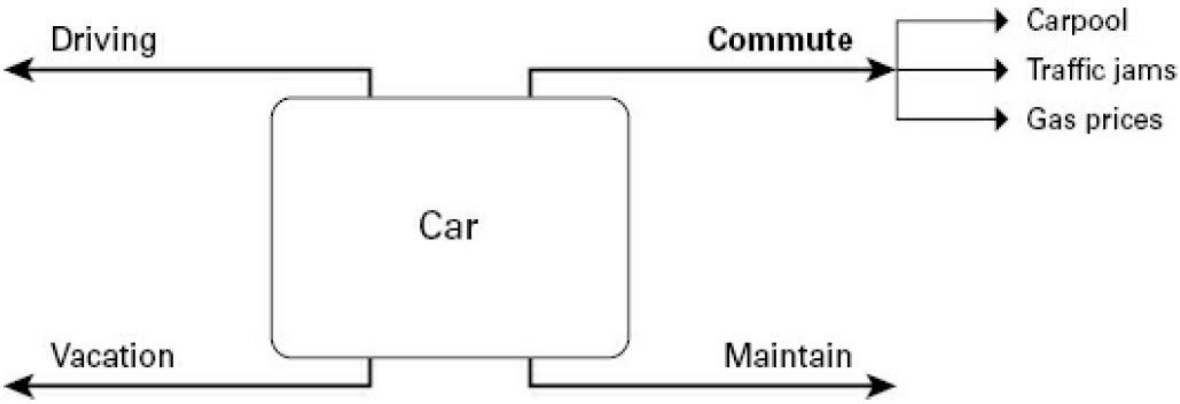
Example of a Semantic Network – Different Perspectives of a Car



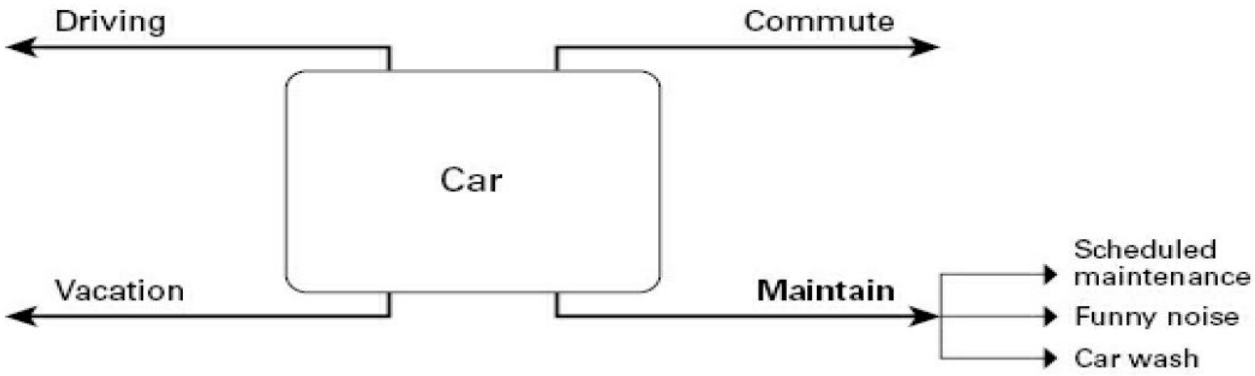
Example of a Semantic Network – 'Driving' View



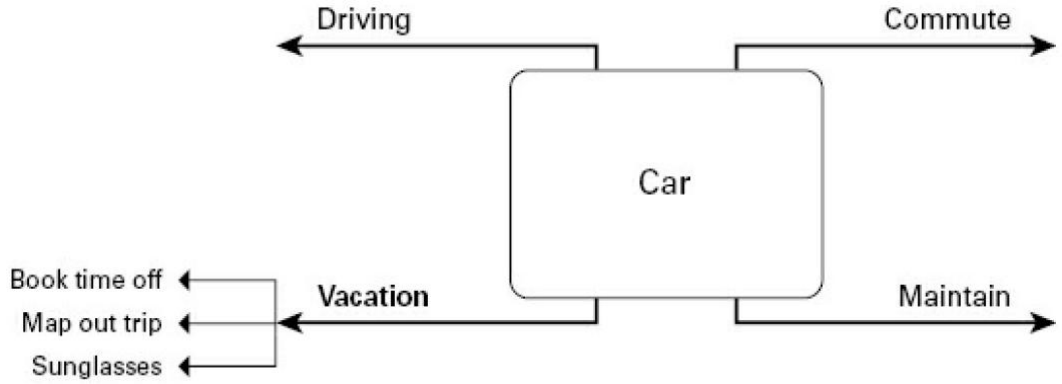
Example of a Semantic Network – 'Commute' View



Example of a Semantic Network – 'Maintain' View



Example of a Semantic Network – 'Vacation' View



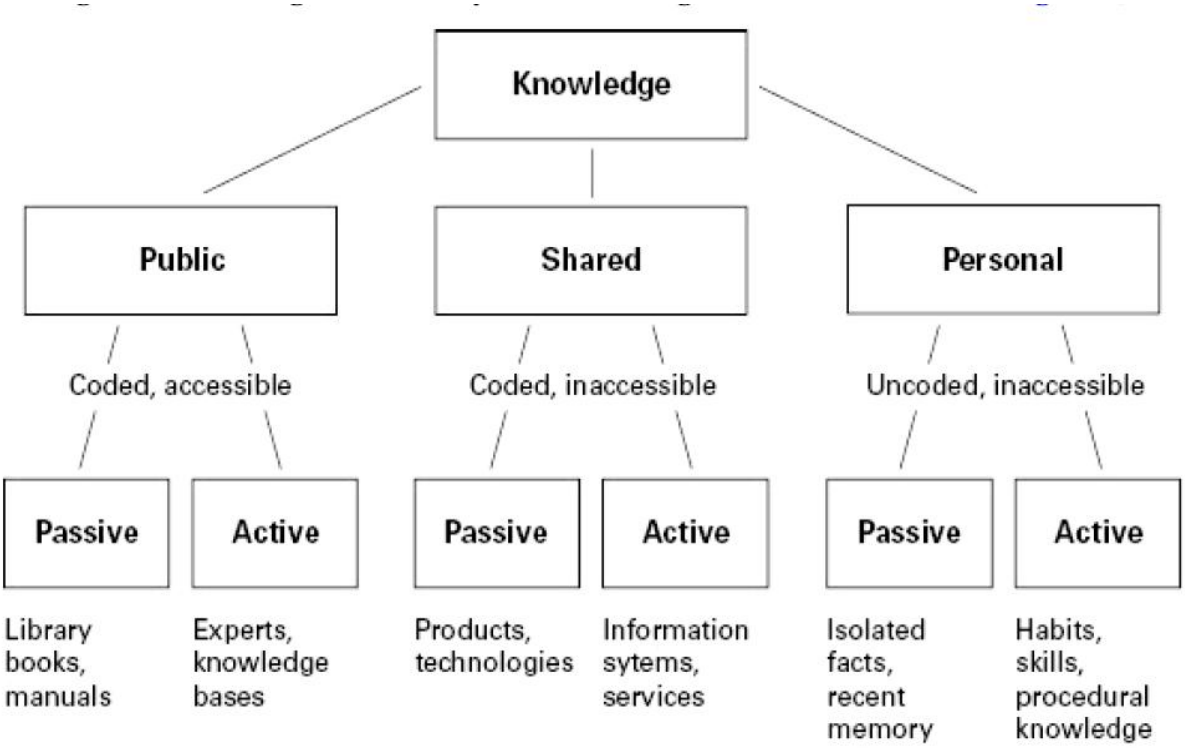
Degrees of Internalization of Knowledge. Novice: Barely aware or not aware of the knowledge and how it can be used. Beginner: Knows that the knowledge exists and where to get it but cannot reason with it. Competent: Knows about the knowledge, can use and reason with the knowledge given external knowledge bases such as documents and people to help. Expert: Knows the knowledge, holds the knowledge in memory, understands where it applies, reasons with it without any outside help. Master: Internalizes the knowledge fully, has a deep understanding with full integration into values, judgments, and consequences of using that knowledge.

Three Forms of Knowledge. Public knowledge: Explicit, taught, and available in the public domain, e.g., book, website. Shared expertise: Knowledge assets held by knowledge workers and shared in their work or embedded in technology, e.g., knowledge shared in communities of practice. Personal knowledge: The least accessible but most complete form of and used unconsciously in work, play, and daily life.

Four Types Knowledge. Factual knowledge deals with data and causal chains, measurements, and readings—typically directly observable and verifiable content. Conceptual knowledge deals with systems, concepts, and perspectives. Expectational knowledge concerns judgments, hypotheses, and expectations held by knowers.

Methodological knowledge deals with reasoning, strategies, decision-making methods, and other techniques.

Wiig Hierarchy of Knowledge Forms



Topic 34

Topic 34: Boisot I-Space KM Model

Boisot, M. (1998). *Knowledge assets*. Oxford: Oxford University Press. Concept of an 'information good' differs from a physical asset. Information is different from data. Information is what an observer will extract from data as a function of his/her expectations or prior knowledge. The movement of information goods is dependent on senders and receivers sharing the same coding scheme or language.

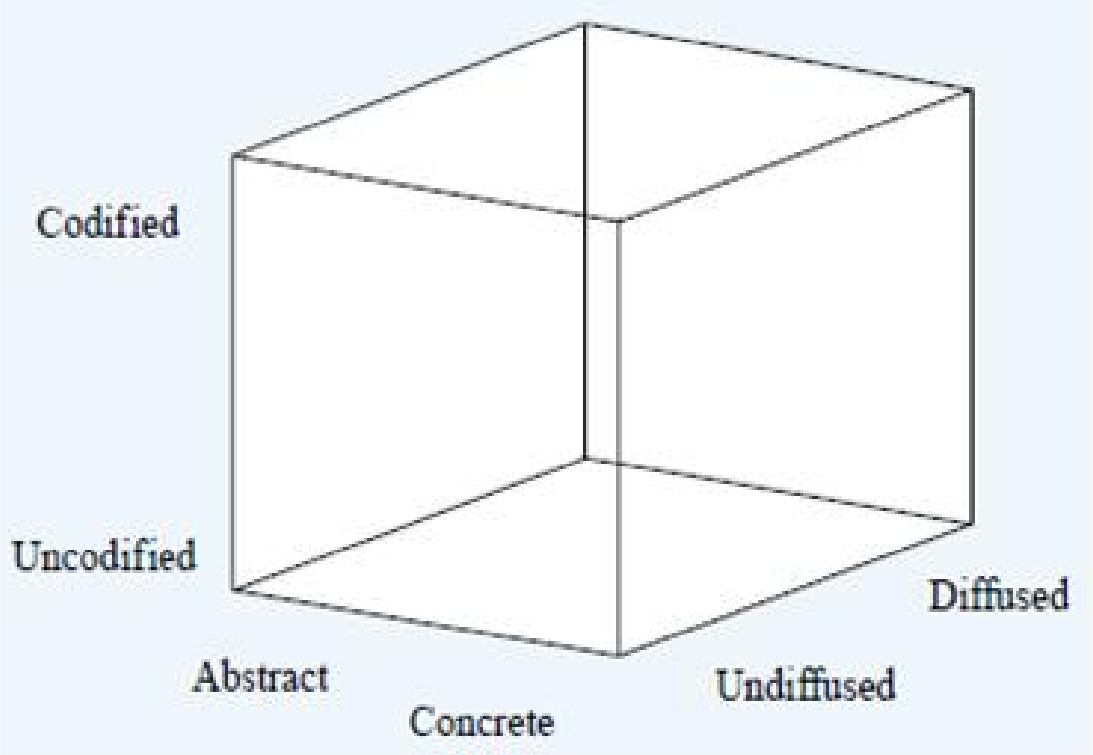
- A "knowledge good" is a concept that possesses a context within which it can be interpreted.
- Effective knowledge sharing requires that senders and receivers share the context as well as the coding scheme.

Two Key Points:

- The more easily data can be structured and converted into information, the more diffusible it becomes.

- The less data requires a shared context for its diffusion, the more diffusible it becomes.

Boisot Information-Space KM Model (3-D Cube)



Social Learning Cycle (SLC) has six phases: 1. Scanning, 2. Problem solving, 3. Abstracting, 4. Diffusing, 5. Absorbing, and 6. Impacting. **Scanning:** Identifying threats and opportunities in generally available but often fuzzy content. Scanning patterns such as unique insights that then become the possession of individuals or small groups. Scanning may be very rapid when the data is well codified and abstract and very slow and random when the data is uncodified and context-specific.

Problem Solving: The process of giving structure and coherence to such insights—that is, codifying them. In this phase they are given a definite shape and much of the uncertainty initially associated with them is eliminated. Problem solving initiated in the uncodified region of the I-Space is often both risky and conflict-laden.

Abstracting: Generalizing the application of newly codified insights to a wider range of situations. Involves reducing them to their most essential features—that is, conceptualizing them. Problem solving and abstraction often work in tandem.

Diffusing: Sharing the newly created insights with a target population. The diffusion of well-codified and abstract content to a large population will be technically

less problematic than that of content which is uncodified and context-specific. Only a sharing of context by sender and receiver can speed up the diffusion of uncodified data.

Absorbing: Applying the new codified insights to different situations in a "learning by doing" or a "learning by using" fashion. Over time, such codified insights come to acquire a penumbra of uncodified knowledge which helps to guide their application in particular circumstances.

Impacting: The embedding of abstract knowledge in concrete practices. The embedding can take place in products, technical or organizational rules, or in behavioral practices.

Strengths of Boisot Model.

It incorporates a theoretical foundation of social learning. It links together content management, information management, and knowledge management in an effective way.

Topic 35

Topic 35: Complex Adaptive System Models of KM

Beer, S. (1981). *Brain of the firm* (2nd ed.). New York: Wiley. Bennet, A., & D. Bennet. (2004). *Organizational survival in the new world: The intelligent complex adaptive system.* Burlington, MA: Elsevier Science.

Viable System Model (VSM). Beer (1981) was a pioneer in the treatment of the organization as a living entity. In his Viable System Model (VSM), a set of functions ensures the viability of any living system and organizations in particular. The VSM is based on the principles of cybernetics or systems science that make use of communication and control mechanisms to understand, describe, and predict what an autonomous or viable organization will do. VSM has been applied to a wide range of complex situations, including the modeling of an entire nation. The model enables managers to elaborate policies and to develop organizational structures in the clear understanding of the recursions in which they are supposed to operate, and to design regulatory systems within those recursions that obey certain fundamental laws of cybernetics.

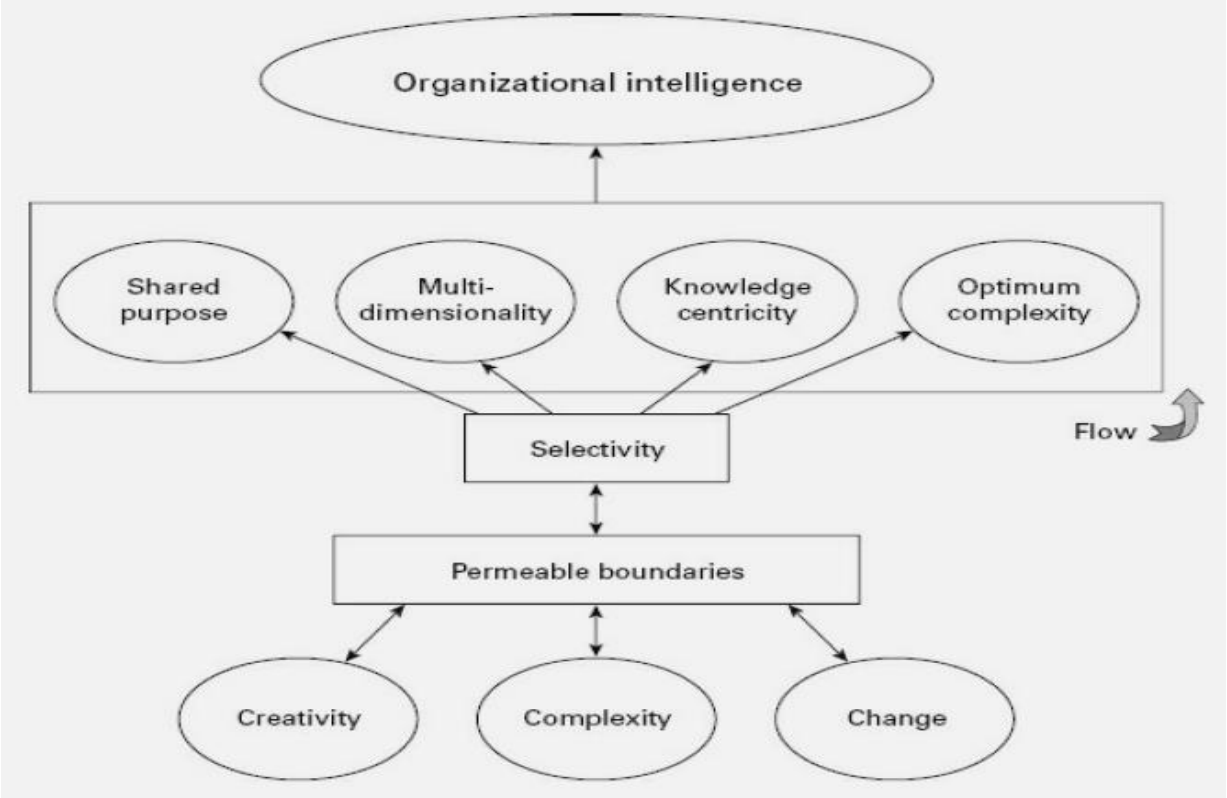
Complex Adaptive Systems. They consist of many independent agents that interact with one another locally. Their combined behavior gives rise to complex adaptive phenomena. Complex adaptive systems are said to "self-organize" through this form of emergent phenomena. There is no overall authority that is directing how each one of these independent agents should be acting. An overall pattern of complex behavior emerges as a result of their interactions.

Intelligent Complex Adaptive System (ICAS) Model. Bennet and Bennet (2004) proposed it Organization is a system that is in a mutual relationship with its environment. ICAS model is composed of living subsystems that combine, interact, and coevolve to provide the capabilities of an advanced, intelligent technological, and sociological adaptive enterprise.

Topic 36

Topic 36: Intelligent Complex Adaptive System (ICAS) Model of KM

Key Processes in ICAS Model. Understanding. Creating new ideas. Solving problems. Making decisions. Taking actions to achieve desired results.



Characteristics of an Organization.

Organizational intelligence: Capacity of the firm to innovate, acquire knowledge, and apply that knowledge to relevant situations. Shared purpose: Ability of the organization to integrate and mobilize its resources through a continuous, two-way communication with its large number of relatively independent subsystems. Selectivity: Filtering of incoming information from the outside world. Optimum complexity: Right balance between internal complexity to deal with the external environment without losing sight of the overall goal. Permeable boundaries are essential if ideas are to be exchanged and built upon. Knowledge centricity: Aggregation of relevant information from self-organization, collaboration, and strategic alignment. Flow: Facilitates the connections and the continuity needed to maintain unity and give coherence to organizational intelligence. Multidimensionality: Organizational flexibility that ensures the knowledge workers have the competencies, perspectives, and cognitive ability to address issues and solve problems.

Major Activities in ICAS Model Knowledge Management.

Creativity: Generation of new ideas, perspectives, understanding, concepts, and methods to help solve problems, build products, offer services, and so on. Problem solving: Individuals, teams, networks, or virtual communities can solve problems and they take the outputs of the creative processes as their inputs. Decision making: Selection of one or more alternatives that were generated during the problem-solving process. Implementation: Carrying out of the selected alternatives in order to obtain the desired results.

Topic 37

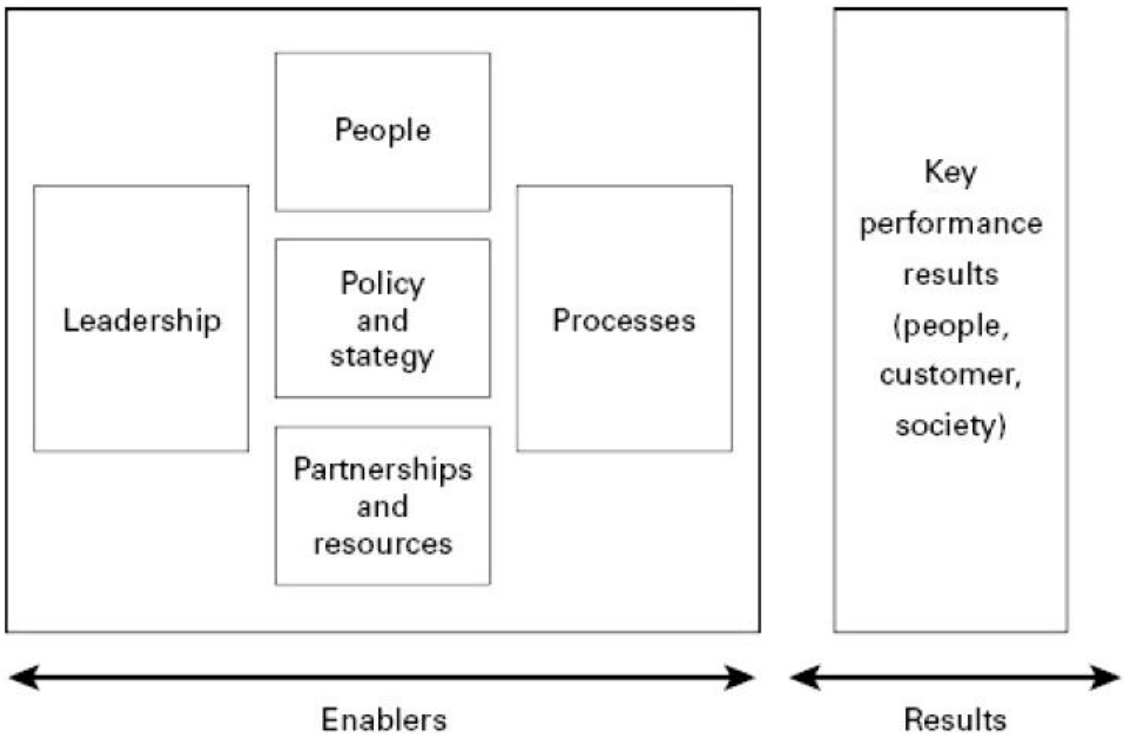
Topic 37: European Foundation for Quality Management KM Model

Introduction

This model looks at the way in which knowledge management is used to attain the goals of an organization

This model is based on traditional models of quality and excellence so there are very strong links between KM processes and expected organizational results

KM is not for the sake of KM itself

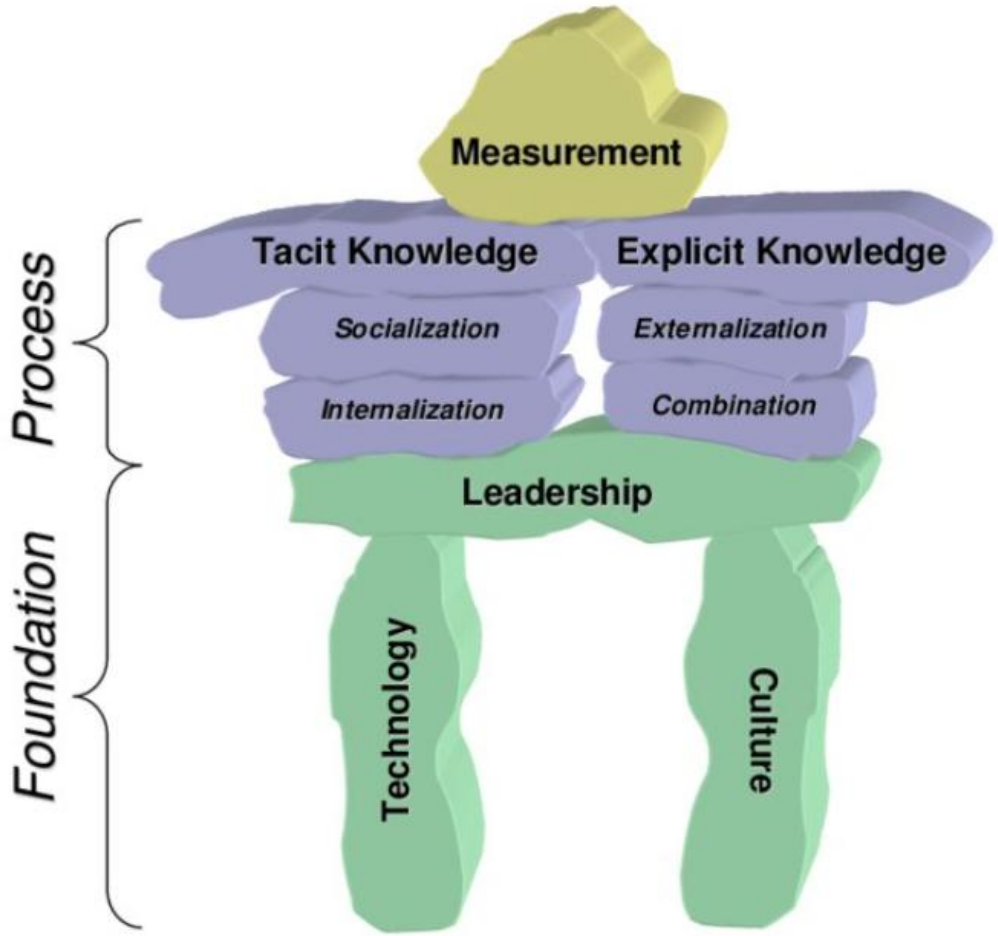


Key Components of EFQM Model. Leadership, People, Policy and strategy, Partnerships and resources, Processes, and Key-performance results (The ultimate outcome of KM activities).

Topic 38

Topic 38:Inukshuk KM Model

This model was developed to help Canadian government departments to better manage their knowledge. It was developed by both reviewing existing major models to extract five key enablers (technology, leadership, culture, measurement, and process) and by conducting quantitative research to validate these enablers.

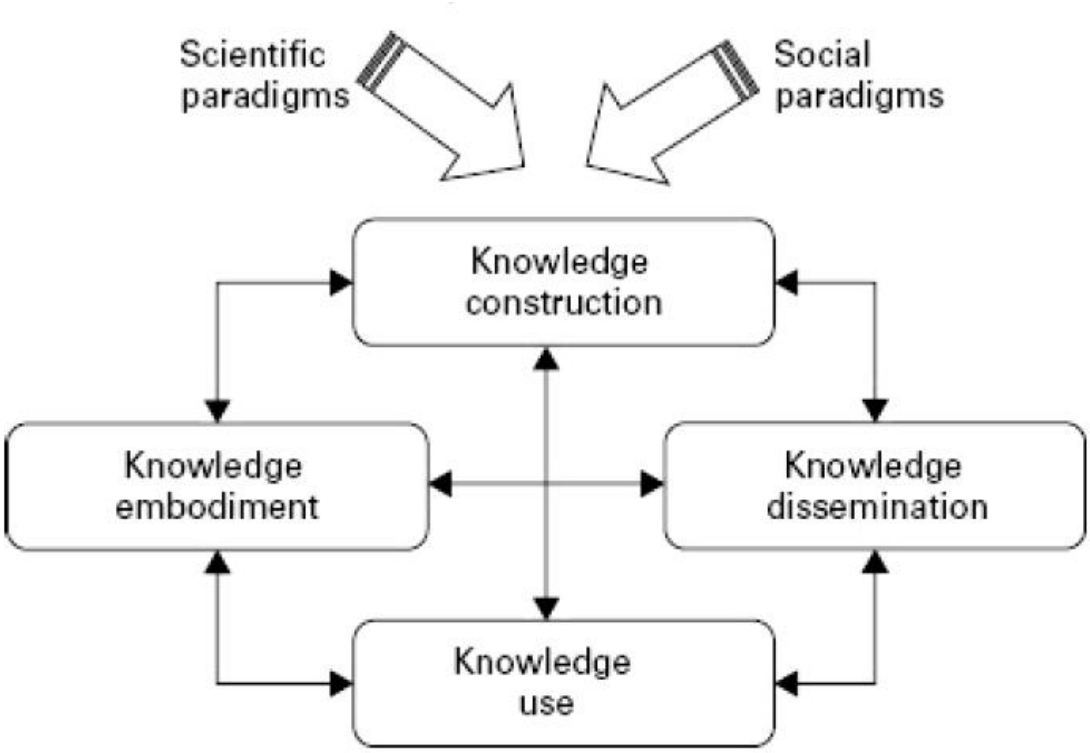


Topic 39

Topic 39:

39. McAdams and McCreedy KM Model

Key Features. The authors made this model after reviewing many KM models. Knowledge is created through social interactions. It is the "way things are done" in an organization (embodied knowledge). Knowledge is disseminated to be used. Social construction of knowledge is guided by both social and scientific paradigms. Knowledge use yields both individual and organizational benefits.



Topic 40

Topic 40:Stankosky and Baldanza's KM Pillars Model

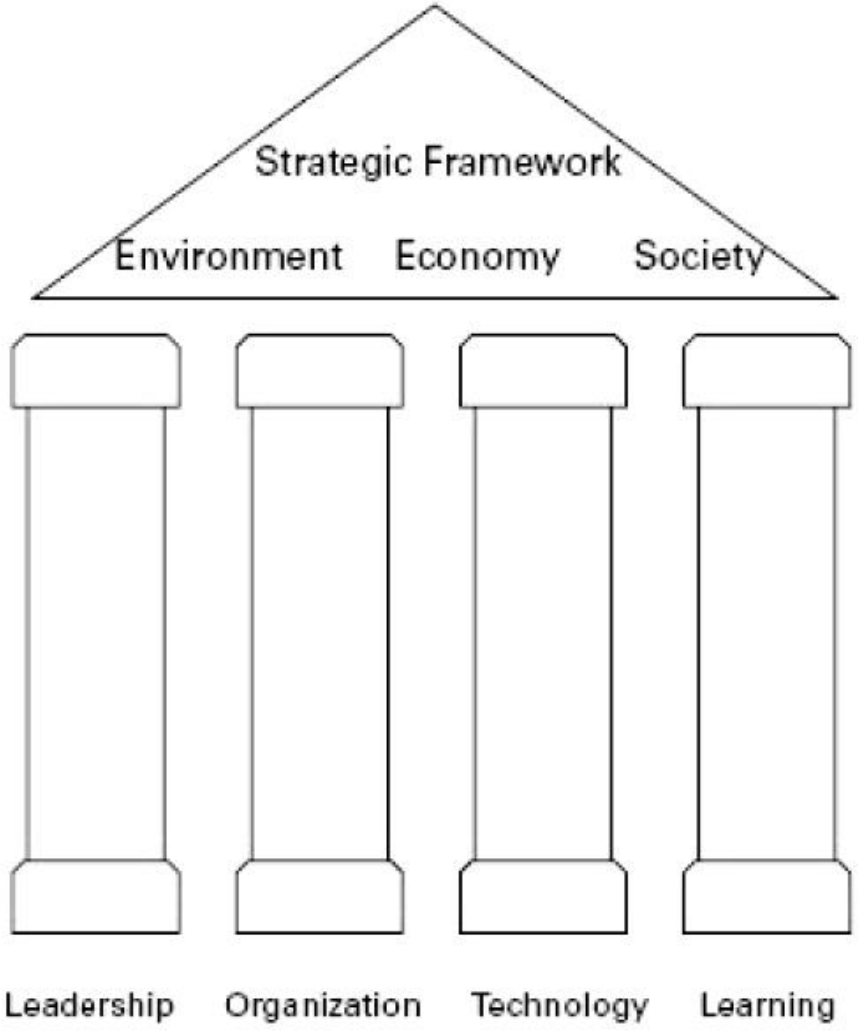
Four Pillars of KM

Leadership: Organizational strategies, mission and goals

Organization: Organizational change needed to integrate KM, typically a change in organizational culture

Technology: KM tools to document, store, share, and preserve knowledge

Learning: Using KM and KM tools to improve individual and organizational learning



Topic 41

Topic 41:Wang and Noe Knowledge Sharing Model

Wang and Noe reviewed over 70 published studies. They found many factors that had an effect on knowledge sharing behavior. Please refer to Figure 3.16 in the textbook.

Environmental Factors. Organizational culture: Perceived costs of knowledge sharing, availability of technologies, emphasis on individual competition vs. cooperation, emphasis on innovation vs. efficiency, and the existence of role models among senior management. Interpersonal and team characteristics: Team cohesiveness, compatible

personality and communication styles, and perceived equality of status. Collective cultural characteristics: Different national cultures and languages of the team members.

Individual Factors.

Education,

Work experience,

Personality,

Self-efficacy,

Evaluation apprehension,

Impression management,

Perceptions (e.g., knowledge as power, intention to share).

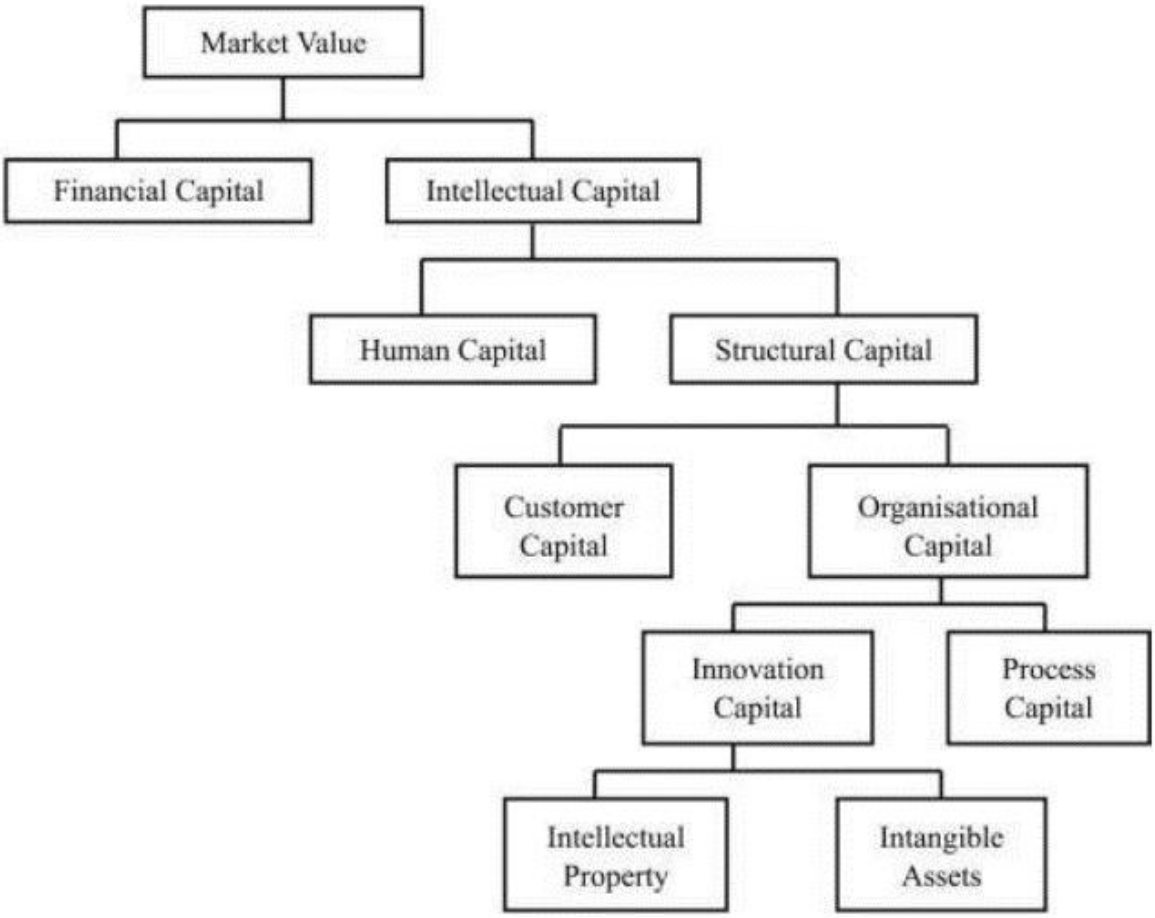
Topic 42

Topic 42:Skandia IC Navigator Intellectual Capital Model

Introduction

This model explains the difference between book value (the sum total of all measurable, tangible assets of a company) and market value (what the market valued the company at)

The total market value is the sum of its financial capital plus its intellectual capital.



Topic 43

Topic 43:KM Strategy Models

Codification vs. Personalization KM Strategy

Codification relies on information technologies to document explicit knowledge

It contributes to operational efficiencies and standardization as knowledge can be more easily reused

Knowledge is accessible more quickly and to a wider group of users.

Personalization focuses on face-to-face sharing of tacit knowledge

It requires more time as users are engaging in a conversation with other individuals.

Seven Schools of KM

Systems

Cartographic

Engineering

Commercial

Organizational

Spatial

Strategic

Systems school focuses on explicit knowledge that has been stored in some type of KM system, typically with little or no human intervention

Cartographic school focuses on tacit knowledge

In Engineering school, knowledge is embedded in business processes so that employees can obtain the knowledge they need when they need it as they are carrying out their tasks.

In **Commercial school**, knowledge is converted into a revenue-generating asset or it is monetized

In **Organizational school**, learning is promoting through interactions, networks, and collaboration so that employees can learn from one another and provide assistance to one another.

In **Spatial school**, new spaces and office layouts need to be implemented in order to promote knowledge sharing conversations

Strategic school focuses converting some knowledge into strategic knowledge

Topic 44

Topic 44:Collaboration Models

Knowledge Jam Model of Collaboration and Knowledge Sharing

Pugh, K. (2011). Sharing hidden know-how. How managers solve thorny problems with the knowledge jam. San Francisco, CA: Jossey-Bass.

Knowledge jam is a deliberate, planned, and systematic event to discover and capture tacit knowledge

Knowledge jams are more structured forms of brainstorming

There is an agenda and a facilitator.

There are different actors

Knowledge originators are individuals or teams that share a common job

Brokers translate new ideas, innovation, and best practices generated from jam into organizational practices

Facilitator is in charge of the jam process

Sponsor ensures the jam is well aligned with strategic business objectives and that there is both political support and incentives.

There are five steps in a knowledge jam

In the **select phase**, sponsors and facilitators prioritize critical knowledge relevant to what the knowledge originators do

In the **plan phase,** originators and brokers set develop the agenda, identifying the knowledge capture themes

In the **discover/capture phase**, there is a 90-minute facilitated conversation to elicit tacit knowledge, make sense of it, and document it.

The **broker phase** serves to translate the elicited knowledge and insights into practical and feasible organizational applications

The **final phase** is reuse, when the knowledge elicited from the knowledge jam session is integrated into projects.

Hansen's Model for Collaboration

Hansen, M. (2009). Collaboration. How leaders avoid the traps, create unity and reap big results. Boston, MA: Harvard Business School Publishing.

This model consists of three major steps.

Major Steps in Hansen's Model

Evaluate opportunities for organization-wide collaboration across different business units

Analyze whether any of the four barriers to collaboration exist in the organization

Tailor solutions to these barriers using a combination of three collaboration enablers.

Potential Barriers to Collaboration

"Not-invented-here" barrier

Hoarding knowledge

Ineffective searching for knowledge

"Transfer" barrier.

Collaboration Enablers

The unification enabler consists of creating an overall goal that 'collaboration is the core value'

The T-shaped enabler is used to show employees that they can personally benefit by collaborating with others

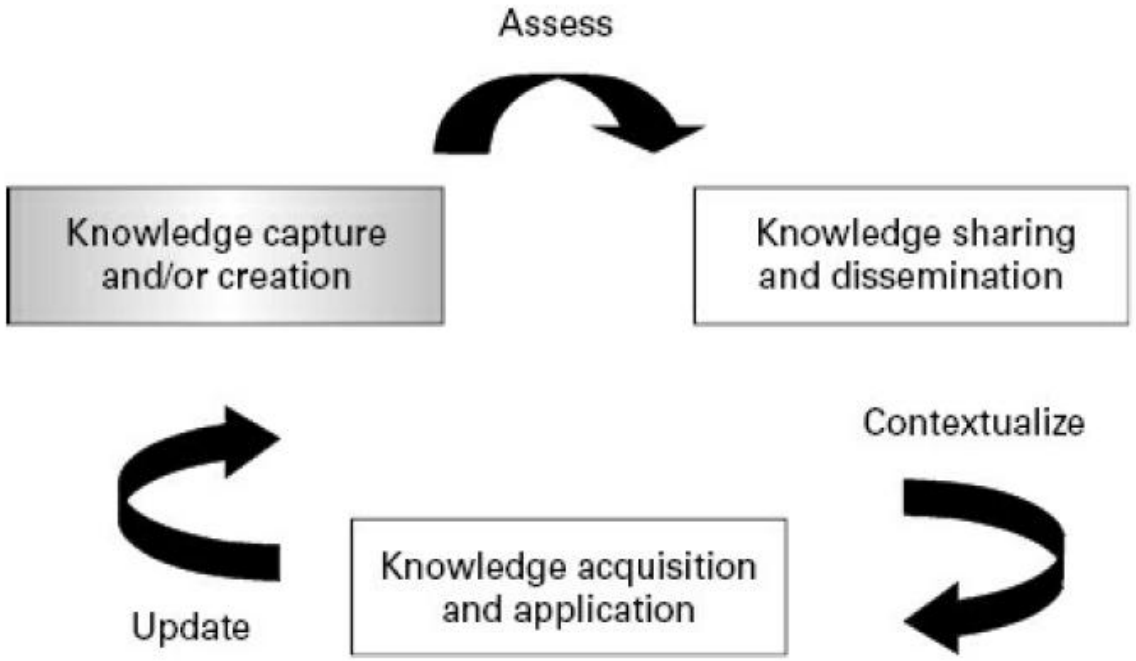
The networks lever is used to create and strengthen interactions, social networks, and cross-unit relationships.

Topic 45

Topic 45:Knowledge Capture

Knowledge Capture

The first phase of the knowledge management cycle



Knowledge Capture

Tacit knowledge is captured or elicited

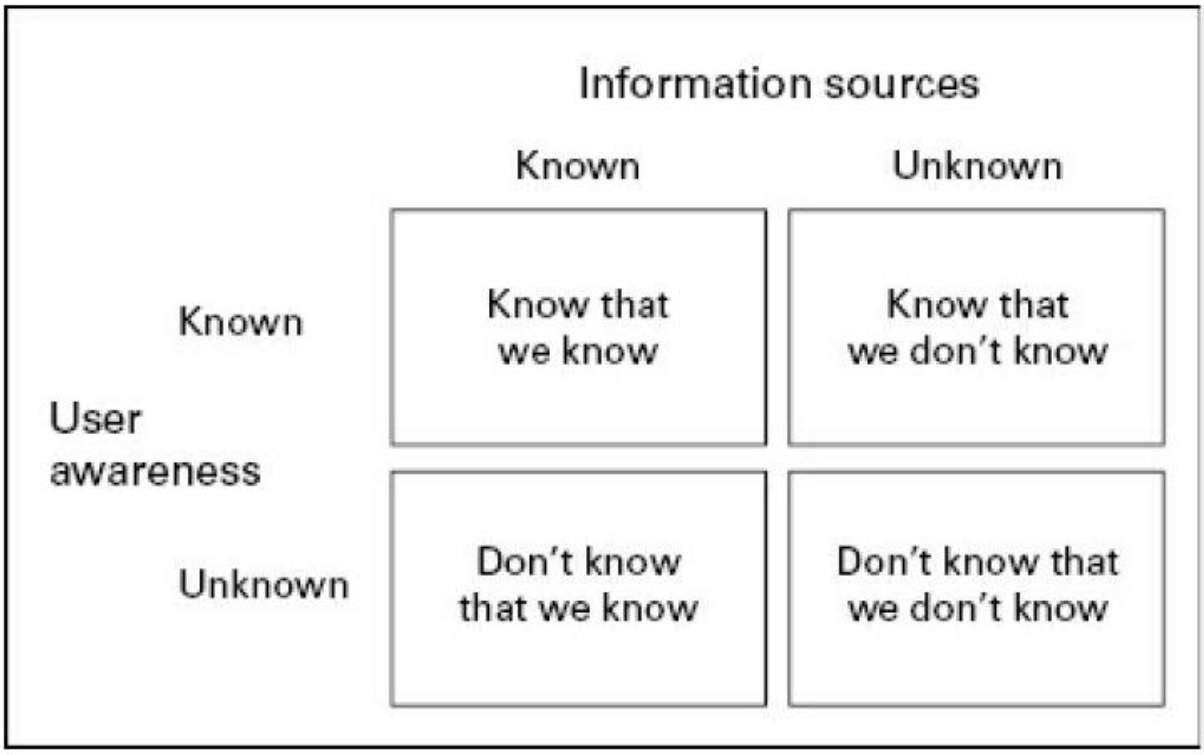
Explicit knowledge is organized or coded

These two processes occur in parallel

A distinction needs to be made between capture of existing knowledge and creation of new knowledge

In most of the organizations, already identified and codified explicit knowledge is less than 5 percent of a company's information.

The Known-Unknown Matrix



Knowledge Capture

Technology is only a small part of knowledge

Knowledge capturing approach depends on the kind of business, its culture, and the ways in which people solve problems

Some organizations deliver standard products and services

Others constantly looking for new ways of doing things.

Knowledge Capture

Knowledge about standardized work can easily be captured in writing

In case of innovation and creativity people will need some direct contact

Knowledge is captured and codified to make it a part of the existing knowledge base of the organization

Capturing knowledge is the process of converting individual's knowledge into a collective knowledge that is an organizational asset

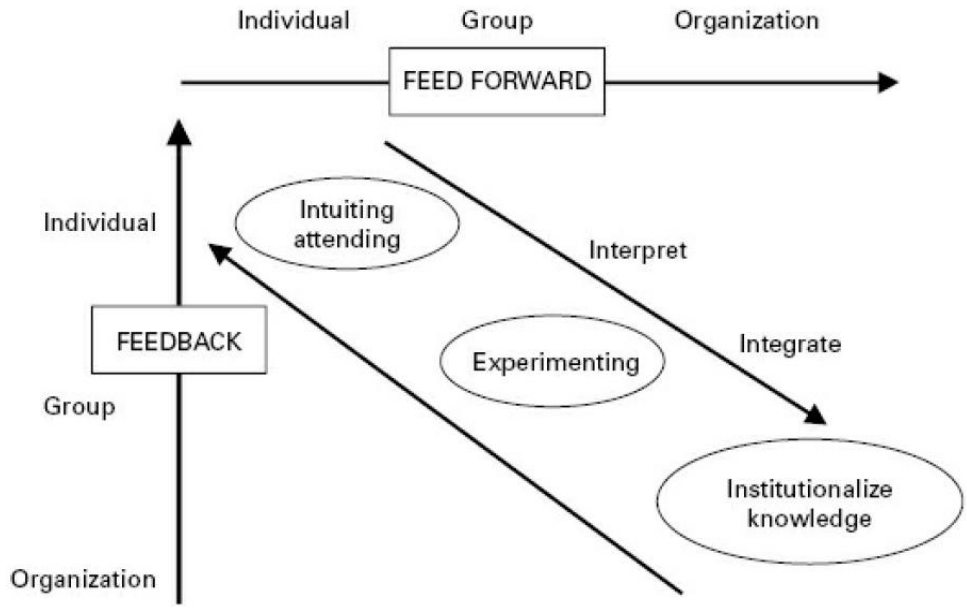
Knowledge that is not captured becomes devalued and eventually ignored

Topic 46:

Tacit Knowledge Capture

There is a debate on the individual's versus organization's role in learning and knowledge acquisition. Learning at individual level is widely accepted to be a fundamental social process. Individuals learn from the collective and collective learns from the individuals. Individuals perform the role of knowledge capturing for organizations or groups.

Crossan's 4I Model of Organizational Leaning



All members of community of practice or dedicated individuals. Individuals share perceptions and jointly interpret information, events, and experiences. Collected knowledge is coded into corporate memory. Tacit knowledge is captured through expert systems.

Topic 47

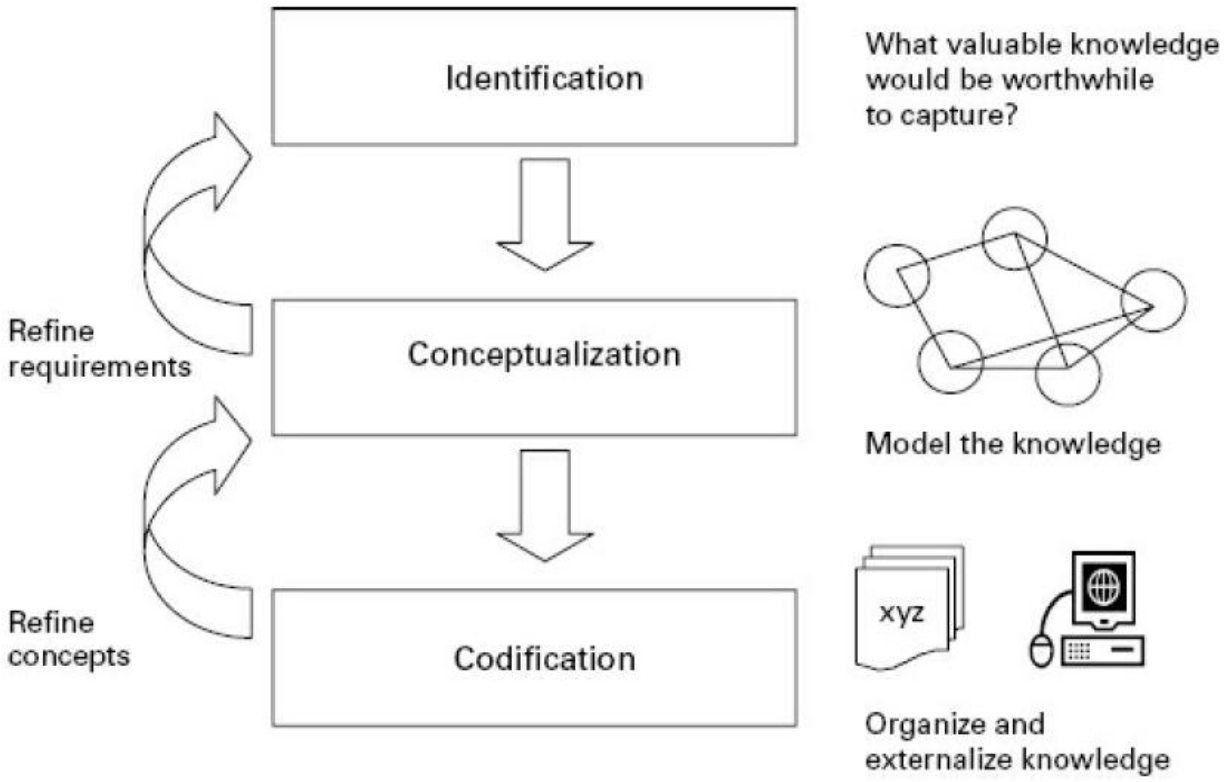
Tacit Knowledge Capture at the Individual and Group Levels

Transfer and transformation of valuable expertise from a knowledge source (e.g., human expert) to a knowledge repository (e.g., corporate memory, intranet). The process involves reducing a vast volume of content from diverse domains into a precise, easily usable set of facts and rules. Reporters, journalists, writers, announcers, instructional designers, system analysts have been practicing knowledge acquisition for years. Capturing tacit knowledge ranges from simple graphical representations to sophisticated mathematical formulations. In the design and development of knowledge-based systems, or expert systems, knowledge engineers interviewed subject matter experts, produced a conceptual model of their critical knowledge, and then translated this model into a computer executable model such that an "expert on a diskette" resulted. Expert systems capture procedural knowledge (how) and declarative knowledge (what). The subject matter experts are needed to convert tacit knowledge into explicit knowledge in knowledge management systems.

Major Tasks of Knowledge Engineers. Analyzing information and knowledge flow. Working with experts to obtain information. Designing and implementing an expert system.

Qualities of Subject Matter Experts. Explain important knowledge and know-how. Be thoughtful and patient. Have effective communication skills. Subject or domain experts were usually "sole sources of information whose expertise companies wish to preserve."

Knowledge Acquisition Phases



Topic 48:

Approaches of Tacit Knowledge Capture at the Individual and Group Levels

Interviewing experts. Learning by being told. Learning by observation. In many cases, a combination of these approaches will be required to capture tacit knowledge.

Interviewing Experts. It is at the core of qualitative research methods such at ethnography. The primary data collection is to interview participants who are knowledgeable about the phenomenon under study, and then thematically organize this content in order to identify key themes and findings. Techniques of Interviewing Experts: After action reviews. Mentoring sessions. Discussion forums. Peer assists. Knowledge communities or networks. Journalistic interviewing and writing. Appreciative inquiry

methods. Storytelling. Two of the more popular means are structured interviewing and stories.

Structured Interviewing. Most common method of tacit knowledge capturing. In many organizations, structured interviewing is done through exit interviews that are held when knowledgeable staff near retirement age. Interviewer outlines specific goals and questions for knowledge acquisition. Open and closed questions. Open Questions: Broad in nature and place few constraints on the expert. Open questions are not followed by choices as they are designed to encourage free response. These types of questions allow interviewers to observe the expert's use of key vocabulary, concepts, and frames of reference. Examples of Open Questions: How does that work? What do you need to know before you decide? Why did you choose this one rather than that one? What do you know about … How could … be improved? What is your general reaction to … Closed Questions: Closed questions set limits on the type, level, and amount of information an expert will provide. A choice of alternatives is always given. A moderately closed question would be something like: "which symptom led you to conclude that…." A very strong closed question is one that can only be answered by 'yes' or 'no.'

Reflective Listening. Reflective listening helps in cases where words may have multiple meanings, the interview participants may hold very different mental models, and personal characteristics such as background, attitude, training, and level of comfort with current position in the organization. Techniques of reflective listening include paraphrasing, clarifying, summarizing, and reflecting feelings.

Techniques to Transform Tacit Knowledge into Explicit Knowledge. Descriptions of case studies. Describing key milestones in careers, simulations, and role playing. Archeological or historical approach. Group interviews. Delphi method.

Analysis of Interviews. Transcripts are analyzed to identify key concepts, common themes, and major methods or techniques that were mentioned. Themes allow captured knowledge to be codified. Conflict resolution among different interviews. Multiple interviews of the same participants. Transcripts are coded by more than one person.

Stories. Telling of a happening or a connected series of happenings, whether true or fictitious. An organizational story is a detailed narrative of past management actions, employee interactions, or other key events that have occurred and that have been communicated informally. Knowledge-sharing stories need to be authentic, believable, and compelling.

Topic 49

Learning by Being Told and Learning by Observation

Learning by Being Told. The interviewee expresses and refines his or her knowledge, and the knowledge manager clarifies and validates the knowledge artifact that renders this knowledge in explicit form. It involves domain and task analysis, process tracing and protocol analysis, and simulations.

Task analysis looks at key tasks an expert performs and characterizes them in terms of prerequisite knowledge/skills required, criticality, consequences of error, frequency, difficulty, interrelationships with other tasks and individuals.

Process tracing and protocol analysis involve asking the subject matter expert to think aloud as he or she solves a problem or undertakes a task. The information used, questions asked, actions taken, alternatives considered, and decisions taken are the types of knowledge that are acquired.

Simulations are especially effective for later stages of knowledge acquisition —to validate, refine, and complete the knowledge capture process.

Learning by Observation. Two types of expertise include skill- or motor-based (e.g., operating a piece of machinery or riding a bike) and cognitive expertise (e.g., making a medical diagnosis). The learning-by-observation approach involves presenting the expert with a sample problem, scenario, or case study that the expert then solves. Use audio or video to record what the expert knows.

Topic 50

Other Methods of Tacit Knowledge Capture

These are some methods to capture tacit Knowledge:

- Ad hoc sessions.
- Roadmaps.
- Learning histories. A
- ction learning.
- learning.
- Learning from others through business guest speakers and benchmarking against best practices.
- Peer assists.
- Knowledge and innovation jams.
- Knowledge continuity processes.
- Critical knowledge transfer.

- Master class.

Ad Hoc Sessions.

A means of rapidly mobilizing a community of practice or informal professional network to a member's call for help.

These are usually brainstorming sessions of no more than 30 minutes and can take place as face-to-face meetings or make use of technologies such as instant messaging, email, teleconference, and chat rooms.

Roadmaps.

- More formal in nature.
- Facilitated problem-solving meetings that are scheduled and convened and that follow an agenda.
- The objective is to solve day-to-day problems in a public forum which leads to the development of guidelines for continuous process improvement within the company.
- These sessions may be used for internal benchmarking which consists of monitoring progress against goals over time.

Learning Histories

A retrospective history of significant events that occurred in the organization's recent past, as described in the voice of the people who took part in them and are often referred to as project post mortems, post-project reviews, or after action reviews.

Learning History Process:

- Planning.
- Reflective interviews.
- Distillation.
- Writing.
- Validation.
- Dissemination.

Action Learning.

Based on the fact that people tend to learn by doing. Small groups of participants who share common issues, goals, or learning needs. They can meet regularly, report on progress, brainstorm alternatives, try out new things, and evaluate the results. A form of task-oriented group work and learning that is well suited for narrow, specialized domains and specific issues.

E-**learning.**

Use of e-learning systems.

- The capture of valuable procedural knowledge and documenting a history of all procedural changes together with an explanation or justification for the change that was made.
- In this way, a historical thread is maintained and the context within which changes were deemed to be necessary does not become lost.
- Online courses could be created based on the information from threaded discussion archives.

Topic 51:Other Methods of Tacit Knowledge Capture – II

Learning from Others.

- External benchmarking involves learning about what the leaders are doing in terms of their best practices, either through publications or site visits, and then adapting and adopting their best practices.
- Attending conferences and expositions and commissioning specific studies.
- Inviting guest speakers for seminars.

Peer Assists.

A form of peer-to-peer learning that can be used to elicit and share tacit knowledge in organizations.

Usually, a discussion with people working outside the organization.

Additional benefit is the development of connections among participants.

Phases of a Peer-to-Peer Meeting:

- Team members present the problem.
- They are asked to understand the problem.
- They start attempting to solve the problem.
- They are asked to remember whether they faced any similar problems.
- They present their initial thoughts informally and outline their list of options.
- All participants discuss what they learned and planning the next steps to tackle the problem at hand.

Knowledge and Innovation Jams.

- A more structured approach to purposefully bringing together people from different business units in order to address difficult problems.
- Jams are specifically structured to elicit new ideas from the participants that can ultimately lead to new products and services.

Success Factors for Jams:

- Work in small well-defined teams.
- Define the problem to be addressed very explicitly and very clearly.
- Provide some initial training before starting the actual jam session.
- Make it fun.

Knowledge Continuity Approach.

- Capturing knowledge from senior employees who are retiring (or leaving for other reasons) so that this knowledge can be made available to less-experienced employees. Major phases involved: identify valuable or critical knowledge, determine how to share it with existing employees and how to preserve it for future employees, and then apply or reuse this knowledge.

Critical Knowledge Transfer.

- A similar process that focuses on how to pass along experiential knowledge.
- Most experiential knowledge will consist of tacit knowledge.
- Experienced employees will have specialized knowledge.
- Sharing of this tacit knowledge would be through communities or networks. Technologies such as SharePoint would be used to store the knowledge for future access and reuse.

Master Class.

- A form of coaching.
- First, a knowledge audit is conducted to identify the critical areas of expertise.
- Next, individuals with important and vulnerable knowledge are identified.
- These employees are then paired with coaches who mediate the tacit knowledge elicitation of experts and their subsequent appropriation by employees who have the potential to become experts.

Topic 52

Tacit Knowledge Capture at the Organizational Level

Organizational Knowledge Acquisition Processes.

Grafting.

Vicarious learning.

Experiential learning.

Inferential processes.

Grafting.

- Migration of knowledge between firms —a learning process whereby the firm gains access to task or process-specific knowledge that was not previously available within the firm.
- Achieved through mergers, acquisitions, or alliances in that there is a direct passing of knowledge between firms.
- An example would be technology transfer.

Vicarious Learning.

One firm observes other firms' demonstrations of techniques or procedures. For example, benchmarking studies where companies can adopt the best practices of other industry leaders.

Experiential Learning.

- Knowledge acquisition within a given firm—knowledge that is created by doing and practicing.
- Repetition-based experience relies on the learning curve to establish routines and procedures.
- This type of knowledge is initially tacit but can be easily codified and transferred.

Inferential Processes.

- Learning is within the firm and occurs by doing; however, knowledge acquisition occurs primarily through interpretation of events, states, changes, and outcomes relative to the activities undertaken and decisions that were made.
- Inductive and deductive learning—that seeks to make sense of occurrences and to establish causal links between actions and outcomes.

Topic 53. Explicit Knowledge Codification

- Presenting knowledge in the form of a document.
- Through documents, knowledge can be communicated more widely and with less cost.
- Documents can be disseminated widely over a corporate intranet and they persist over time, which makes them available for reference as and when they are needed, both by existing and by future staff.
- They are the only "real" corporate memory of the organization.
- Knowledge codification allows the sharing and use of what is collectively known.
- If knowledge is codified in a material way (i.e., rendered explicit), then it can be shared more widely both in terms of audience and time duration.

- To understand, maintain, and improve knowledge as part of corporate memory, knowledge must be codified.
- Techniques for codification of explicit knowledge include cognitive mapping, decision trees, knowledge taxonomies, and task analysis.

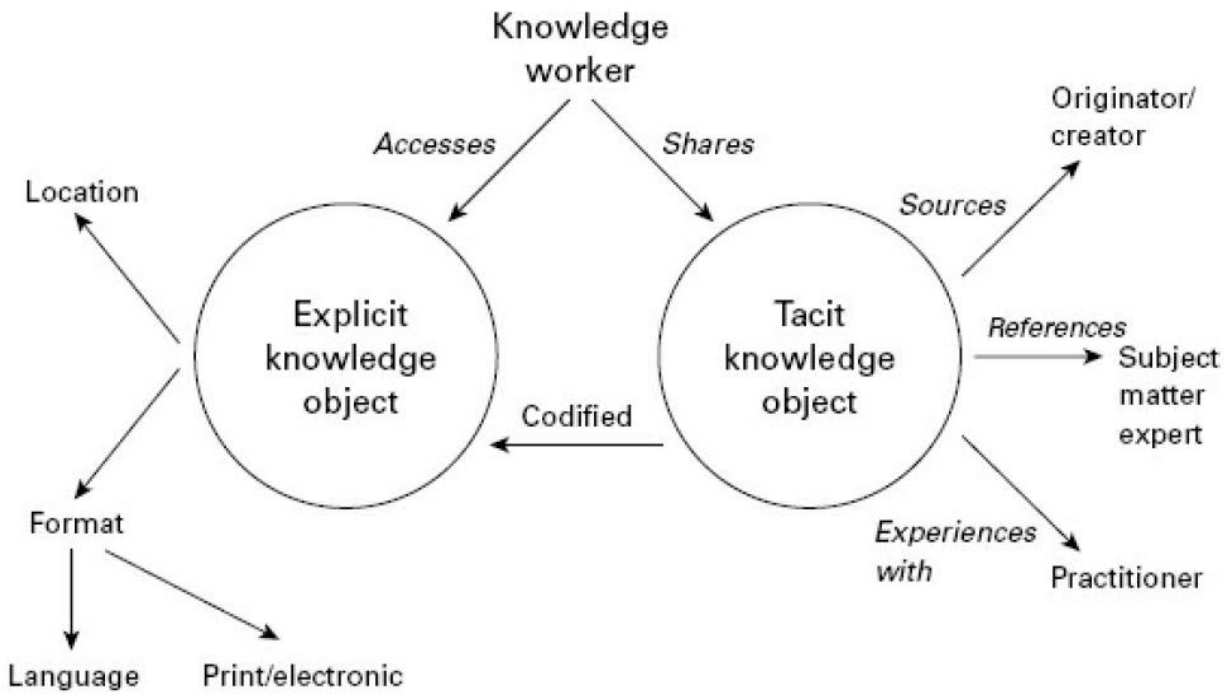
Quality of Knowledge Codification.

- Accuracy.
- Readability/understandability.
- Accessibility.
- Currency.
- Authority/credibility

Topic 54. Cognitive Maps

- Once expertise, experience, and know -how have been rendered explicit, the resulting content can be represented as a cognitive map.
- A cognitive or knowledge map is a representation of the "mental model" of a person's knowledge and provides a good form of codified knowledge.
- A mental model is a symbolic or qualitative representation of something in the real world. It is how human minds make sense of their complex environments.
- It is important to include individual views, perceptions, judgments, hypotheses, and beliefs.
- Cognitive mapping is based on concept mapping—a two-dimensional representation with concepts and links.
- Nodes in a map are the key concepts.
- Links represent the interrelationships among the concepts.
- These may be drawn manually, by taping small note pages on a wall or a whiteboard, or through visualization software.

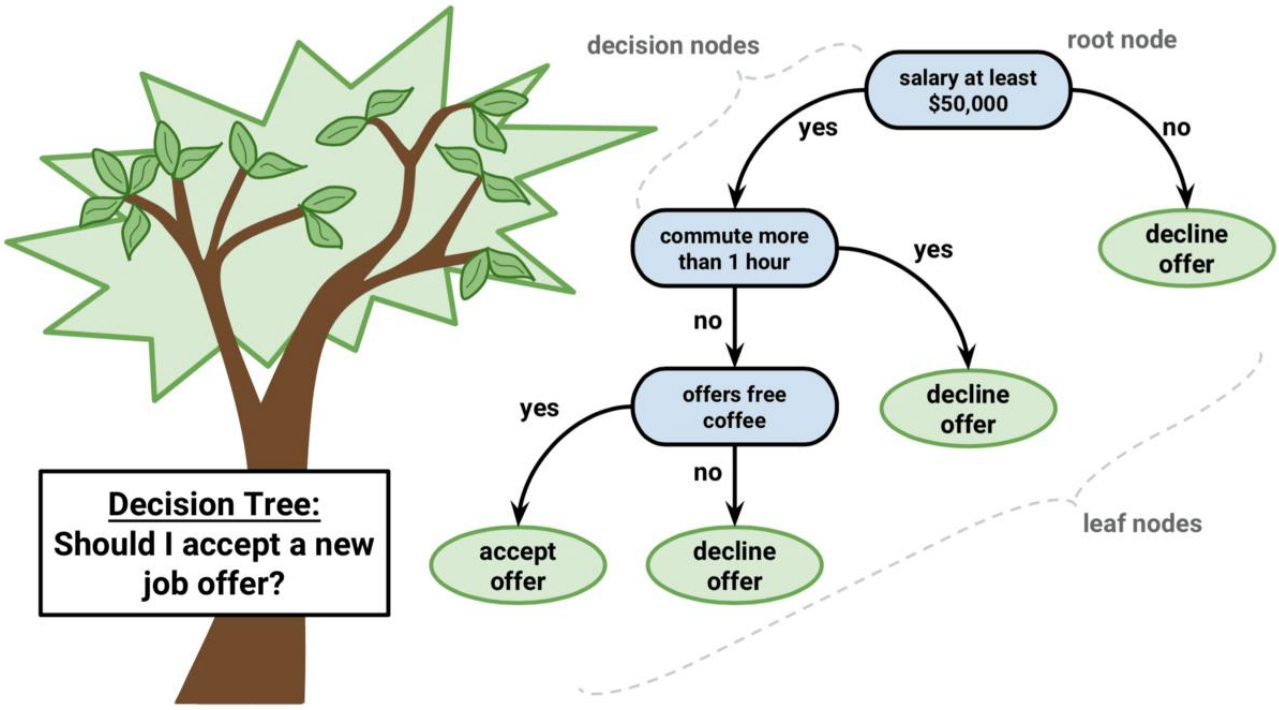
Example of a Concept Map



Topic 55. Decision Trees

- A widely used, compact and efficient representation of knowledge.
- Typically, in the form of a flowchart, with alternate paths indicating the impact of different decisions being made at that juncture point.
- A decision tree can represent many rules and when you execute the logic by following a path down it, you are effectively bypassing rules that are not relevant to the case in hand.
- You do not have to look at every rule to see if it "fires," and you also take the shortest route to the correct outcome
- . Their graphical nature makes them very easy to understand and they are obviously very well suited for the coding of process knowledge.

Example of a Decision Tree

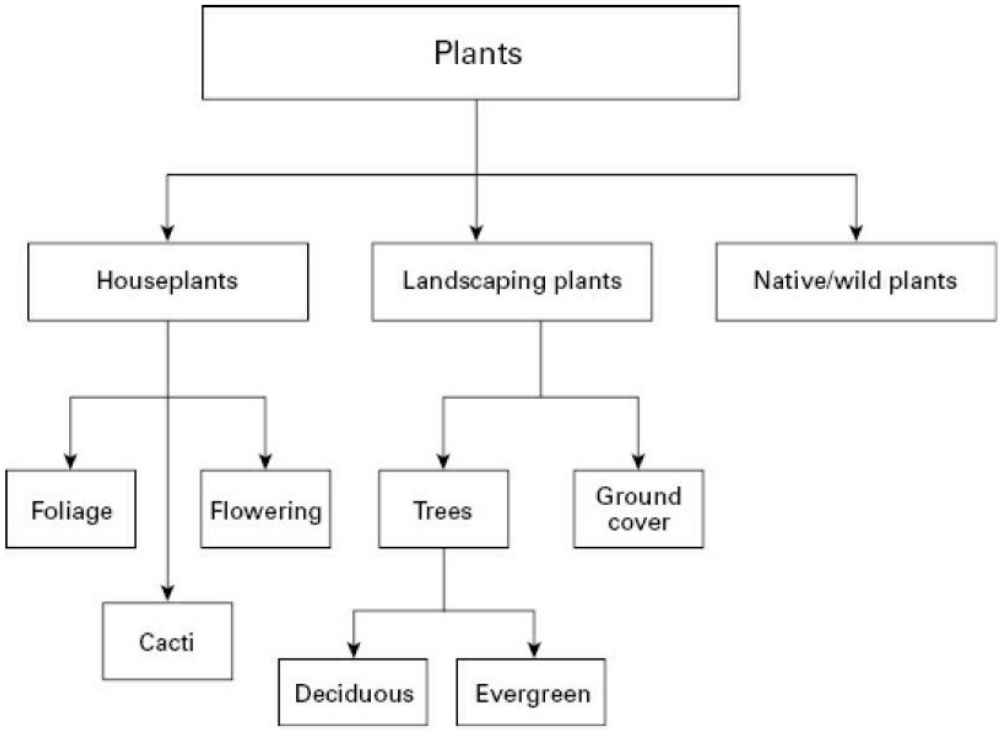


Topic 56

56. Knowledge Taxonomies

- Once key concepts have been identified and captured, they can be arranged in a hierarchy that is called structural knowledge taxonomy.
- Knowledge taxonomies allow knowledge to be graphically represented in such a way that it reflects the logical organization of concepts within a particular field of expertise.
- A knowledge dictionary is a way to keep track of key concepts and terms that are used. Taxonomies are basic classification systems that enable us to describe concepts and their dependencies—typically in a hierarchical fashion.
- The higher up the concept is placed, the more general or generic the concept is.
- The lower the concept is placed, the more specific an instance it is.

Example of a Knowledge Taxonomy



Notion of Inheritance.

Each node is a subgroup of the node above it.

All of the properties of the higher-level node are automatically transferred from "parent" to "child."

If the higher-level node is a houseplant and the lower-level nodes are foliage and flowering plants, both of these two subgroups possess all the characteristics of houseplants.

In fact, taxonomies originated as biological classification schemes.

Organizational Knowledge Taxonomies.

Consensus is vital because the taxonomy serves to help achieve the goals of the organization and it does this by helping knowledge workers communicate better, code knowledge better, and organize this coded knowledge in such a way that it can be used by everyone today and by workers of the future when they need to retrieve and make use of this knowledge.

Organizational thesaurus.

Topic 57:Taxonomic Approaches to Knowledge Codification

Taxonomic Approaches to Knowledge Codification.

- Cognitive or concept map.
- Decision tree.
- Manual knowledge taxonomy.
- Automated knowledge taxonomy.

Cognitive or Concept Map. Each key content is represented as a node in a graph and the relationships between these key concepts are explicitly defined. Can show multiple perspectives or views on the same content. Fairly easy to produce and intuitively simple to understand but difficult to use for knowledge related procedures.

Decision Tree. Hierarchical or flowchart type of representation of a decision process. Very well suited to procedural knowledge—less able to capture conceptual interrelationships. Easy to produce and easy to understand.

Manual Knowledge Taxonomy. Object-oriented approach that allows lower or more specific knowledge to automatically incorporate all attributes of higher-level or parent content they are related to Very flexible—can be viewed as a concept map or as a hierarchy, More complex, therefore will require more time to develop, as they must reflect user consensus, Most popular techniques used are card sorting and affinity diagramming.

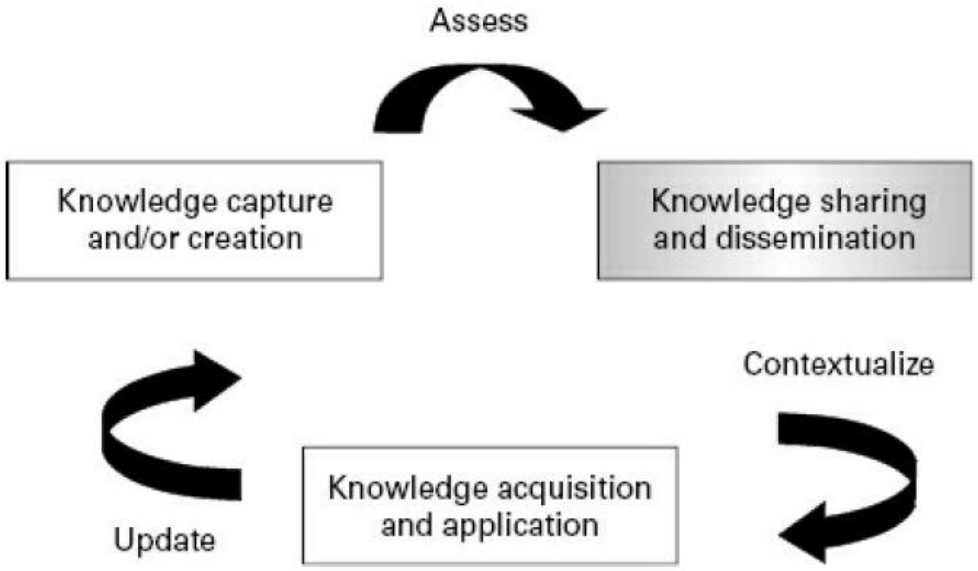
Automated Knowledge Taxonomy. Many tools are commercially available for taxonomy construction. Most are based on statistical techniques such as cluster analysis to determine which types of content are more similar to each other and can constitute subgroups or thematic sets. Good solution if there is large amount of legacy content to sort through. More expensive and still not completely accurate—will need to validate and refine for maximum usefulness.

Topic 58

Knowledge Sharing

Knowledge Sharing and Dissemination

Once knowledge has been captured and codified, knowledge needs to be shared and disseminated throughout the organization.



- With the advent of computers and the World Wide Web, it is assumed that users are good searchers of information.
- This is not true as they lack "information literacy." "Information seeking" rarely appears as a requirement in job descriptions.
- Knowledge workers spend from 15 to 35 percent of their time searching for information.
- These workers succeed in finding what they seek less than 50 percent of the time.
- Many studies found that explicit knowledge was not easy to find and use.
- Studies also point out that learning is a social event.
- Technology offers a new medium through which employees who share professional interests, problems, and responsibilities can share knowledge.
- This is through email groups, discussion groups, and other interactions in some sort of virtual shared workspace that often referred to as a "community of practice" (CoPs).

Community of Practice.

- A group of people having common identity, professional interests and that undertake to share, participate, and establish a fellowship.
- A group of people, along with their shared resources and dynamic relationships, who assemble to make use of shared knowledge, in order to enhance learning and create a shared value for the group.

Information-Based Versus People-Based Knowledge Management.

- Information-based approach focuses on knowledge capture and codification.
- People or interaction-based approach, places a great deal of emphasis on knowledge-sharing interactions, which in today's organizations tend to be associated with communities of practice.
- This social constructivist approach to learning and knowledge transfer is much better suited to the discipline of KM.

Topic 59

Social Nature of Knowledge

- Knowledge management needs to view knowledge as something that is actively constructed in a social setting.
- Group members produce knowledge by their interactions and a group memory is created.
- **Social constructivism** views knowledge not as an objective entity but as a subjective, social artifact.
- Social constructivists argue that knowledge is produced through the shared understandings that emerge through social interactions.
- As individuals and groups of people communicate, they mutually influence each other's views and create or change shared constructions of reality.
- The social constructivist perspective views knowledge as context dependent and thus as something that cannot be completely separated from "knowers."
- Context helps distinguish between knowledge management and document management: whereas the latter can be carried out in a more-or-less automated manner, the former cannot be accomplished without involving people as well as tangible content.
- Since individual memory is limited, we need to embed this knowledge in useful, more permanent forms, such as documents and emails.
- This institutionalized knowledge becomes an organizational legacy that remains in the corporate memory for subsequent generations to learn from.
- Context of each item of knowledge must also be captured.
- Without this context, the knowledge product is not complete and cannot be successfully used, applied, nor even understood.

Topic60. Knowledge Networks

Knowledge Network Versus Community of Practice.

The term "knowledge network" is interchangeably used with "community of practice (CoP)." A community implies that members have many things in common, including a common profession and some common goals. A network is all about sharing with those they are connected with.

Knowledge Networks. Collections of individuals and teams who come together across organizational, spatial, and disciplinary boundaries to invent and share a body of knowledge. Knowledge network members share a common goal, but they also share social and operational norms. KN leaders can influence knowledge-sharing behaviors of members.

Four Goals of Knowledge Networks.

Coordination—ensuring members share best practices.

Learning and innovation—acquisition of knowledge, both from within and external to the network. New knowledge, new practices, new models, and so on, are cocreated and shared by members.

Translation and local adaptation— identifying and adapting as needed knowledge that can address members' specific problems or challenges. Members are best suited to vet and judge relevancy and contextual compatibility of best practices.

Supporting individual members—a safe space to ask questions and get peer feedback.

Eight Key Dimensions of Knowledge Networks.

Leader's theory of change—their expectation of the type of impact the KN will have; how will members' behaviors change? For example, will they perceive a greater sense of belonging? Will they form a more cohesive group that shares common goals?

Objectives, outcomes, and purpose—the specific targeted outcomes of a KN, such as a specific problem to solve, as well as the overall goal of the network. These are usually documented in the KN charter.

Roles of expertise and experimentation —the duality of knowing and being perceived as an expert, yet also being able to say when you don't know and want to learn something. Examples include safe discussions where people can admit mistakes, reflect, experiment, and contribute to a collective learning.

Inclusion—the diversity of the members' profiles and the level of comfort in working with people who have different personalities, levels of commitment, degree of autonomy, and other characteristics.

Structural operating model—the governance of the KN, any formal policies, or guidelines such as a charter. This will typically set out the roles and responsibilities of leaders and members.

Convening structures—how meetings are organized, whether they are real-time and face-to-face or technology-mediated.

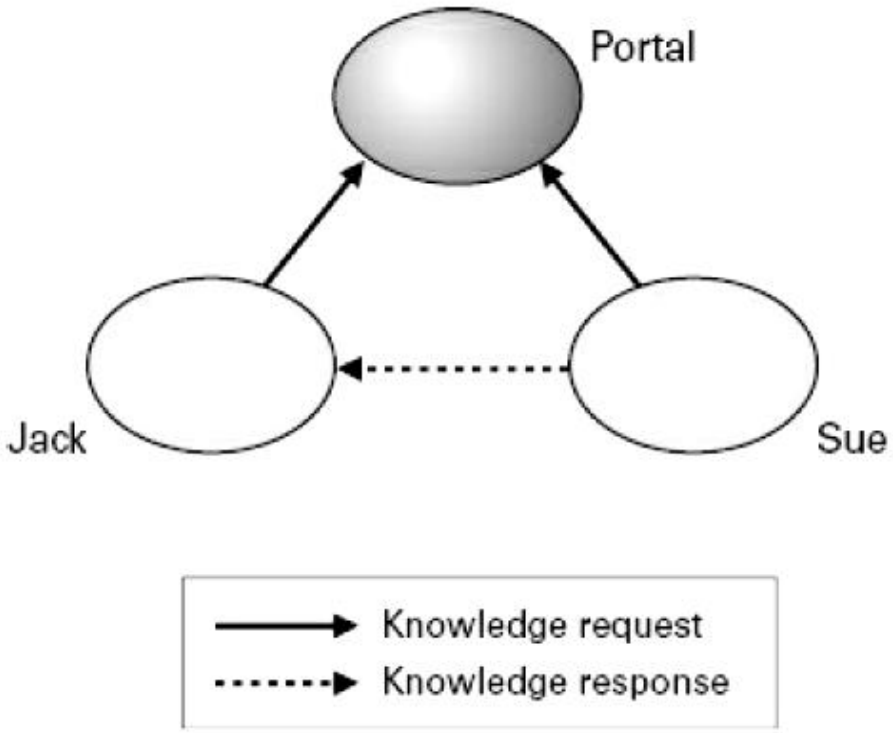
Facilitation and social norm development —how the KN will be facilitated, what style or tone will be used, and how "good" behaviors such as reciprocity will be established and sustained.

Measurement, feedback, and incentives —how the KN is assessed, what data is collected and how, as well as how participation is rewarded.

Topic 61: Sociograms and Social Network Analysis

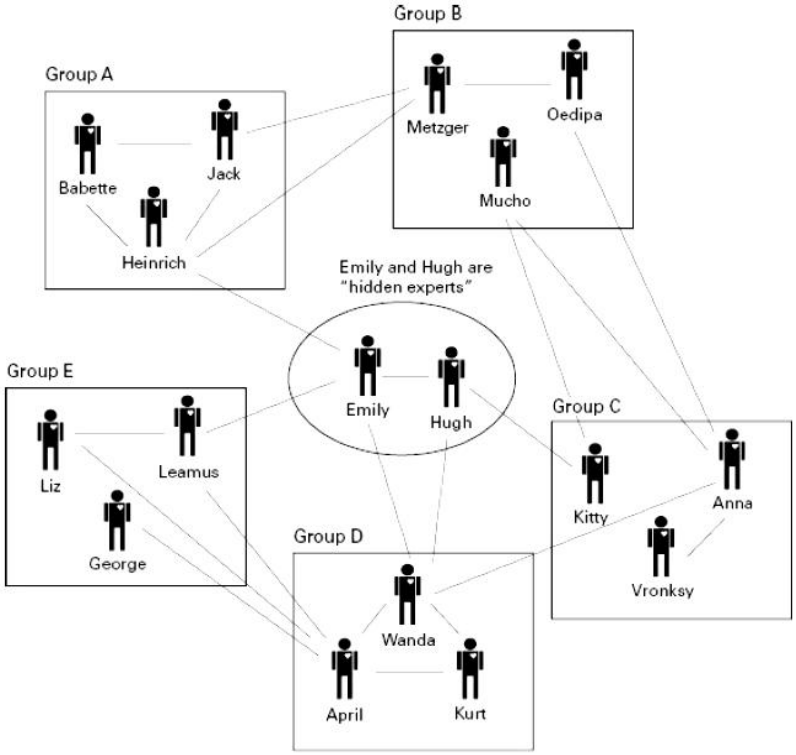
- Mapping and measuring of relationships and flows between people, groups, organizations, computers or other information/ knowledge processing entities.
- The nodes in the network are the people and groups, while the links show relationships or flows between the nodes.
- SNA provides both a visual and a mathematical analysis of complex human systems to identify patterns of interaction, such as average number of links between people in an organization or community, the number of subgroups, information bottlenecks, knowledge brokers, and knowledge hoarders.

Mapping the Flow of Knowledge



SNA in Knowledge Management. In the context of knowledge management, SNA enables relationships between people to be mapped in order to identity knowledge flows. Who do people seek information and knowledge from? Who do they share their information and knowledge with? It allows managers to visualize and understand the many relationships that can either facilitate or impede knowledge creation and sharing. Because these relationships are normally invisible, SNA is sometimes referred to as an "organizational x-ray," showing the real networks that operate underneath the surface organizational structure.

Knowledge Flow Analysis



Process of Social Network Analysis. Identifying the network of people to be analyzed (e.g., team, workgroup, department). Clarifying objectives, formulating hypotheses and questions. Developing the survey methodology and designing the questionnaire. Surveying the individuals in the network to identify the relationships and knowledge flows between them. Using a software mapping tool to visually map out the network. Analyzing the map and the problems and opportunities highlighted using interviews and/or workshops. Designing and implementing actions to bring about desired changes. Mapping the network again after a suitable period of time.

Factors in Designing SNA Questionnaire. Who knows who and how well? How well do people know each other's knowledge and skills? Who or what gives people information about xyz? What resources do people use to find information/feedback/ideas/advice about xyz? What resources do people use to share information about xyz?

Topic 62

Expertise Locator Systems

Also called 'Corporate yellow pages.' ELS is important for organizational learning initiatives, such as facilitating mentoring programs, identifying knowledge gaps, and providing both performance support and follow-up to formal training activities.

Example of Yellow Pages (A Publishing Company)

Directories	Libraries	Discussion area	Support
Products	Best practices library	Discussion themes	Glossary of terms
Projects	Lessons learned	Project management	Frequently asked questions
External suppliers	Stories	Risk management	
Publishing companies	Training modules		
Network of experts			

Example of Yellow Pages (A Publishing Company)

Function	Geographic area	Business area	**Expertise**
Vice president	Northeast	Sales	Content management
Director	West coast	Operations	Electronic production
Line manager	Midwest	Distribution	Knowledge management
Operator	South	Finance	Publishing management

Example of Yellow Pages (A Publishing Company)

Expertise		
Content management		
Jane Dennys	Head Office	555 434-4564
Will Jameson	Regional Office 6	555 212-3212
Electronic production		
Jan Zariski	Regional Office 6	555 212-3233
Sarah Marxman	Regional Office 6	555 212-3232

Software to Develop ELS. Kamoon's Connect: Profiles set up by analyzing unstructured repositories to identify documented expertise. AskMe: Web-based questionnaire used on a voluntary basis; can track Q&A to identify any knowledge gaps. Sopheon's Organik: Q&A format, provides answers to questions and then stores the answers in a repository for future reference.

Tacit's KnowledgeMail: Learns about people automatically through analysis of emails as well as document repositories and databases. Search results include experts and links to content.

Topic 63

63-064. Knowledge-Sharing Communities

Concept of a Community. In 1887, the German sociologist Tonnies contrasted the concept of 'community' from 'society' as more direct, more total, and more significant interactions to be found in a community, as opposed to the more formal, more abstract, and more instrument-driven relationships to be found in a society. Internet communities are 'social worlds.' Concept of 'invisible college' in academics (document-based).

Virtual Community. Emergence of Internet from ARPANET. In early 1980s, USENET was setup to link university computing centers to distribute news. USENET had 158 newsgroups in 1984, grew to more than 10,000 in 1991. Methods of knowledge sharing used by those virtual communities include telephone call, face-to-face meetings, and general neighborliness. Videoconferencing helped.

Common Characteristics of Communities.

Joint enterprise: The glue that binds members together—why they want to interact with one another. A personal goal and contribution toward the community's goal.

Mutual engagement: How members become part of the community. There are membership rules and each member agrees to carry out certain roles and responsibilities in order to help achieve the goals of the CoP.

Shared repertoire: Shared workspace where members can communicate, store and share knowledge products, their profiles, and so on. The shared repertoire is space on a server—it may be an intranet within an organization or on the Internet. There is a place for real-time exchange, asynchronous discussion, and that this interaction leaves behind tangible archives—the social capital and intellectual capital created by the community. Common Characteristics of CoPs



Common Focal Points of Communities of Practice. A profession such as engineering, law, or medicine. A work-related function or process such as production, distribution, marketing, sales, or customer service. A recurring, troublesome problem situated in a process or function. A topic such as technology, knowledge retention, or innovation. An industry such as automotive, banking, or healthcare.

Various Forms of Online Communities. Member-generated content (e.g., profiles, home pages, ratings, reviews). Member-to-member interaction (e.g., discussion forums, member yellow pages). Events (e.g., guest events, expert seminars, virtual meetings or demos). Outreach (e.g., newsletters, volunteer/leader/mentoring programs, polls/surveys).

Topic 64 Roles in Knowledge-Sharing Communities

Key Roles of People in a CoP.

Visitors: May visit once or twice and may or may not join. At this point, they are merely curious and seeking to find out what the community is all about.

Novices: New members, who stay on the periphery until they have learned enough about the community and the other members.

Regulars: Members who provide regular contributions and who interact with other members on a sustained basis.

Leaders: Members who have the time and energy to take on more official roles, such as helping with the operation of the community.

Elders: Subject matter experts who are familiar with the professional theme and the community and have become respected sources of both subject matter knowledge and cultural knowledge. Elders maintain the community history and agree to be consulted from time to time by other community members.

Another List of Roles.

Champion ensures support at highest level, communicates the purpose, promotes the community, and ensures impact.

Sponsor serves as the bridge between the CoP and the rest of the formal organization, communicates the company's support for a CoP, and may remove barriers such as time, funding, and other resources.

Community members participate in discussions, raising issues and concerns regarding common needs and requirements, alert other members to any changes in conditions and requirements, are on the lookout for ways to enhance CoP effectiveness.

Facilitators are responsible for clarifying communications, making sure everyone participates, and ensuring that dissident views are heard and understood.

Practice leader provides thought leadership for the practice or strategic service, validates innovations and best practices, and promotes adherence to them.

Knowledge service office serves to interface with all CoPs to ensure clarity and lack of duplication of the information disseminated within and from the CoPs.

Emerging Roles in CoPs.

Membership managers deal with the registration and ongoing membership directory work.

Moderators are conversation managers who help keep discussions focused, inject new topics or provocative points of view when discussion lags, and seed discussion with appropriate content.

Knowledge editors collect, sanitize, and synthesize content created, and provide a value-added link for the content produced.

Emerging Roles in CoPs

Knowledge librarian or community taxonomist is responsible for organizing and managing the collection of knowledge objects generated by the community.

Knowledge archivist maintains and organizes content generated by participants over time.

Usage analyst studies data on participants' behaviors within the community and makes recommendations to host.

Knowledge broker joins up with a number of different communities in order to identify commonalities and redundancies, create synergy, form alliances, and feed in to organizational memory and learning (e.g., map of intellectual assets, yellow pages or expertise directory, CoP best practices and lessons learned).

Topic 65

Knowledge Sharing in the Virtual Workplace

Important Types of Knowledge Sharing. Evolution of a best practice (an improved way of doing things) or Lessons learned (learning from both successful and unsuccessful events).

Knowledge Sharing Process.

- Searching.
- Evaluating.
- Validating.
- Implementing (transferring and enabling).
- Reviewing.
- Routinizing

Knowledge Sharing Example: Best Practice



A Study on Knowledge Transfer Within a Company

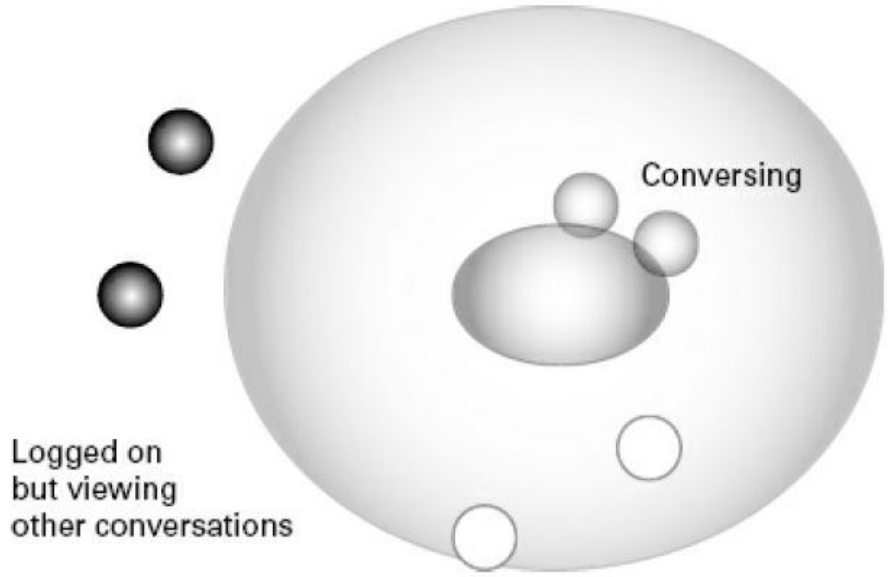
Verbally at team meetings	23%
Departmental meeting	21%
Written instructions	17%
Ad hoc verbally	16%
Intranet	9%
Video	5%

Characteristics of Channels Used for Virtual Knowledge Sharing.

Social presence: Degree to which the knowledge sharers feel like they are talking with other persons.

Media richness: Capacity for immediate feedback, ability to support natural language, and social presence.

Making CoP Interactions Visible (Babble System)



Topic 66.

Other Ways of Sharing Knowledge in Organizations

- Peer assists.

- After action reviews.
- Knowledge cafés.
- World cafés.
- Storytelling.
- Use of online collaboration tools.

Knowledge Cafés.

A type of facilitated workshop where the goal is to foster open and creative dialogues on a specific topic or theme that is of interest to all the participants. All participants contribute their thoughts and perspectives on the topic to create collective knowledge, to share ideas, and to catalyze insights. Each participant should gain a much deeper understanding to the topic addressed than they had before the café.

World Cafés.

They differ from knowledge cafés in that their goal is to identify innovative approaches to wider issues such as sustainable development. The focus is on exploring and innovating on themes rather than on solving more specific problems.

Design Principles for World Cafés:

- Set the context.
- Create an inviting "third" space.
- Explore questions that matter.
- Encourage everyone's contribution.
- Connect diverse perspectives.
- Listen together for patterns and insights.
- Share collective discoveries.

Storytelling.

An excellent means for sharing tacit knowledge. Dates far back into human history. Particularly good at conveying different perspectives, attitudes, complex issues, and the do's and don'ts of both human and organizational survival (best practices and lessons learned). Can be used to share values and visions.

Online Collaboration Tools.

- Blogs.
- Wikis.
- Social bookmarking.
- Digital repositories.
- Visualization tools.

- A challenge is that it is harder to establish trust than it is in face-to-face knowledge sharing.

Topic 67. Obstacles to Knowledge Sharing

Knowledge is Property. The notion that knowledge is property and ownership is very important. Knowledge is power. The best way to counteract it is to reassure individuals that authorship and attribution will be maintained. They will not lose the credit for a knowledge product they created. Sharing of knowledge must be rewarded. Knowledge hoarding must be discouraged.

People Are Unsure. The knowledge provider is unsure that the receiver will understand and correctly use the knowledge. The recipient is unsure about the truth or credibility of the knowledge in question. Both issues disappear in the context of a community, as it is a self-regulating system that continually vets and validates both content and membership.

Organizational Culture and Climate. Organization nurtures individual genius. A culture based on social status.

Topic 68. Organizational Learning and Social Capital

- **Social Capital.** Institutions, relationships, and norms that shape the quality and quantity of an organization's social interactions.
- Social capital is not just the sum of the individuals that comprise an organization—it is the glue that holds them together.
- The sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit.
- It comprises both the network and the assets that may be mobilized through that network.

Knowledge-sharing Communities and Social Capital.

- Knowledge-sharing communities are the primary producers of social capital.
- They provide the opportunity for individuals to develop a network with members who share similar professional interests.

- The community provides a "Who's who" in the form of yellow pages to help make connections between members.
- The community provides a reference mechanism to enable members to evaluate content, solve problems, and make decisions based on vetted, validated, and current knowledge.

Objectives of CoPs Regarding Social Capital.

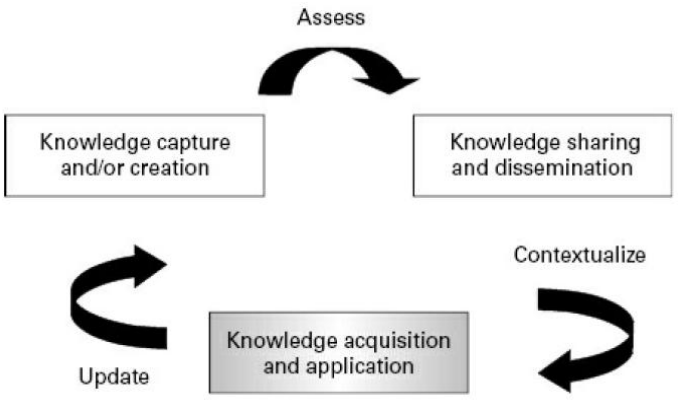
- Building loyalty and commitment on the part of stakeholders.
- Promoting innovation through better sharing of best practices.
- Improving efficiency of processes.
- Generating greater revenue and revenue growth.
- Decreasing employee turnover and attrition.

Measuring the Value of Social Capital.

- It is challenging because social capital is comprised of the concepts of trust, community and networks, which are difficult to quantify.
- Employee retention rate. Employee participation rate.

Topic 69. Knowledge Acquisition and Application

Knowledge Application. The actual use of knowledge that has been captured or created and put into the KM cycle.



- Accessibility of knowledge content by all workers.
- Internalization of knowledge.
- More tacit knowledge is needed for application.

Factors Affecting Knowledge Transfer.

Characteristics of the receiver (skills, shared language, technical knowledge). Nature of the task (routine, non-routine).

Type of knowledge being transferred (a continuum from explicit to tacit).

Value of Knowledge Application.

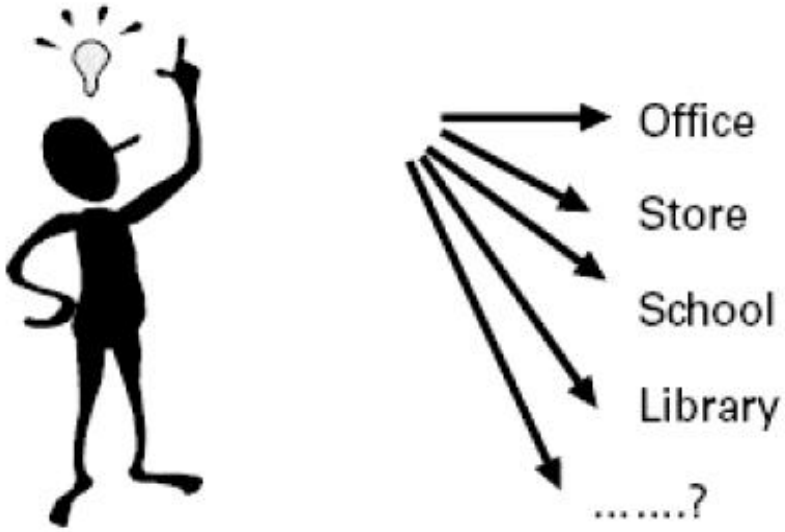
- A key to organizational success is the ability to capture organizational learning, to effectively reuse the knowledge through efficient means, and to synthesize these into more intelligent problem recognition, strategic analysis, and choices in strategic directions.
- By tapping into their organization's memory, decision makers can make more intelligent business decisions.

Topic 70. Characteristics of Individual Knowledge Workers

Individual Characteristics.

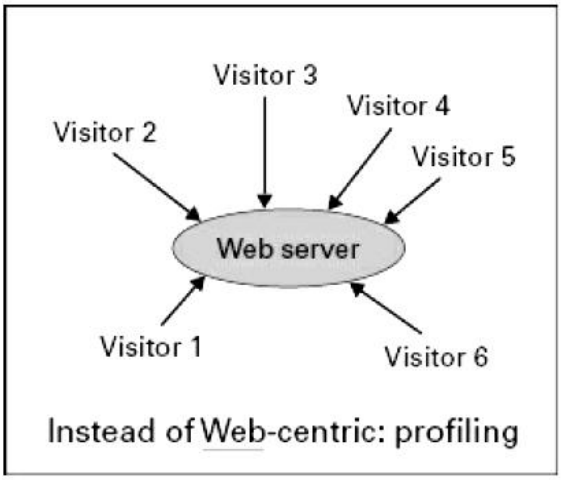
- Personality style.
- How they best learn.
- How they prefer to receive their information.
- How they can best be helped to put the knowledge to work.

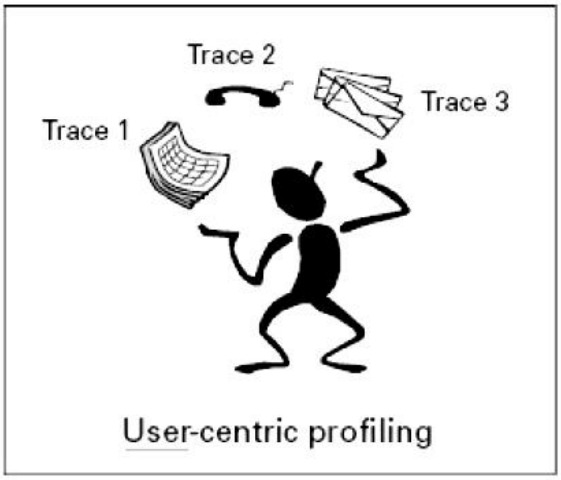
Personalization: Many-to-one interactions



The one-person:

An Alternative Approach to Personalization

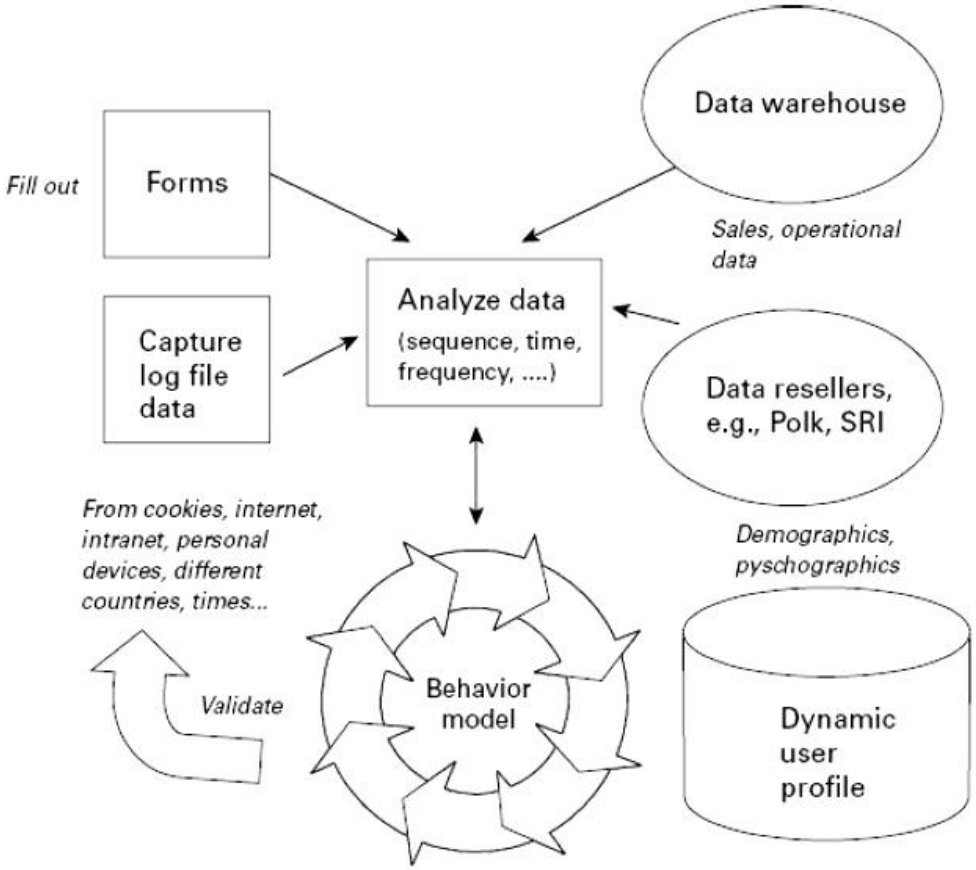




Individual's Personal Model of Knowledge Perception.

- Their particular background (e.g., IT vs. sociology).
- How long they have been in the company.
- How expert they are in the topic.
- Language and format they prefer to receive knowledge (e.g., visual types of people who prefer diagrams vs. those who prefer to read text).
- Often represented in semantic networks.

Dynamic Profiling System Design



Topic 71- Bloom's Taxonomy

Cognitive Domain of Bloom's Taxonomy

Bloom's Taxonomy. Bloom et al. (1964) has divided knowledge into a hierarchical scheme that distinguishes among psychomotor skills, affective domain (e.g., attitudes), and cognitive domain (e.g., knowledge). Cognitive domain is more commonly used in knowledge management. Bloom emphasizes that learning is hierarchical with learning (objectives) at the highest level as dependent on the achievement of lower-level knowledge and skills first

Cognitive Domain.

Knowledge: Remembering of previously learned material. This may involve the recall of a wide range of material, from specific facts to complete theories, but all that is required is the bringing to mind of the appropriate information. Verbs: arrange, define, duplicate, label, list, memorize, name, order, recognize, relate, recall, repeat, reproduce, state.

Comprehension: Ability to grasp the meaning of material. This may be shown by translating material from one form to another (words to numbers), by interpreting material (explaining or summarizing), and by estimating future trends (predicting consequences or effects). Verbs: classify, describe, discuss, explain, express, identify, indicate, locate, recognize, report, restate, review, select, translate.

Application: Ability to use learned material in new and concrete situations. This may include the application of such things as rules, methods, concepts, principles, laws, and theories. Verbs: apply, choose, demonstrate, dramatize, employ, illustrate, interpret, operate, practice, schedule, sketch, solve, use, write.

Analysis: Ability to break down material into its component parts so that its organizational structure may be understood. This may include the identification of the parts, analysis of the relationships between parts, and recognition of the organizational principles involved. Verbs: analyze, appraise, calculate, categorize, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test.

Synthesis: Ability to put parts together to form a new whole. This may involve the production of a unique communication (theme or speech), a plan of operations (research proposal), or a set of abstract relations (scheme for classifying information). Verbs: arrange, assemble, collect, compose, construct, create, design, develop, formulate, manage, organize, plan, prepare, propose, set up, write.

Evaluation: Ability to judge the value of material (statement, novel, poem, research report) for a given purpose. The judgements are to be based on definite criteria. Verbs: appraise, argue, assess, attach, choose, compare, defend estimate, judge, predict, rate, select, support, value, evaluate

Cognitive Domain of Bloom's Taxonomy

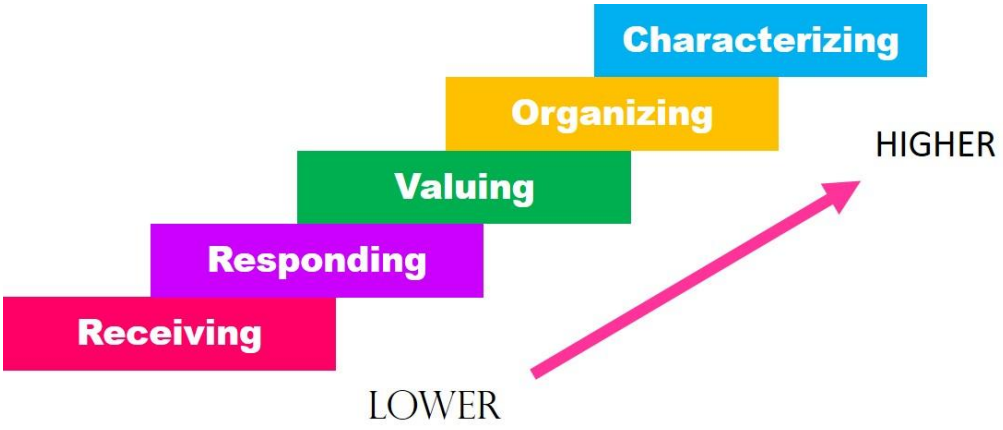


Topic 72

Affective Domain:

The manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes.

It has five major categories.



Receiving Phenomena: Awareness, willingness to hear, selected attention.

Examples: Listen to others with respect; Listen for and remember the name of newly introduced people.

Responding to Phenomena: Active participation on the part of the learners. Attends and reacts to a particular phenomenon. Examples: Participates in class discussions; Gives a presentation; Questions new ideals, concepts, models, etc., in order to fully understand them; Knows the safety rules and practices them.

Valuing: The worth or value a person attaches to a particular object, phenomenon, or behavior. This ranges from simple acceptance to the more complex state of commitment. Valuing is based on the internalization of a set of specified values, while clues to these values are expressed in the learner's overt behavior and are often identifiable. Examples: Demonstrates belief in the democratic process; Is sensitive towards individual and cultural differences.

Organization: Organizes values into priorities by contrasting different values, resolving conflicts between them, and creating a unique value system. The emphasis is on comparing, relating, and synthesizing values. Examples: Recognizes the need for balance between freedom and responsible behavior; Accepts responsibility for one's behavior.

Characterization (Internalizing Values): Have a value system that controls their behavior. The behavior is pervasive, consistent, predictable, and most importantly, characteristic of the learner. Examples: Shows self-reliance when working independently; Cooperates during group activities; Uses an objective approach in problem solving.

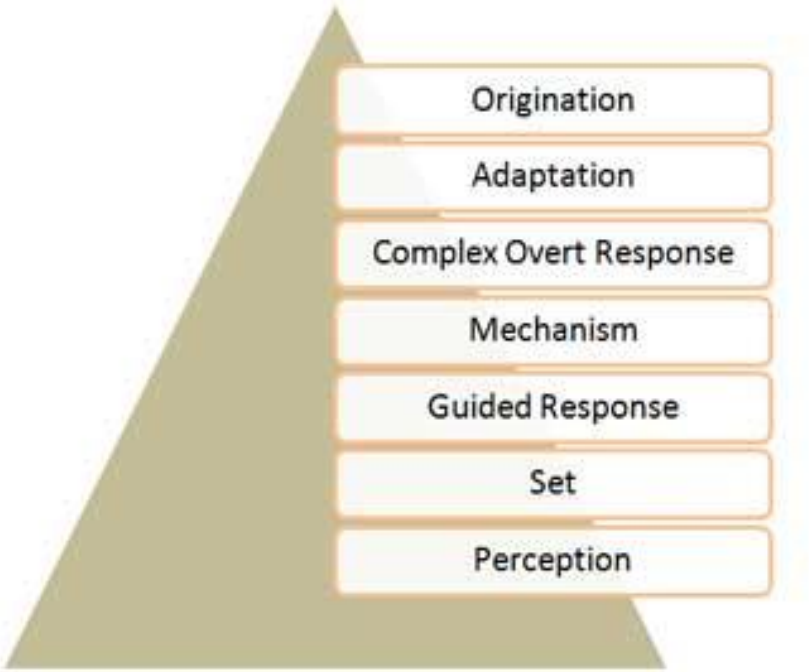
Topic 73

Psychomotor Domain:

Physical movement, coordination, and use of the motor-skill areas.

Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution.

It has seven major categories.



Perception: The ability to use sensory cues to guide motor activity. This ranges from sensory stimulation, through cue selection, to translation. Examples: Detects non-verbal communication cues; Estimates where a ball will land after it is thrown and then moving to the correct location to catch the ball.

Set: Readiness to act. It includes mental, physical, and emotional sets. These three sets are dispositions that predetermine a person's response to different situations (sometimes called mindsets). Examples: Knows and acts upon a sequence of steps in a manufacturing process; Recognizes one's abilities and limitations; Shows desire to learn a new process.

Guided Response: The early stages in learning a complex skill that includes imitation and trial and error. Adequacy of performance is achieved by practicing. Examples: Performs a mathematical equation as demonstrated; Follows instructions to build a model.

Mechanism: The intermediate stage in learning a complex skill. Learned responses have become habitual and the movements can be performed with some confidence and proficiency. Examples: Uses a personal computer; Drives a car.

Complex Overt Response: The skillful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, accurate, and highly coordinated performance, requiring a minimum of energy. This category includes performing without hesitation, and automatic performance. Examples: Maneuvers a car into a tight parallel parking spot; Displays competence while playing the piano.

Adaptation: Skills are well developed and the individual can modify movement patterns to fit special requirements Examples: Responds effectively to unexpected experiences; Performs a task with a machine that it was not originally intended to do.

Origination: Creating new movement patterns to fit a particular situation or specific problem. Learning outcomes emphasize creativity based upon highly developed skills. Examples: Constructs a new theory; Develops a new and comprehensive training programming; Creates a new gymnastic routine.

Topic 74

Task Analysis and Modeling

- Task analysis studies what knowledge workers must do with respect to specific actions to be taken and cognitive processes that must be called upon to achieve a particular task.
- The most commonly used method is task decomposition, which breaks down higher-level tasks into their subtasks and operations.
- The lower levels may make use of flow diagrams, decision flowcharts, or screen layouts to better illustrate the step-by-step process.

Process of Decomposition.

- Identify the task to be analyzed.
- Break this down into between 4 and 8 subtasks. These subtasks should be specified in terms of objectives and, between them, should cover the whole area of interest.
- Draw the subtasks as a layered diagram ensuring that it is complete.
- Decide upon the level of detail into which to decompose. Making a conscious decision at this stage will ensure that all the subtask decompositions are treated consistently. It may be decided that the decomposition should continue until flows are more easily represented as a task flow diagram.
- Continue the decomposition process, ensuring that the decompositions and numbering are consistent. It is usually helpful to produce a written account as well as the decomposition diagram.
- Present the analysis to someone else who has not been involved in the decomposition but who knows the tasks well enough to check for consistency.

Example of a Task Analysis. Grab one lace in each hand. Pull the shoelaces tight with a vertical pull. Cross the shoelaces. Pull the front lace around the back of the

other. Put that lace through the hole. Tighten the laces with a horizontal pull. Make and tighten the bow.

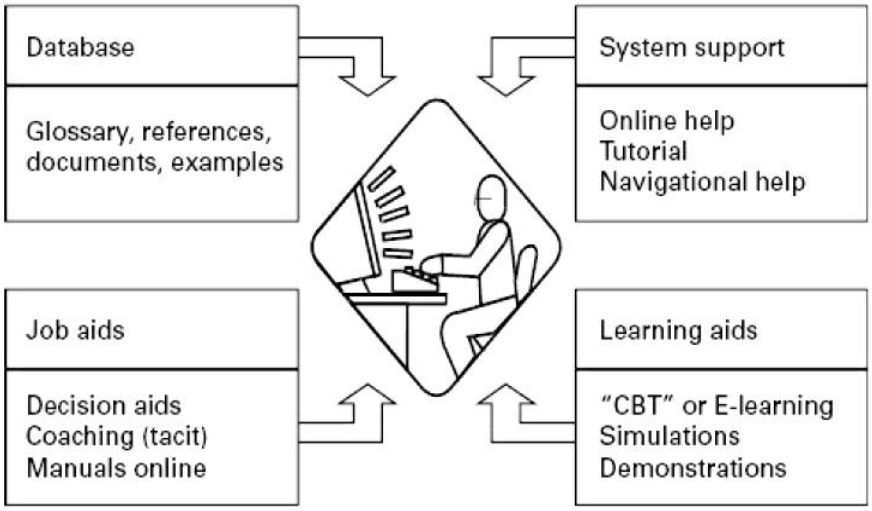
Topic 75

Electronic Performance Support Systems (EPSS)

An integrated electronic environment that is available to and easily accessible by each employee and is structured to provide immediate, individualized, online access to the full range of information, software, guidance, advice and assistance, data, images, tools, and assessment and monitoring systems to permit job performance with minimal support and intervention by others.

A computer software that improves employee performance by reducing the complexity or number of steps required to perform a task, providing the performance information an employee needs to perform a task, or providing a decision support system that enables an employee to identify the action that is appropriate for a particular set of conditions.

Components of an EPSS



Topic 76

Knowledge Management Systems (KMS).

- Tools to support knowledge application at group and organizational levels.
- KMS evolved from information management tools that integrated many aspects of computer supported collaborative work environments (CSCW) with information and document management systems.

Key Functions of KMS:

Communication among various users.

Coordination of users' activities.

Collaboration among user groups on the creation, modification, and dissemination of artifacts and products.

Control processes to ensure integrity and to track the progress of projects.

Specific Functions of KMS:

- Communication (email and discussion forums).
- Coordination (shareable calendars and task lists).
- Collaboration (shareable artifacts and workspaces).
- Control (internal audit trails and automatic version control).

KMS Functions Related to Information:

- Acquiring and indexing, capturing, and archiving.
- Finding and accessing.
- Creating and annotating. C
- ombining, collating, and modifying.
- Tracking.

Enabling Technologies for KMS

Object orientation provides for the creation of knowledge objects that can be easily found, modified, and reused.

Broadband communication allows users separated in time or space to work on large data objects effectively as a team.

Adaptive systems recognize that different users may have different requirements and preferred working styles.

Examples of KMS:

Mindman: High-level visualization and mapping tool.

Groove: Collaboration software.

Visio: High-end flowcharting tool.

Themescape: topographical knowledge maps.

OpenText's eDocs and Livelink: Automatic taxonomy creation

ClearForest's ClearTags: Automatic taxonomy creation.

Vignette: Content management software.

Catmedia: Electronic performance support system.

Topic 77

KM Organizational Architecture

It needs to be designed, developed, and implemented to facilitate knowledge management at organizational level.

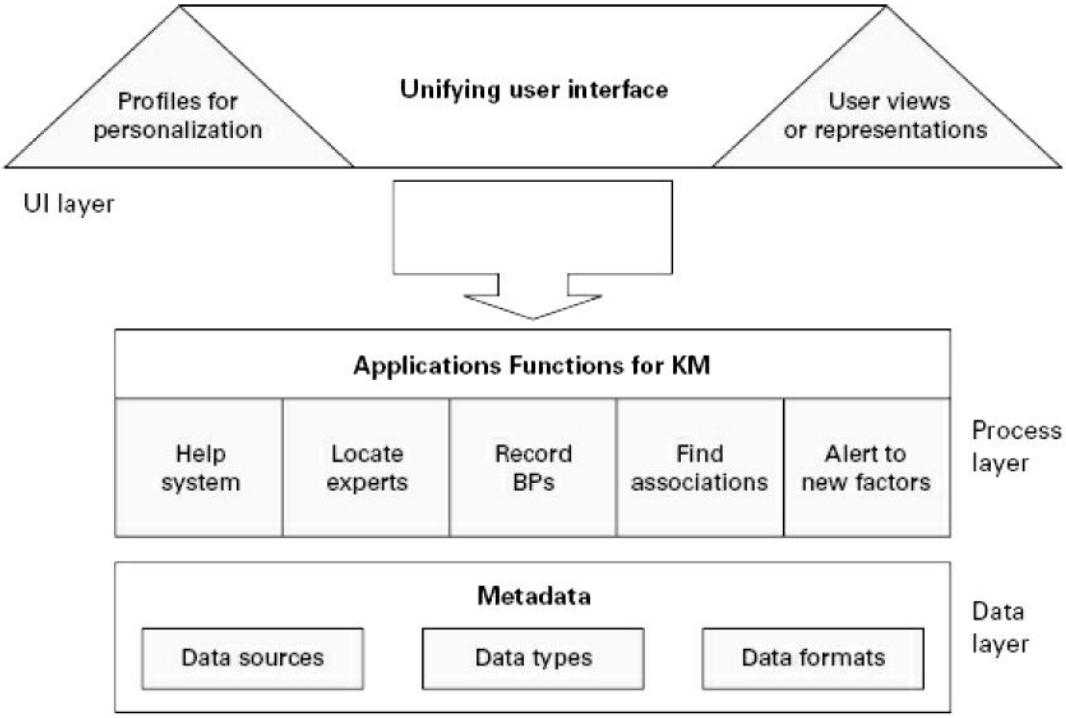
Three Levels of Organizational Architecture:

Data layer is the unifying abstraction mechanisms (e.g., database, text documents, video, audio).

Process layer links the data with its use and its users (other people or other systems who use that data).

User interface provides access to the information assets of the company via the logic incorporated in the process layer.

KM Organizational Architecture



Metadata.

- Formal description of the content, and its interrelationships with other content or other knowledge objects.
- Metadata encompasses information about physical structures, data types, access methods, and the actual content.

Topic 78 Knowledge Reuse

- It involves recall and recognition, and actually applying the knowledge.
- Reusing knowledge begins with the formulation of a search question.
- Experts are searched for and located using expertise location systems or yellow pages.

- Appropriate expert and advice are chosen and the knowledge nugget is applied.
- Taking a general guide and making it specific to the situation at hand ("recontextualization" of knowledge).

Roles Required for Knowledge Reuse.

Knowledge producer, the person who produces or documents the knowledge object.

Knowledge intermediary, who prepares knowledge for reuse by indexing, sanitizing, packaging, and even marketing the knowledge object.

Knowledge reuser, who retrieves, understands, and applies it.

Knowledge Repackaging.

An important value-added step that may involve people, information technology or a mixture of the two. For example, there are automatic classification systems that can index content but a human is almost always needed in the loop to validate, to add context, cautions, and other useful indicators for the most effective use of that knowledge object.

Types of Knowledge Reusers.

Shared work producers, who produce knowledge they later reuse.

Shared work practitioners, who reuse each other's knowledge contributions.

Expertise-seeking novices. Secondary knowledge miners.

Shared Work Producers:

Teams or work groups who have collaborated together.

An MD consults a patient's chart to see what medications had been prescribed by other members of their practice.

Special education teachers and therapists share student files to see what sorts of interventions worked and which ones did not have any effect.

The easiest form of knowledge reuse as everyone is familiar with knowledge content.

Shared Work Practitioners:

- Members of the same community of practice.
- This form of knowledge reuse requires a higher degree of filtering and personalization, done by CoP knowledge librarians.
- Reusers need more reassurance about the source's credibility.

Expertise-Seeking Novices:

They are in a learning scenario.

- Knowledge intermediaries have a role to make sure novices begin by accessing more general information (e.g., FAQs, introductory texts, glossaries) before they attempt to apply the knowledge object.
- Performance support systems would be of great use to such reusers.

Secondary Knowledge Miners:

- Analysts who attempt to extract interesting and meaningful patterns by studying knowledge repository use.
- Usage analysts who perform similar roles for a CoP library.
- Librarians who periodically assess the collective holdings of a library, whether physical or digital, to see which items are no longer being actively accessed and should perhaps be archived.

Topic 79 Knowledge Repositories

- Intranets or portals that serve to preserve, manage, and leverage organizational memory.
- A low-tech knowledge repository could be a set of file folders.
- It contains documents (document management system), data (database), and records (record management system).
- It contains valuable content that is a mix of tacit and explicit knowledge.

Two Types of Repositories.

External knowledge repositories that store knowledge gathered from competitive intelligence, demographic or statistical data from data resellers and other public sources.

Internal knowledge repositories that store informal information such as transcripts of group discussions, emails, or other forms of internal communications.

Type of Content in Knowledge Repositories.

General knowledge: Published scientific literature.

Specific knowledge: Knowledge of the local context of the organization. This distinction is useful, as knowledge reusers need to know whether the credibility of the knowledge comes from general or common knowledge or whether this is something that was discovered by their colleagues.

Topic 80

E-Learning and KM Application

E-Learning.

- Before application, knowledge must be understood, learned, and internalized.
- E-learning can be a knowledge-sharing channel.
- It makes use of technologies such as computers or the Web and one that also requires a very high degree of social presence and media richness.

Advantages of E-Learning:

- Students have the ability to relearn through replaying a video, viewing the lecture slides, and asynchronously interacting with both classmates and instructors.
- The time and travel cost saved by not having people go off-site for a period of time.
- More students can be registered in the same course.

Major Drawback of E-Learning:

- The lack of face-to-face interaction which allows in-depth one-to-one interactions.
- This is often compensated for through the use of a blended learning model (a combination of some e-learning with some face-to-face instruction, tutoring, or discussion).

Learning Objects.

- A standalone unit of learning—a reusable online learning resource.
- A set of learning objects make up an e-learning library or repository so that once posted, users can reuse them.
- They may be used as is or may be adapted to the specific needs.
- Example: A learning module on a given topic, lecture slides, a test, a demonstration, or combinations of different content formats, including multimedia.

Topic 81. Real World Applications of KM

- A wide range of KM applications in the real world.
- In every sector, including the for-profit and nonprofit sectors; NGOs and developmental agencies; government at the federal, state, and municipal levels; and for all industry sectors, ranging from agriculture to the water industry.

The Ford Foundation.

- Interviews of program officers before they leave the foundation to capture what formal document might be missing from the written record, what correspondence

and tacit knowledge could be transferred, and how language in the issue area may be changing.

- The foundation is now conducting these types of interviews on an annual basis, even when a staff person is not leaving.

The US Army.

- After action review to capture valuable lessons learned after each project or major activity.
- Before everyone leaves on new assignments, team members meet to identify what they learned and what they could do better next time, not only to document but also for the team to learn and improve and even bond better.

George Soros.

- Began to shift the mission of his collection of foundations.
- They saw themselves increasingly moving toward policy and advocacy and away from the silos they had created over time.
- Goal of the new system is to provide a single knowledge backbone to the network of foundations.
- The new system created a global intranet that all of the Soros offices could share.

The World Bank.

- They developed thematic networks in the 1990s to cut across regional silos and instead encourage more informal communities of practice.
- These thematic groups were responsible for the development of knowledge collections about good practices and sector statistics … dissemination and outreach through brown bag lunches, workshops, websites, and newsletters.

International Association of Fire Chiefs.

- Developed National Firefighters Near Miss Reporting system to collect and share firefighter lessons learned.
- Firefighters anonymously share their near-miss stories via an intuitive online reporting tool and share them out with the entire fire service.
- Data are aggregated and analyzed to see if there are any patterns or trends that can be identified.
- Training materials are then developed based on the reports collected.

Examples of Knowledge Continuity Policies.

- Knowledge transfer for succession planning when employees retire.
- The U.S. Office of Personnel Management.

- The Canadian Treasury Board.
- The Government of Province of New Brunswick, Canada.
- The Government of the Province of Alberta. The State of California, U.S.A.

KM Examples in Private Sector.

- Hewlett-Packard (HP).
- International Business Machines (IBM).
- Microsoft Corporation.

Topic 82. KM Applications in Industry

Aerospace:

- NASA.
- KM is used to ensure that NASA is a learning organization.
- Applications include a comprehensive lessons learned database, case studies, and stories.

Agriculture:

Embrapa, the Brazilian Agricultural Research Corporation.

KM system manages both the knowledge produced and knowledge development process and incorporates learning that takes place during the research process.

Chemical:

- Buckman Laboratories, a KM leader, emphasizes knowledge sharing: "… so that no individual will stand alone in the face of competition, but will always have the full global force of the company behind them."
- The K'Netix knowledge portal allows employees to share knowledge and also stores and preserves all organizational knowledge and experience.

Computer:

- IBM was one of the early adopters of KM and continues to focus on collaboration applications such as a searchable resource to look for experts company-wide.

Construction:

- Fluor Corporation is an engineering, procurement, construction, and maintenance firm that has institutionalized KM by developing KnowledgeOnline, which connects people to people and people to content to create global knowledge communities.

Defence:

- The Army Lesson Learned Centre strives to collect, analyze, and communicate key observations and lessons to transform the Canadian army into a learning organization. The lessons are preserved in a warehouse and a database is maintained

of all observations and documents taken from national and international areas of operations and collective training events.

Education:

- Triune developed Air Force Knowledge Now, a mechanism for finding and accessing time-critical knowledge, training, and performance support resources to provide online performance support to the workforce.
- It encompasses support for communities of practice, e-learning, learning management systems, and comprehensive metrics.

Energy:

- BP (formerly British Petroleum) was one of the early adopters of KM to leverage the experience and expertise of its employees worldwide and to make them available through a best practices database.

Entertainment:

- Walt Disney World emphasizes the value of human capital and takes steps to ensure that employees are rewarded when they create not only customer satisfaction but "customer delight."
- They enlisted employees' help in addressing the problem of wait times.

Financial:

- At Chase Manhattan Bank, KM is considered to be part of the employees' benefits package.
- Each employee can access the knowledge base in order to find the answer to a professional, personal, or work/life problem.

Food:

Kraft Foods (now KraftHeinz) speeds innovation by enabling quick access to new ideas, prior art, and company-wide participation through IdeaJams where everyone can participate using their preferred communication channel to help solve a specific challenge within the 72-hour time frame.

Health Care:

NurseONE is a national, bilingual, web -based health information service designed for the Canadian nursing community to share knowledge and expertise, thereby promoting best practices and enhancing client outcomes.

Hospitality and Tourism:

- Starwood Hotels implemented KM to manage all assets including databases, documents, expertise, and experience.

- Best practices that can be of use to other areas are identified and transferred to all their hotels around the world via their e-tool.

Information:

The New York Times implemented Beehive software that enables organizations to collect and distribute knowledge captured in email to build expertise profiles of employees.

Manufacturing:

- Caterpillar has more than 600 online communities, with more than 16,000 members worldwide that use Knowledge Network, supported by a group of KM technology experts.
- The system allows users to find subject area experts, post questions to specific experts or to the community at large, post and find knowledge entries, conduct online chats and asynchronous threaded discussions of questions and problems, and connect to numerous other online communities.

Telecommunications:

- AT&T used knowledge management tools to integrate a global sales team's efforts.
- The company set up an interactive website offering competitive research fed by timely information from the field, which was accessed by the sales force.

Transport:

- The Washington State Department of Transport has implemented KM to improve the way in which they organize resources for easy retrieval by employees and by the public.
- They have improved access to information and knowledge resources through their portal which provides value-added search tools to make sure content can be found in a timely manner.

Water:

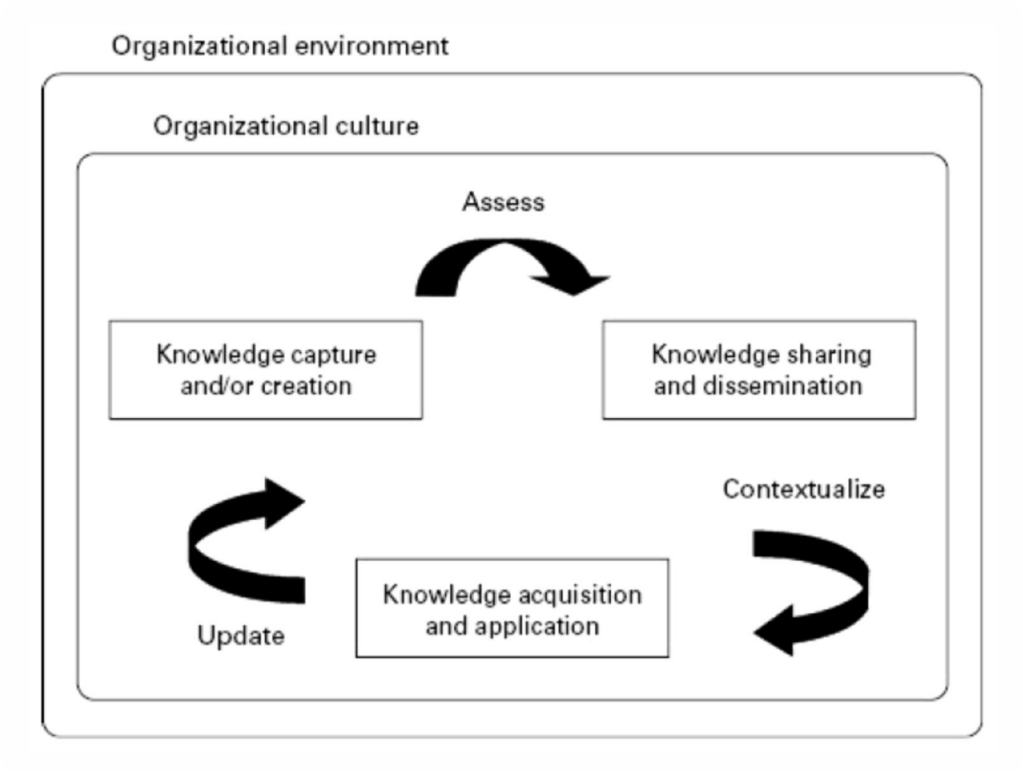
- Detroit Water and Sewerage Department (DWSD) in Michigan implemented KM throughout their organization.
- KM initiatives include portals, dashboards, document inventory, process improvements, and key performance indicators and metrics.

Topic 83

Module-083. Organizational Culture

- **Culture**. Originally an anthropological term, culture refers to the underlying values, beliefs, and codes of practice that makes a community what it is. The customs of society, the self-image of its members, and the things that make it different from other societies are its culture. Culture is subjective and reflects the meanings and understandings that we attribute to situations, the solutions that we apply to common problems.
- **Organizational Culture.** Organizations are one constituent element of society. People enter them from the surrounding community and bring their cultures with them. It is still possible for organizations to have cultures of their own. They are embedded in the wider societal context but they are also communities of their own with distinct rules and values.

Cultural Component in an Integrated KM Cycle



Basic Questions for Cultural Analysts.

What are the shared frames of reference that make organization possible? Where do they come from? How are they created, communicated, and sustained?

Definition of Organizational Culture.

Organizational culture is a pattern of basic assumptions—invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration—that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.

Key Elements of Organizational Culture.

- Stated and unstated values. Overt and implicit expectations for member behavior. Customs and rituals. Stories and myths about the history of the group. Shop talk—typical language used in and about the group. Climate—the feelings evoked by the way members interact with one another, with outsiders, and with their environment, including the physical space they occupy. Metaphors and symbols—which may be unconscious or embodied in other cultural elements.

Topic 84

Types of Organizational Culture

Two Dimensions of Culture Types.

- Sociability is a measure for friendliness.
- A highly sociable culture indicates that people within the culture tend to be friendly to each other without expecting something in return.
- Solidarity measures the task orientation.
- High solidarity means that people can work together toward common goals very well, even they have personal disputes or conflicts.

Four Types of Organizational Culture.

	High solidarity	Low solidarity
High sociability	1. Communal culture	2. Networked culture
Low sociability	3. Mercenary culture	4. Fragmented culture

Communal Culture:

A communal culture can give its members a sense of belonging, though it also is task-driven.

Leaders of this culture are usually very inspirational and charismatic.

The major negative is that leaders often exert too much influence and other members are rarely heard from.

Networked Culture: In a networked culture, members are treated as friends and family. People have close contact with each other and care for each other. People are willing to help each other and share information. The disadvantage is that people are so kind to each other that they are reluctant to point out and criticize poor performance.

Mercenary Culture: A mercenary culture focuses on strict goals. Members are expected to meet the goals and get the job done quickly. Since everyone focuses on goals and objectivity, there is little room for political cliques. The negative is that those with poor performance may be treated inhumanely.

Fragmented Culture: In an organization with fragmented culture, the sense of belonging to and identifying with the organization is usually very weak. The individualists constitute the organizations, and their commitment is given first to individual members and task work. The downside is that there is a lack of cooperation.

Topic 85
Organizational Culture Analysis

We need to understand how a culture is created, embedded, developed, manipulated, managed, and changed. To understand the culture is to understand your organization.

Three Levels of Culture.

Artifacts: The visible organizational structures and processes.

Values: The stated strategies, goals, philosophies, and justifications. **Assumptions:** The basic underlying assumptions, and unconscious, taken-for-granted beliefs, perceptions, thoughts, and feelings.

Artifacts. Artifacts are easy to detect (e.g., a dress code) but they may be difficult to understand. It remains a challenge to discern or decipher what lies beneath them (i.e., what is reason for this type of dress code or other visible structures and processes?).

Values. Values express essential meanings of basic assumptions. Values define a set of organizational expectations from its members. Values are expressed and often imposed by the managerial elite and become a reference system for activity assessment. They are included in attitudes and behaviors, in the organizational habitat.

Assumptions. The pattern of basic underlying assumptions can function as a cognitive defense mechanism for individuals and the group. As a result, culture change is difficult, time consuming, and anxiety provoking. Cultures are deep-seated, pervasive, and complex, and it can be extremely difficult to bring assumptions to the surface.

Diagnosis of Organizational Culture.

A number of instruments exist that can help diagnose organizational culture. These are surveys or questionnaires that help to identify the critical aspects of an existing culture and provide a profile of an organization's culture, in the form of an orientation.

Topic 86
Culture at the Foundation of KM

KM implementations always require a cultural change in order to promote a culture of knowledge sharing and collaboration. The instigator of change rarely meets with a receptive audience. This is because of the lack of trust. It is imperative to inform, involve, and inspire organizational participants during the organizational changes that are needed.

Knowledge Flow in Organizations.

Traditionally, knowledge flows were vertical, from supervisor to supervisee, following the lines of the organizational chart. Organizations today need to change their culture to one that rewards the flow of knowledge horizontally as well.

Communication Systems and Culture Sharing.

Communication systems are the disseminators of culture. In ancient times, physical transportation routes (water and land) fulfilled this role. In these systems, ideas flowed, were shared, exchanged, or integrated. They spread a common language and common alphabets. Knowledge dissemination needs some type of lingua franca, something in common like a language, standards, norms, protocols, and so on.

Knowledge-Sharing Culture.

It is one where knowledge sharing is the norm, not the exception, where people are encouraged to work together, to collaborate and share, and where they are rewarded for doing so. A paradigm shift has to occur from "knowledge is power" to "sharing knowledge is more powerful."

A Study on Knowledge Sharing: Explicit knowledge sharing. Database: 55%, Intranet: 40%, Face-to-face: 28%, Shared drive: 25%. Implicit knowledge sharing. Face-to-face: 90%, Informal networks: 25%.

Ideal Knowledge-Sharing Culture.

Emphasizes communication and coordination between groups. Experts are not jealously guard their knowledge. Knowledge sharing is actively and visibly encouraged at all levels of the hierarchy through the recognition and rewarding system. Embeds KS in corporate and individual performance objectives. Tools and taxonomies are standardized to make access and exchange easy. Significant number of semi-social events such as workshops for sharing with experts and other groups. Trust is prevalent in all interactions. Communication channels flow across geographical, temporal, and thematic boundaries.

Characteristics of KS Supporting Environment.

Reward structure—recognition for knowledge sharing with peers.

Openness/transparency—no hidden agendas.

Sharing supported—communication and coordination between groups. Trust—shared objectives. Top management support—upward and downward communication.

Topic 87

Effects of Culture on Individuals

Ways of Individuals Representing a Culture.

- Social norms.
- Shared values.
- Shared mental models.
- Social identities.

Social Norms: The most basic and most obvious of cultural control mechanisms. A social norm is a behavioral expectation that people will act in a certain way in certain situations. Social sanctions enforced by other members of a reference group support norms (as opposed to rules). Levels of Social Norms: Peripheral norms are general expectations that make interactions easier and more pleasant. Relevant norms encompass behaviors that are important to group functioning. Pivotal norms represent behaviors that are essential to effective group functioning. **Shared Values:** The focus is on "shared." Value is any phenomenon that is some degree of worth to the members of giving groups: the conception of the desirable that establishes a general direction of

action rather than a specific objective. Values are the conscious, affective desires or wants of people that guide their behavior. Example: Honesty.

Shared Mental Models: A mental model or theory defines a causal relationship between two variables. The mind constructs small-scale models of reality that it uses to anticipate events. Mental models can be constructed from perception, imagination, or the comprehension of discourse. They underlie visual images, but they can also be abstract, representing situations that cannot be visualized. The belief structure of managers is represented as mental models, which they use for diagnosing problems and making decisions. Managers share common mental models about employees, competition, customers, unions, and other important aspects of managerial decision making. When all managers of the organization share the same mental models, they are likely to make very similar decisions when solving problems.

Social Identities: An individual's knowledge of belonging to certain social groups, together with some emotional and valuational significance of that group membership. Examples: Generation, ethnicity, race, religion, gender, sexual orientation, nationality, (dis)ability, political affiliation, relationship status, profession, and socioeconomic status. A set of roles in an organization and role expectations.

Topic 88
Transformation to a Knowledge-Sharing Culture

Guidelines for Transformation. Role modeling is crucial. Culture is often transmitted through stories and myths that admire certain virtues held to be important to the organization. In reacting to crises, leaders can send strong messages about values and assumptions. In addition to motivating behavior directly, a reward system can send powerful messages regarding what is important. Important and public decisions also communicate the importance of certain values. Leaders communicate the importance of values by what they praise and what they criticize.

Cultural Artifacts. Having knowledge journalists begin interviewing key people to document projects, best practices, lessons learned, and good stories. Instituting KM get-togethers, which could be breakfasts, lunch-and-learn sessions—any type of informal gathering to help people get to know one another, sometimes with thematic talks, and to show managerial support. Newsletters to publicize KM initiatives and celebrate good role models. KM pilot projects such as expertise location systems or intranets with space

devoted to different communities of practice. Changing performance evaluation criteria to reflect and assess knowledge-sharing competencies and accomplishments. Censuring knowledge hoarders and rewarding effective knowledge sharers. Redesigning workplaces to allow for gathering places.

Lessons Learned from Cultural Change Initiatives. Provide information about the skills and experience of employees to overcome problems arising from the absence or difficulty of establishing personal relationships (e.g., virtual organizations). Provide support mechanisms such as feedback for effective knowledge sharing to take place. Active knowledge transfer requires a bidirectional communication channel. Develop common goals and mutual trust. KM is an evolutionary process that must be embedded into organizational culture. The introduction of new communication/information technologies that are capable of enhancing knowledge sharing can be used to catalyze cultural changes by externalizing tacit knowledge, by building up a permanent organizational memory, and by including all members in a participatory development of content, rules, goals, and systems.

Topic 89

Open Space Technology (OST)

A large-group facilitation process that consists of the setting of an agenda by all members present, self-organization into smaller groups, and conveners who report each group's findings into a proceedings, which are then distributed to all participants.

OST Meetings. Process: OST meetings begin with all the participants sitting in a circle with no items on the agenda. The meeting opens with an agenda setting exercise. The group self-organizes into smaller discussion groups. Discussion group conveners provide a report of the discussions. Participants receive all the discussion groups' reports and any action plans that were developed. Principles of OST Meetings: Whoever comes is the right people. Whatever happens is the only thing that could have happened. When it starts is the right time. When it's over it's over. Law of OST Meetings: "Law of Two Feet." Sometimes referred to as the "Law of Mobility." It states that "If you find yourself in a situation where you are not learning or contributing, go somewhere where you can."

Cultural Approach to OST. The cultural approach to open space technology serves to create an environment for innovation, teamwork, and rapid change. Open space offers a chance to gather the members of the organization in an open setting and

have the work done efficiently and creatively. People raise the topic they are passionate about, and they are willing to share their own knowledge, especially tacit knowledge.

Topic 90

Impact of a Merger on Culture

Merger is a new organization, with a new culture that is more than the sum of its parts. When you have two organizations coming together, the challenge is to create a new culture that reflects the most strategic aspects of the parent organization. Cultural integration in a merger situation is about understanding and melding what can be two very different "shared lives," and growing a new one in the process.

Questions for Cultural Integration. What are the most compatible elements of our former organizations' cultures? What are the elements that suggest the greatest potential conflict? What would we like the new organization's culture to look like? What do we want to be certain to bring forward into the new culture? What will be some indicators of successful cultural integration in our new organization?

Topic 91

Impact of Virtual Work on Culture

Challenges in a Virtual Organization.

- No formalization, each one follows his own norms, styles, and ideas. No shared values, beliefs, ideas, or norms.
- No frameworks or policies that guide individuals working in the organization.

Challenges for Virtual Teams:

- Differences in communication style.
- Lack of structure.
- Not the right tools.
- Distrust.
- Distracting environments.
- Slow response times.
- A lack of office culture.
- Managing the budget. Scheduling meetings.

How to Overcome Challenges:

- Set communication norms.
- Prioritize building trust.
- Make your virtual employees feel like part of the team.
- Embrace diversity.
- Onboard employees in the same way.
- Celebrate accomplishments.

Topic 92

Cultural Change Needed for KM

Culture has traditional and stable qualities. But the change is needed for knowledge management. Leadership has a key role. It is a long process. Dispersed and old organizations need more time.

Recommendations for Cultural Change. Clearly define desired cultural outcomes. Assess the current cultural state. Diagnose the existing culture with respect to desired. Assess tolerance to change. Identify change enablers and barriers. Assess the maturity level of KM within the organization. Identify KM enablers and barriers. Conduct a gap analysis to yield a map on how to get from where the organization is currently to where they would like to be culturally.

Topic 93

Barriers to Cultural Change

Lack of time and meeting places.

Seminars, e-meetings, redesign of physical workspaces. Status and rewards to knowledge owners. Establish incentives, include in performance evaluations, develop role models. Lack of absorptive capacity. Hire for openness, educate current workforce. Not-invented-here syndrome. Non hierarchical approach based on quality of ideas and not status of source. Intolerance of mistakes and need for help, lack of trust. Accept and reward creativity and collaboration, and ensure there is no loss of status for not knowing everything. Lack of common language (not just English vs. Spanish but engineer-speak vs. manager-speak). Establish a knowledge taxonomy and knowledge dictionary for knowledge content, standard formats, translators, metadata, and knowledge support staff.

Topic 94

Knowledge Management Tools

KM Technologies.

Technologies are available for different phases of a KM cycle. Both borrowed from other disciplines and specific for KM.

Three Generations:

- Baby boomers: Born after World War II, in the years between 1945 and 1965.
- Generation X: Born between 1966 and 1980.
- Generation Y (Millennial generation): Born between 1980 and 1996. Generation Z: Born between 1997 and 2012.
- There has been a wide range of new technologies in these generations.
- The generational differences introduce a complexity to the KM world.

Classification of KM Technologies:

That generate knowledge (e.g., data mining that discover new patterns in data). That code knowledge to make knowledge available for others. That transfers knowledge to decrease problems with time and space when communicating in an organization.

Another Classification Scheme:

- Communication.
- Collaboration.
- Content creation.
- Content management.
- Adaptation.
- E-learning.
- Personal tools.
- Artificial intelligence.
- Networking.
- Content Creation:
- Authoring tools.
- Templates.
- Annotations.
- Data mining.
- Expertise profiling.

- Mashups.
- Visualization.
- Knowledge maps.
- Videos (e.g. exit interviews).

Content Management:

- Taxonomies.
- Folksonomies.
- Metadata.
- Manual tagging and classification.
- Automated taxonomy systems.
- Automated text analysis—summarization.
- Archiving.
- Content management systems.
- Document management systems.
- Communication and Collaboration:
- Telephone/Internet telephony/Fax.
- Videoconferencing/web conferencing (e.g. Skype).
- Chat rooms/instant messaging/Twitter.
- Blogs. Email/discussion forums/Wikis.
- Groupware and collaborative work spaces.
- Social media.
- Web 2.0/KM 2.0.

Networking:

- Intranets.
- Extranets.
- Web servers,
- browsers.
- Knowledge repository.
- Portal.

Knowledge Acquisition:

- E-learning.
- Lessons learned databases.
- Storytelling databases.

- Best practices databases.
- Search tools.

Knowledge Application:

- Expert systems.
- Decision support systems.
- Customization/Personalization:
- Push/pull technologies.
- Recommender systems.
- Intelligent agents.

Topic 95

Content Creation Tools.

- Authoring Tools: Authoring tools are the most commonly used content creation tools.
- Pieces of software that enable the creation of digital content. General (e.g., word processing).
- Specialized (e.g., web page design software, graphic design software).

Annotation Technologies:

- Annotation technologies enable short comments to be attached to specific sections of a text document, often by a number of different authors (e.g., the track changes feature in Word).
- This allows a running commentary to be built up and preserved. Annotations may be public (visible to all who access and read the document) or private (visible to author only).

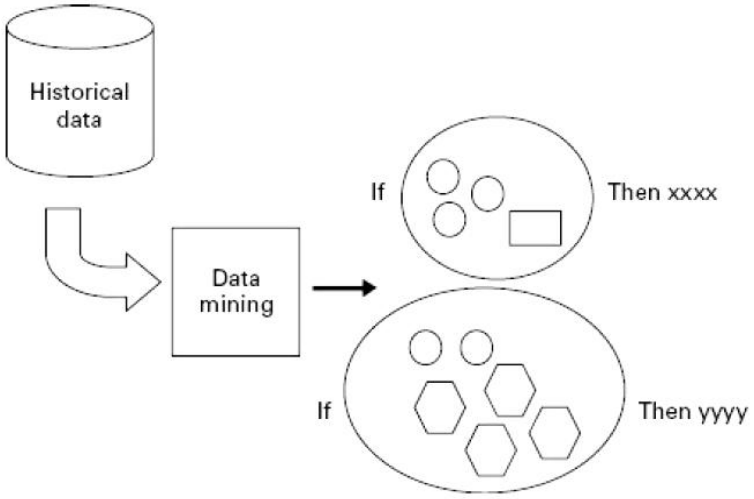
Topic 96

Data Mining, Knowledge Discovery, and Analytics

Processes that automatically extract predictive information from large databases based on statistical analysis (typically cluster analysis). Using a combination of machine learning, statistical analysis, modeling techniques, and database technology, data mining detects hidden patterns and subtle relationships in data and infers rules that allow the prediction of future results. Raw data is analyzed to put forth a model that attempts to explain the observed patterns. This model can then be used to predict future occurrences

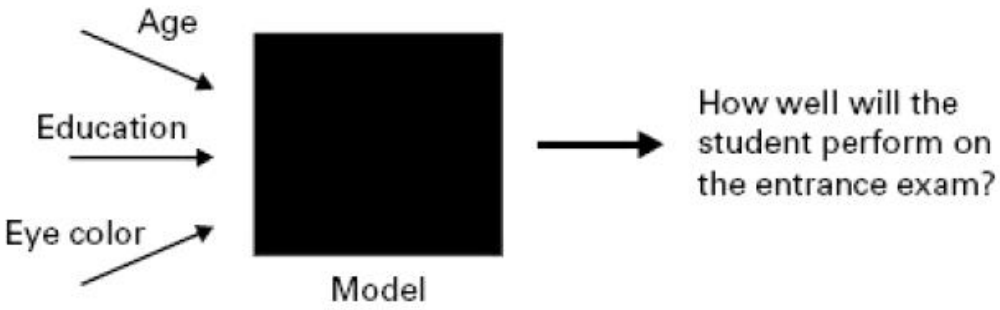
and to forecast expected outcomes. A large number of inputs is required, usually over a significant period of time.

Predictive Models.



Predictive Models.

The types of models produced range from easy to almost impossible to understand. Easy to understand models are decision trees, for example. Regression analyses are moderately easy to understand. Neural networks are black boxes. The major drawback of the black box models is that it becomes very difficult to hypothesize about causal relationships.



Applications of Data Mining/ Knowledge Discovery. Market segmentation. Customer profiling. Fraud detection. Retail promotion evaluation. Credit risk analysis. Market basket analysis.

Analytics. Studying past historical data to research potential trends, to analyze the effects of certain decisions or events, or to evaluate the performance of a given tool

or scenario. The goal of analytics is to improve the business by gaining knowledge which can be used to make improvements or changes. Software for Analytics: Statistical analysis tools (e.g., SAS, SPSS): Discover patterns in numerical or quantitative data to produce descriptive information such as what is the average (mean) and what range is covered by the data (minimum and maximum). Data mining software (e.g., SAS EnterpriseMiner): Discovers relationships or patterns in data from different sources. Analytics in KM: Text mining (Thematic analysis). Web mining (Patterns). Skill mining or expertise profiling (Expertise location system). E-mail mining (FAQs).

Topic 97

Blogs

A "blog" is a slang term for a web log. A web log is a popular and personal content form on the Internet. A person's blog is almost like an open diary. It chronicles what a person wants to share with the world on an almost daily. A blog is a frequently updated, publicly accessible journal. Blogs have become very common in businesses, politicians, and policy makers.

Uses of blogs:

Several librarians publish blogs that offer a wealth of information about social software and its uses.

Large organizations can use a blog to exchange ideas and information about web development projects, training initiatives, or research issues. A

blog helps build a knowledge network among the participating members.

The price of making a blog is very low.

Types of Blogs: Personal blogs. Collaborative/group blogs. Microblogging. Corporate and organizational blogs. Aggregated blogs.

Forms of Blogs: Text. Multimedia. On YouTube, short video clips can be posted on practically any topic. These are often self-filmed and self-indexed.

Topic 98

Mashups

- A "mashup" is an innovative way of combining content.
- Mashups are web applications that offer an easy and rapid way of combining two or more different sources of content into a single, seamlessly integrated application.
- The term originates from the practice of mixing tracks from two different songs.

- One of the first applications was to combine real estate listings with the location map drawn from Google Maps.
- The integration is typically undertaken by retrieving content from publicly available sources, combining continuous web feeds such as RSS, or using some of the newly created mashup editors and programming languages.
- Mashups make it very easy to combine different media such as text and images, videos, maps, and news feeds.

Mashups in KM: To create presentations that contain aggregated content. To support collaborative work such as joint authoring of content. Mashups may also be considered as knowledge portals.

Topic 99

Crowdsourcing

The practice of obtaining needed services, ideas, or content by soliciting contributions from a large group of people and especially from the online community rather than from traditional employees or suppliers. While the source of the data is different, similar types of analytics can be conducted on this data. Customers, for example, can be invited to participate in brainstorming, problem solving, or even product design. Consultation often occurs over the Internet and may include voting on the best ideas or solutions as well as just eliciting feedback to capture knowledge that may be otherwise very difficult to identify, let alone obtain. Relying on the aggregate knowledge of a crowd can be risky, as little is known about the contributors. One good solution is to combine crowd sourced content with expert opinion in order to validate the results obtained.

Crowdsourcing Approaches.

Knowledge discovery and management is used for information management problems where an organization mobilizes a crowd to find and assemble information.

Distributed human intelligence tasking (HIT) is used for information management problems where an organization has a set of information in hand and mobilizes a crowd to process or analyze the information.

Broadcast search is used for ideation problems where an organization mobilizes a crowd to come up with a solution to a problem that has an objective, provable right answer.

Peer-vetted creative production is used for ideation problems, where an organization mobilizes a crowd to come up with a solution to a problem which has an answer that is subjective or dependent on public support.

Topic 100

Visualization Tools and Knowledge Maps

Knowledge Map.

A common way of visualizing complex knowledge to be captured and codified. A map showing where various knowledge chunks are located. A knowledge map is analogous to the site map of a website—it is the conceptual representation of knowledge that clearly shows its scope (i.e., its boundaries or limits), the location of knowledge (e.g., documents, procedure, or 100 percent tacit), as well as the relationships between the chunks of knowledge. Visualizing knowledge helps identify clusters which eventually can lead to knowledge categories. Knowledge maps can help classify captured knowledge and they can be used throughout the KM process cycle to help share, disseminate, and make use of the knowledge.

Data Visualization Software.

The way of detecting patterns, trends, and correlations that might go undetected in text-based data that can be exposed and recognized more easily with data visualization software. Data is presented in some type of graphical or pictorial form so that we can "see" the patterns. Examples include traditional pie charts but can be as sophisticated as interactive three-dimensional environments.

Use of Videos.

Videos can be used to record interviews during tacit knowledge capture. They are useful for employees wanting to learn about a given subject. Can be face-to-face or technology-mediated.

Mobile Tools.

Mobile tools such as smartphones and tablets are increasingly popular. They have a range of functionalities including voice recording, photo capture, and even video recording. They offer a potential to assist in knowledge capture and codification.

Topic 101 Content Management Tools

Management of valuable content throughout the useful lifespan of the content. Content lifespan begins with content creation, handling multiple changes and updates, merging, summarization, and other repackaging, and ends with archiving.

Metadata. Metadata (information about the content) is used to manage content. Metadata includes source/author, keywords to describe content, date created, date changed, quality, best purposes, annotations by those who have made use of it, and an expiry or "best before" date where applicable. Additional attributes such the storage medium, location, and whether or not it exists in a number of alternative forms (e.g., different languages) are also useful to include.

XML (eXtensible Markup Language). It provides the ability to structure and add relevance to chunks of information (that's why many CM solutions use XML). It exchanges data more easily between applications, e.g., with your suppliers, customers, and partners.

Taxonomies. Hierarchical information trees for classifying information—act like your library subject catalog. They can help overcome differences of language usage in different parts of an organization. Automatic classification of information objects—natural language analyzers, text summarizers—helps to understand some of the meaning—the concepts—behind blocks of text, and to tag and index it appropriately to aid subsequent retrieval.

Topic 102:

Three Forms of Metadata. Metadata created by dedicated personnel, i.e., catalogers. Metadata created by authors, e.g., The Dublin Core. User-created metadata, i.e., folksonomy, social bookmarking, or social tagging.

Folksonomy. A bottom-up or grassroot approach. Metadata is created by the collectivity of users. All users should more readily understand the tags or data about data, not just their creators.

Social Bookmarking. A method where users participate directly in the storage, organization, searching, and managing of web resources. Examples include Furl and Citeulike. Users make use of informal tags instead of more formal cataloging methods. Since all the tags originate from the intended end users, they are easier to understand than more standardized or top-down indexing terms. Major Drawback: Lack of

standardization. There is no controlled vocabulary (i.e., list of standard key words), therefore many errors can occur due to misspelling, synonym confusion, tags with more than one meaning, or tags that are too personalized. Social Bookmarking and KM: Social bookmarking is an excellent vehicle to peer-to-peer knowledge sharing and may play a greater role in future communities of practice. In a given CoP, there is a shared vocabulary. Since CoP members share the same jargon, tagging is less likely to be a problem.

Topic 103:

Groupware and Collaboration Tools

Groupware. A class of software that helps groups of colleagues (workgroups), attached to a communication network (e.g., LAN), organize their activities.

Operations Supported by Groupware: Scheduling meetings and allocating resources. Email. Password protection for documents. Telephone utilities. Electronic newsletters. File distribution.

Communication Technologies.

- Telephone.
- Fax.
- Videoconferencing,
- teleconferencing, and
- Web conferencing (e.g., Skype).
- Chat rooms.
- Instant messaging and phone text.
- Internet telephone (voice over IP or VOIP).
- Social media (e.g., FaceTime).
- Email.
- Discussion forums.

Collaboration Technologies.

- Workgroup productivity software— designed to facilitate the work of groups.
- This technology may be used to communicate, cooperate, coordinate, solve problems, compete, or negotiate.

- A specific class of technologies relying on modern computer networks, such as email, newsgroups, videophones, or chat.

Primary Dimensions of Groupware Technologies. Whether users of the groupware are working together at the same time (real -time or synchronous groupware) or different times (asynchronous groupware). Whether users are working together in the same place (co-located or face-to-face) or in different places (non-co-located or distance).

	Same Time—Synchronous	Different Time—Asynchronous
Same place—co-located	Voting Presentation support	Shared computers
Different place—distant	Videophones Chat	E-mail Workflow

Topic 104:

Taxonomy of Groupware.

Categories of groupware:

- Electronic mail and messaging.
- Group calendaring and scheduling.
- Electronic meeting systems.
- Desktop video,
- real-time synchronous conferencing.
- Non-real-time asynchronous conferencing.
- Group document handing.
- Workflow.
- Workgroup utilities and development tools.
- Groupware services.
- Groupware and KM frameworks.
- Groupware applications.
- Collaborative Internet-based applications and products.

Email:

- Email is the most common groupware application.
- In addition to pass simple messages between two people, email systems include features for forwarding messages, filing messages, creating mailing groups, and attaching files to a message.
- Other features include automatic sorting and processing of messages, automatic routing, and structured communication (messages requiring certain information).

Newsgroups and Mailing Lists:

They are intended for email messages among large groups of people instead of one-to-one communications.

Difference between newsgroups and mailing lists is that newsgroups only show messages to a user when they are explicitly requested (an on-demand service), while mailing lists deliver messages as they become available (an interrupt-driven interface).

Workflow Systems:

Allow documents to be routed through organizations using a fixed process.

Example is an expense report in an organization: an employee enters an expense report and submits it, a copy is archived then routed to the employee's manager for approval, the manager receives the document, electronically approves it, and sends it on, and the expense is registered to the group's account and forwarded to the accounting department for payment.

Hypertext System:

- A system for linking text documents to each other, with the web being an obvious example.
- Whenever multiple people author and link documents, the system becomes group work, constantly evolving and responding to others' work. **Group Calendars:**
- Allow scheduling, project management, and coordination among many people.
- May provide support for scheduling equipment as well.
- Detect when schedules conflict.
- Find meeting times that will work for everyone.
- Help to locate people.

Collaborative Writing Systems:

Word processors may provide asynchronous support by showing authorship and by allowing users to track changes and make annotations to documents. Authors may be given tools to help plan and coordinate the authoring process, such as methods for

locking parts of the document or linking separately authored documents. Synchronous support allows authors to see each other's changes.

Shared Whiteboards:

Allow two or more people to view and draw on a shared drawing surface even from different locations. To work collaboratively on a visual problem such as collaborative graphic design, publishing, or engineering applications. Shared whiteboards can indicate where each person is drawing by showing telepointers, which are color-coded or labeled to identify each person.

Twitter:

A mini-blogging service that allows users to send "tweets" of up to 140 characters to their user profile. This information is then conveyed to users who have signed up to receive the posts. Tweets can be received as web page updates, RSS feeds, SMS text on phones, through email, and on Facebook.

Twitter in KM:

Twitter is a people-based technology and can serve as a good alerting service for people who are working together. Twitter can serve as an ultra-rapid way of testing out ideas on a few trusted individuals—a quick forum for feedback in real time (e.g., a presenter who checks to see how the talk is going, a meeting coordinator who needs everyone in attendance ASAP, or a project manager trying to physically locate his team. One potential application for real-time tweets could be an expertise locator system.

Video Communications Systems:

Allow two-way or multi-way calling with live video. Video is advantageous when visual information is being discussed. Video may be used in less direct collaborative situations, such as by providing a view of activities at a remote location.

Chat Systems: Permit many people to write messages in real time in a public space. As each person submits a message, it appears at the bottom of a scrolling screen. Chat groups are formed by listing chat rooms by name, location, number of people, topic of discussion, and so on. Many systems allow for rooms with controlled access or with moderators to lead the discussions.

Topic 105:

Wikis.

- Web-based software that supports open editing, which allows multiple users to create and edit content on a website.

- A Wiki site grows and changes at the will of the participants.
- People can add and edit pages at will, using a Word-like screen, without knowing any programming or HTML commands.
- A Wiki is composed of web pages where people input information and then create hyperlinks to another page or new pages for more details about a particular topic. Anyone can edit any page and add, delete, or correct information. A search field at the bottom of the page lets you enter a keyword for the information you want to find.

Types of Wikis: Public Wikis were developed first and are freewheeling forums with few controls, e.g., Wikipedia, a free encyclopedia, written by thousands of people around the world.

Corporate Wikis

It provide interactive forums for tracking projects and communicating with employees over their in-house intranets. A Wiki can be established for a particular project with the project team given access to update the status of tasks and add related documents and spreadsheets. Its central location makes it easy to keep everyone informed and up-to-date regardless of his or her home office, location, or time zone. A Wiki is more reliable, faster, and efficient than email.

Wiki Software:

For security reasons, corporations buy Wiki software, rather than lease space on the Internet, and set up the Wiki behind the company's firewall as part of an intranet, or as an extranet if customers or vendors are allowed access.

Wiki software has authorization and password safeguards, roll-back versions so information can be restored to its former state, and easy upload capabilities for documents and images. Some Wiki software notify users when new information is added.

Topic 106

Social Media and Web 2.0.

- Social networking has rapidly become a part of everyday living and working, particularly for the Y and Z generations.
- Knowledge management is collaborative in its nature, a variety of collaboration technologies can be used to support KM practices.
- Social networks are dynamic people-to -people networks that represent relationships between participants.

- A social network can serve to identify a community of practice Social Media and Web 2.0.

Social Network Analysis (SNA):

A research tool that dates back to the 1970s and has become increasingly used in KM applications.

Mapping and measuring of relationships and flows between people, groups, organizations, and computers.

SNA can be used to identify communities and informal networks and to analyze the knowledge flows (i.e., knowledge sharing, communication, and other interaction) that occur within them).

SNA for Expertise Location System: SNA is used to identify experts and expertise to develop an expertise location system. A survey tool is developed to collect required data and to identify network members and their exchange patterns. Data are analyzed using software like Pajek or UCINET to identify patterns of interaction and relationships. Analyzed data are used to inform decision making.

Social Media in KM toolkit:

Social media are increasingly integrated into KM toolkits.

Social media manage the content of the conversation or interaction as an information artifact in the online environment.

Wikis are social media in which coauthors collectively build textual and visual websites.

Google Docs manages documents, spreadsheets, and other files in a cloud computing environment which allows users to upload and share documents from anywhere with Internet access.

Video- and photo-sharing websites (e.g., YouTube and Flickr) use videos and images to create social interaction.

Social network websites (e.g., Facebook) represent links and nodes in the network through conversation threads.

Characteristics of Web 2.0:

The web as a platform.

User control of your own data.

Services instead of packaged software.

An architecture of participation.

Cost-effective scalability.

Remix-able data sources and data transformations.

Software that rises above the level of single device.

Harnessing of collective intelligence.

Harnessing Collective Intelligence:

The collective (i.e., the set of users) determine what is of value, what is valid, and what is important.

The more people use a Web 2.0 site, the more the site automatically improves. A key feature of Web 2.0 sites is that the users of that site contribute the content.

Web 2.0 in IBM: IBM uses a decentralized social media approach to promote knowledge sharing and collaboration. The company has combination of internal and external blogs, SocialBlue (which is similar to Facebook for IBM employees), and crowdsourcing "jams" in addition to being active on LinkedIn and Facebook.

Topic 107

KM 2.0. KM 2.0 is analogous to Web 2.0.

A more people-centric approach to knowledge management. Companies are adopting KM 2.0 to varying degrees—mostly based on their underlying culture and how well it promotes transparency and is less concerned with control and availability of the underlying technologies. **Features of KM 2.0:**

Contribution—every Internet user has the opportunity to freely provide their knowledge content to the relevant subject domains. **Sharing**—knowledge contents are freely available to others. **Collaboration—**knowledge providers collaboratively create and maintain knowledge content.

Dynamic—knowledge contents are updated constantly to reflect the changing environment and situation.

Reliance**—knowledge contribution should be based on trust between kno**wledge providers and domain experts.

KM 1.0 vs. KM 2.0: KM 1.0 is focused on preserving valuable knowledge that has been created (making knowledge repositories). KM 2.0 is concerned with user participation, knowledge flow and sharing, and user-generated content with rapid feedback and revision of the knowledge.

Topic 108:

Networking Technologies

Knowledge Repository.

An on-line computer-based storehouse of expertise, knowledge, experiences, and documentation about a particular domain of expertise. Knowledge is collected, summarized, and integrated across sources. Such repositories are sometimes referred to as experience bases or corporate memories.

Knowledge in a Knowledge Repository:

Passive collection—where workers themselves recognize what knowledge has sufficient value to be stored in the repository.

Active collection—where some people in the organization are scanning communications processes to detect knowledge.

Types of Knowledge Repositories:

External knowledge repositories (competitive intelligence).

Structured internal knowledge repositories (research reports, product-oriented market material).

Informal internal knowledge repositories (lessons learned).

Types of Knowledge in a KR:

Declarative knowledge (concepts, categories, definitions—knowledge of what).

Procedural knowledge (processes, events, activities, actions, manuals— knowledge of how or know-how).

Causal knowledge (rationale for decisions—knowledge of why).

Context (circumstances of decisions— knowledge of care-why).

Software for Knowledge Repository: Content management software tools such as SharePoint platform. It is run as an intranet within the organization, with appropriate privacy and security measures in place.

Knowledge Portal.

- Provides access to diverse enterprise content, communities, expertise, and to internal and external services and information.
- Stores and disseminates organizational knowledge (business processes, policies, procedures, documents).

- Searching capabilities through content and through the taxonomy. Option to receive personalized content through push and pull technologies.
- Communities can be accessed via portals for communication and collaboration purposes.
- Web-based learning modules on selected topics and professional practices.
- The critical content consists of the best practices and lessons learned that have been accumulated over the years and to which many organizational members have added value to.

Topic 109. Knowledge Acquisition and Application Tools

- Many tools for acquiring (understanding) and applying (making use of) knowledge content.
- E learning systems provide help in learning, comprehension, and better understanding the new knowledge.
- Databases of best practices, lessons learned, and stories can help to apply knowledge that was captured and codified from experts.
- Expert systems and decision support systems help apply the knowledge on the job.
- Adaptive technologies are used to personalize knowledge content push or pull.
- Recommender systems recommend content to users that others have found to be useful to acquire and apply.
- Knowledge maps and other visualization tools help better acquire and apply valuable knowledge.
- Tools derived from artificial intelligence automate processes such as text summarization, content classification, and content selection.

E-Learning Applications.

Computer-based learning (CBT)

Web-based training (WBT).

Online learning environment is provided for learners.

Courses can be delivered via the web or the company intranet.

The particular knowledge and know-how to be acquired can be delivered in a timely fashion in order to support knowledge acquisition.

Databases. A form of storage system or repository • Allows for easy finding and retrieving. Tagging system, or taxonomy, serves to associate key descriptive terms for

each knowledge item. Each tag serves as a search term. Databases are of two types: lessons learned and expertise location systems.

Decision Support Systems. Facilitate groups in decision making. Provide tools for brainstorming, critiquing ideas, putting weights and probabilities on events and alternatives, and voting. Such systems enable more rational and even-handed decisions.

Artificial Intelligence (AI). Automated reasoning systems. Expert systems. Natural language processing. Linguistic technologies (voice interfaces or natural language queries). Automated taxonomy tools. Intelligent agents or software robots (softbots), used in information-searching, retrieving, and filtering tasks.

Topic 110 Intelligent Filtering Tools

Intelligent Agents.

Software programs, which assist their users and act on their behalf, such as a computer program that helps you in newsgathering, acts autonomously and on its own initiative, has intelligence and can learn, and improves its performance in executing its tasks. They help users deal with information.

Features of Intelligent Agents:

- Autonomy—the ability to do most of their tasks without any direct assistance from an outside source, which includes human and other agents, while controlling their own actions and states.
- Social ability—the ability to interact with other software agents and humans.
- Responsiveness—the ability to respond in a timely fashion to perceived changes in the environment, including changes in the physical world, other agents, or the Internet.
- Personalization—the ability to adapt to its users' needs, by learning from how the user reacts to the agent's performance.
- Initiative—the ability of an agent to take initiatives by itself, autonomously (out of a specific instruction by its user) and spontaneously.
- Adaptivity—the capacity to change and improve according to the experiences accumulated.
- Cooperation—the interactivity between agent and user is fundamentally different from the one-way working of ordinary software.

KM Applications of Intelligent Agents:

Personalized information management (filtering email).

Electronic commerce (locating information for purchasing).

Management of complex commercial and industrial processes (scheduling appointments and air traffic control).

Categories of Intelligent Agents:

- Watcher agents—look for specific information.
- Learning agents—tailor to an individual's preferences by learning from the user's past behavior.
- Shopping agents—compare the best price for an item.
- Information retrieval agents—help the user to "search for information in an intelligent fashion."
- Helper agents—perform tasks autonomously without human interaction.

Topic 111

Intelligent Filtering Tools. Problem of Information Overload. Information filtering: We must go through an enormous amount of information to find the small portion that is relevant to us. Information gathering: There is not enough information available to us and we have to search long and hard to find what we need.

Examples of Intelligent Filtering Agents.

GrapeVine: An email filtering software. It reads a pre-established knowledge chart to determine who should receive what mail. Maxims: A type of learning agent. The program learns to prioritize, delete, forward, sort, and archive mail messages on behalf of a user. The program monitors the user and uses—the actions the user makes as a lesson on what to do. Maxims guesses what the user will do • It suggests the user what to do.

Copernic: An agent that carries out Net searches by simultaneously consulting the most important search engines on the web.

Cybersitter: Allows customizable blocking of content on social networking sites, online games, FaceBook, chats, posts, and emails. ANZSI: Automated website indexing software. Mobicip: Intelligent real-time content filtering agent.

News Filtering Agents.

NewT: Takes as input a stream of Usenet news articles, and gives as output a subset of these articles that is recommended for the user to read.

Google Alerts: Filters through information to send you an email alert.

Facebook: Newsfeed is personalized based on what you provide as feedback.

LinkedIn Today: Selects news based on what your social networks are sharing.

News360: Identifies what you like and then finds stories for you from the web.

FlipBoard: News-reading app that lets you create your own personalized news aggregator by incorporating your preferred sources, blogs and social networks.

MGTE630 Knowledge Management in Education

Handouts

Topic 112

Topic 112. Personal Knowledge Management (PKM)

The future of KM will blur boundaries among individual, group or community, and organization. KM will become how we conduct our everyday business lives. Personalized KM (PKM) will gain increasing importance given the ever-increasing momentum of information overload that we must deal with.

Managing and supporting personal knowledge and information so that it is accessible, meaningful, and valuable to the individual; maintaining networks, contacts, and communities; making life easier and more enjoyable; and exploiting personal capital.

Technologies for PKM: Email. Blogs. News aggregators. Instant messaging. Wikis. Personal portal.

Topic113. Adaptive Technologies

Adaptive technologies are used to better target content to a specific knowledge worker, or to a specific group of knowledge workers who share common work needs.

Customization. Knowledge workers manually changing their knowledge environment. For example, selecting user preferences to change desktop interface, specifying certain requirements in content to be provided to them (language, format), or subscribing to certain news or listserv services.

Personalization. Automatically changing content and interfaces based on observed and analyzed behaviors of the intended end user. For example, many MS

Office applications offer the option of dynamically reordering pop-down menu items based on frequency of usage (the ones used most often will be displayed on the top). Another example is recommender system (e.g., Amazon). Personalization Technologies: To target or push certain types of content that is of interest to a given community. In CoPs, community profiles can be established just as individual profiles and used in the same manner in order to better adapt content and interfaces to the community members.

Topic114. Knowledge Management Strategy

It provides the basic building blocks used to achieve organizational learning and continuous improvement, so as to not waste time repeating mistakes, and so that everyone is aware of new and better ways of thinking and doing. A good KM strategy should identify the key needs and issues within the organization, and provide a framework for addressing these
Knowledge Management Strategy.

Types of KM Initiatives. External structure initiatives (e.g., gain knowledge from customers, offer customers additional knowledge). Internal structure initiatives (e.g., build a knowledge-sharing culture, create new revenues from existing knowledge, capture individuals' tacit knowledge, store it, spread it, and reuse it, and measure knowledge-creating processes and intangible assets produced). Competence initiatives (e.g., create careers based on KM, create microenvironments for knowledge transfer, and learn from simulations and pilot projects).

Sources of Tacit Knowledge. Discovery (innovation). Organizational practices. Human resources.

Key Drivers for KM Strategy. Imminent retirement of key personnel. Need for innovation to compete in dynamic, challenging business environment. Need for internal efficiencies in order to reduce costs and effort (e.g., time to market a new product).

Resources Needed for KM Strategy. A KM expert. Access to people who are knowledgeable about the organization. A KM advocate who will sell the strategy to the senior member of management who mandated the strategy development.

Topic115. Developing a KM Strategy

KM Strategy. A KM strategy helps address the following questions: Which KM approach, or set of KM approaches, will bring the most value to the organization? How can the organization prioritize alternatives when any one or several of the alternatives are appealing and resources are limited?

Components of a KM Strategy. An articulated business strategy and objectives. A description of knowledge-based business issues. An inventory of available knowledge resources. An analysis of recommended knowledge leverage points that can list KM projects to be undertaken.

Business Strategy and Objectives. Products or services. Target customers. Preferred distribution or delivery channels. Characterization of regulatory environment. Mission or vision statement.

Knowledge Based Business Issues. Need for collaboration. Need to level performance variance. Need for innovation. Need to address information overload.

Available Knowledge Resources. Knowledge capital: tacit and explicit knowledge. Social capital: culture, trust, context, informal networks. Infrastructure capital: physical knowledge resources.

Recommended KM Projects. Collect artifacts and exploit them (e.g., best practices database, lessons learned database). Store for future use (e.g., data warehouses, intelligence gathering for specific problem, data mining, text mining). Focus on connecting—connect knowers to each other and to a problem through communities of practice or expertise location systems.

Topic116. Knowledge Audit

A knowledge audit service identifies the core information and knowledge needs and uses in an organization. It identifies gaps, duplications, flows, and how they contribute to business goals. A knowledge inventory (or audit) is a practical way of coming to grips with "knowing what you know" by applying the principles of information resources management (IRM).

Key Activities of IRM. Identification: What information is there? How is it identified and coded? Ownership: Who is responsible for different information entities? Cost and value: A basic model for making judgments on purchase and use. Development: Increasing its value or stimulating demand. Exploitation: Proactive maximization of value for money.

Outcomes of Knowledge Audit. Identification of core knowledge assets and flows—who creates, who uses. Identification of gaps in information and knowledge needed to manage the business effectively. Areas of information policy and ownership that need improving. Opportunities to reduce information handling costs. Opportunities to improve coordination and access to commonly needed information. A clearer understanding of the contribution of knowledge to business results.

Sample Questions for Interviews. What is your job role and major responsibilities? How long have you been working for the organization? Who do you communicate with most frequently on work matters? Do you have policies or guidelines for your work? If so, how do you access these? What information do you rely upon during a normal working day? Where do you obtain this? If you have a question, where do you go to find the answer? Who asks you what types of questions? What sort of orientation and refresher training have you received? How do you find out what is happening in the organization? What sorts of news do you read regularly? What type of knowledge is needed to do your work? How do you add value to the organization? Where do your knowledge artifacts reside? How could knowledge flow be improved, in your opinion? What would make your work easier?

Knowledge Audit Questionnaire. Knowledge needs and knowledge seeking behavior. A web-administered survey or an interview guide. For a sample questionnaire consult table 9.1 in your textbook.

Knowledge Mapping. The knowledge map is a navigation aid to explicit/codified information and tacit/uncodified knowledge. The map should provide an inventory and evaluation of intellectual or knowledge assets of an organization. Once the "as is" portrait of the organization has been completed through knowledge audit, a gap analysis can be performed.

Topic 117-Capability Maturity Models

Knowledge audit also looks at the overall maturity level or organizational readiness for KM. An optimal point or a threshold point that should be reached before effective knowledge management can be implemented is inherent in a number of organizational, KM, and community maturity models. A descriptive model of the stages through which organizations progress as they define, implement, evolve, and improve their processes. This model serves a guide for selecting process improvement strategies

by facilitating the determination of the current process capabilities and the identification of issues most critical to quality and process improvement within a particular domain.

Capability Maturity Model (CMM). An organizational model that describes five evolutionary stages (levels) in which an organization manages its processes. An organization should be able to absorb and carry its software applications.

Stages of CMM:

Initial: Processes are ad-hoc, chaotic, or not well defined.

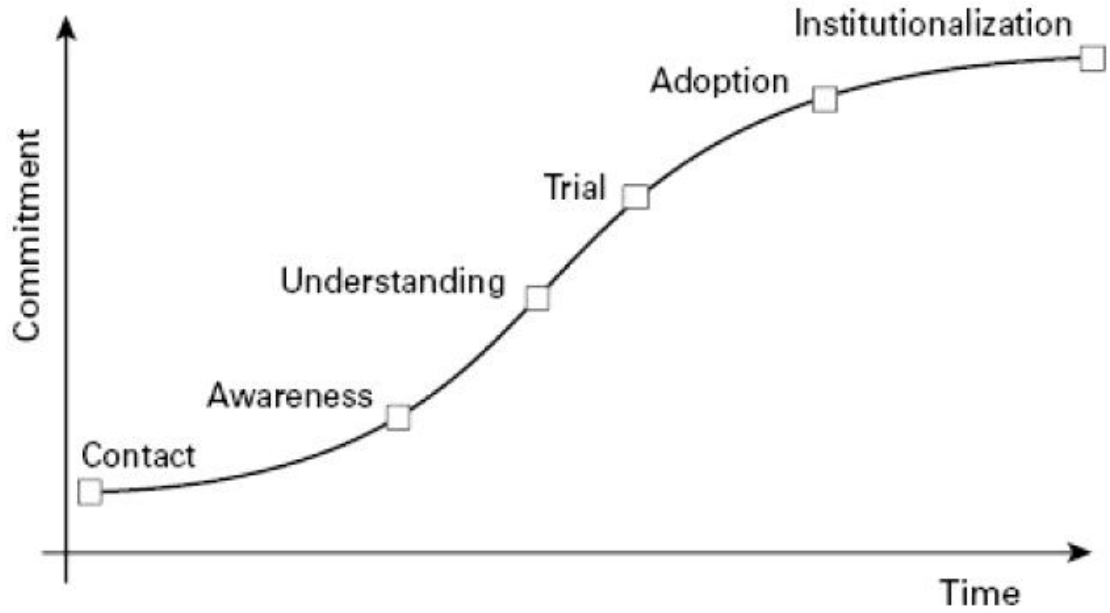
Repeatable: Basic processes are established and there is a level of discipline to stick to these processes.

Defined: All processes are defined, documented, standardized, and integrated into each other.

Managed: Processes are measured by collecting detailed data on the processes and their quality.

Optimizing: Continuous process improvement is adopted and in place by quantitative feedback and from piloting new ideas and technologies.

Example of an Organizational Maturity Model Based on CMM



Topic 118: Stages of Organizational Maturity.

Chaotic: Non-cohesive culture. Decision making in-flight. Leadership structure vague. Operation model undefined. Employees evaporating.

Ad hoc: Multiple local cultures, leadership structures, and operation models. Local decision making. Employee turnover high except in preferred classes of employees.

Organized:

Similar local cultures. Local decision making based on corporate strategy. Local leadership linked to corporate leadership team. Corporate operation model pushed down to local level. Stable employee base.

Managed: Cohesive corporate culture and operation model. Corporate strategy drives operational tactics. Corporate leadership team coaches and empowers local leaders. Employees recruited and retained based on strategic direction.

Agile: Culture adapts strategically. Operation model changes dynamically based on environmental changes. Professionals compete to work for corporation.

Topic 119: Infosys KM Maturity Model.

Based on Capability Maturity Model (CMM). The five levels include default, reactive, aware, convinced, and sharing.

Default: Complete dependence on individual skills and abilities.

Reactive: Ability to perform tasks constituting the basic business of the organization repeatedly.

Aware: Restricted ability for data-driven decision making. Restricted ability to leverage internal expertise. Ability to manage virtual teams well.

Convinced: Quantitative decision making for strategic and operational applications is widespread. High ability to leverage internal and external sources of expertise. Organization realizes measurable productivity benefits through knowledge sharing. Ability to sense and respond proactively to changes in technology and business environment.

Sharing: Ability to manage organizational competence quantitatively. Strong ROI-driven (return on investment) decision making. Streamlined process for leveraging new ideas for business advantage. Ability to shape change in technology and business environment.

Topic 120: Knowledge Process Quality Model (KPQM).

Based on quality management and process engineering. Knowledge processes can be improved by enhancing the corresponding management structures. The maturity model consists of five phases: (1) initial, (2) aware, (3) established, (4) quantitatively managed, and (5) optimizing. Initial: Knowledge process quality not planned, changes randomly (chaotic). Aware: Need for quality has been recognized and initial structures have been put into place. Established: There is systematic structure and definition of knowledge processes and they are specifically tailored to needs identified. Quantitatively Managed: Performance measures are used to plan and track knowledge processes.

Optimizing: Structures implemented to ensure continuous improvement and self-optimization of knowledge processes.

Topic 121

Forrester Group KM Maturity Model.

It describes different stages of maturity in terms of how people are supported throughout the knowledge management cycle. Three stages include Assisted, Self-service, and Organic.

Assisted: Culture adapts strategically. Operation model changes dynamically based on environmental changes. Professionals compete to work for corporation. Employees find info with the help of librarians. KM Initiatives: Knowledge support office (KSO), Yellow pages, Communities of practice.

Self-service: Employees codify on their own without help. Employees find information using search engines. KM Initiatives: Push technologies, Customized KM. Organic: KM happens in the background—it is embedded in business. Information provided when needed. KM Initiative: Personalized KM.

An Example:

An organization at the assisted phase stands to benefit from an expertise location system and a knowledge support office (KSO), which is a 24/7 help desk for knowledge content. Employees have a telephone number and an email address through which they can contact the KSO to obtain help in locating, accessing, and making use of valuable knowledge content.

Topic 122

CoP Maturity Model. A maturity model applied to the community of practice lifecycle. A CoP maturity model can serve as a road map to show what steps need to be taken to move communities to the next stage. A CoP lifecycle model provides a diagnostic to assess whether informal networks exist within an organization and if they do, whether they are recognized and supported by the organization. CoP Lifecycle Model: It shows that a community needs to have attained the maturing and stewardship of knowledge levels in order to begin creating value for its members and for the organization as a whole. The lifecycle model is particularly useful for aligning any new KM roles and responsibilities that will be needed in order to optimize KM efforts throughout the lifecycle. Roles in CoP Lifecycle Model: A knowledge journalist to help build identify and extract valuable content from community members. A knowledge taxonomist to help organize content once it is being produced at a steady rate. A

knowledge archivist to help distinguish between content that should be stored or that is no longer considered active.

Topic123. Gap Analysis

Difference between the existing and desired KM state of the organization is analyzed in terms of enablers and barriers to successful KM implementation. Points to Address in Gap Analysis: What are the major differences between the current and desired KM states of the organization? List barriers to KM implementation. List KM leverage points or enablers. Identify opportunities to collaborate with other business initiatives. Conduct a risk analysis. Are there redundancies within the organization. Are there knowledge silos. How does the organization rank with respect to others within the industry. Ways of Gap Analysis: Survey and interviews of stakeholders to see the difference between existing and desired knowledge. Focus groups with managers to make a list of prioritized KM goals. Validation of the results of gap analysis with the help of stakeholders.

Topic124. KM Strategy Roadmap

The final recommended strategy would typically cover a three- to five-year period, outlining the key priorities for each year. Questions Addressed in a Roadmap: How will the organization manage its knowledge better for the benefit of the business? Content (management of explicit knowledge) and communities (management of tacit knowledge) priorities. Identification of processes, people, products, services, organizational memory, relationships, and knowledge assets as high-priority knowledge levers to focus on. What is the clear or direct link between KM levers and business objectives? What are some quick wins (i.e., early, relatively inexpensive KM successes)? How will KM capability be sustained over the long term (e.g., defined KM roles)?

KM Strategy Document. Results of the audit. Inventory of what exists, what KM initiatives were implemented or tried out, what types of knowledge exists, who uses this knowledge and how, and whether or not knowledge is being shared and disseminated throughout the organization. Current technological infrastructure. Type of prevailing culture

Recommended Table of Contents: Document information. Executive summary. Introduction. KM audit—key findings. KM objectives. Gap analysis—key findings. Recommendations. Conclusions. Appendices.

Topic125. Balancing Innovation and Organizational Structure

Fluid Organization. Individuals with ideas originating and growing from a given person (intuition), personal networks that form outside formal organizational charts (CoPs), chance encounters that occur between people, and creativity that ignores standard procedures to discover better ways of doing things.

Institutionalized Organization. Organization strives to structure work, to control processes, and to measure outcomes. Explicit knowledge is clearly defined in procedures, reports, memos, and databases. This knowledge is shared through official chains of command or organizational hierarchies.

Balance Between Two Types. If the organization is too fluid, there will be no solid connection of knowledge work to business goals and it will be difficult to have clear accountability. If the balance shifts too much in favor of institutionalization, the organization risks becoming too formal, which can stifle innovation and the open communication necessary for creative work to take place.

Critical Factors of Successful Companies. Consistency between core values, business strategy, and actual work environment. Value conferred on personal freedom, cooperation, and community. Top leaders serving as good role models—"they walk the talk."

Topic126. Types of Knowledge Assets Produced

Intellectual Assets. Intangible assets that can include brands, employee know-how, trade secrets, and technical information. Also covers intellectual property (IP), assets such as patents and trademarks that are formally protected by statute law.

Intellectual Capital. Intellectual capital refers to the difference between a company's market value and its book value. It consists of organizational knowledge and the ability of the organization's members to act on it. Intellectual capital is often used synonymously with the terms intangible assets, intellectual assets, or knowledge assets. Intellectual capital refers to the difference between a company's market value and its

book value. It consists of organizational knowledge and the ability of the organization's members to act on it. Intellectual capital is often used synonymously with the terms intangible assets, intellectual assets, or knowledge assets.

Two Types of Intellectual Assets. A semi-permanent body of tacit and explicit knowledge about a task, person, or organization. The capital resources (human, structural, and relational) that augment this body of knowledge.

Categories of Knowledge Assets. Human capital—knowledge inherent in employees and contractors, and it is difficult to calculate. Structural capital—policies and procedures, customized software applications, training courses, patents. Customer capital—the corporate relationships with customers.

Inventory of Intellectual Assets. Product formulas, manufacturing processes, new product plans, packaging specifications, product compositions, research direction, test methods, alliance relationships, business plans, strategic direction, vendor terms, competitive analysis, customer lists, marketing plans, sales projections, budgets, financial projections, pricing analysis, and employee lists.

Topic127. Role of Leadership in KM

Leadership plays an important role in KM as it helps determine the types of interactions that will take place, including knowledge-sharing interactions. Leadership helps shape the culture and plays a key role in establishing incentives and disincentives for organizational behaviors. Leadership can impact onto organizational effectiveness. Leadership Styles: Autocratic versus democratic. Task-oriented versus people-oriented. Contingencies. Knowledge-Oriented Leadership: Leadership style that includes all the major KM processes: knowledge creation, sharing, dissemination, preservation, and application. It is required to address the two major goals of KM: efficiency and innovation.

Topic128. Evaluating Knowledge Management

Metrics to monitor progress towards organizational goals. Various KM Goals: Increasing revenue. Decreasing costs. Increasing operational efficiencies. Increasing standardization. Improving customer loyalty. Improving customer service. Improving employee loyalty (decreasing turnover). Enhancing the reputation of the company.

Creating more collaboration and synergy. Innovating to create new products, new services, and/or new revenue streams.

Questions for KM Measurement Strategy. Why are we measuring? What are we measuring? For whom are we measuring? When are we measuring? How are we measuring?

Why Are We Measuring? Justification for an assessment. The value that has been added by the KM. Most KM initiatives must provide some evidence of at least contributing toward organizational goals. Better and quicker knowledge sharing has reduced the number of errors, has speeded up problem solving, or has complemented formal training to improve upon employees' skills. KM assessment should focus on meaningful measures that relate directly to specific targets and objectives. The level of granularity should be detailed enough that the results provide a means of acting upon them. For example, benefits of making a CoP.

For Whom Are We Measuring? We need to be aware of who is concerned by the success or failure of the KM initiatives and what their expectations are. Three main categories of stakeholders are program funders, managers, and employees/participants.

When Are We Measuring? Organizational context is important—is the organization in a stable state? If yes, then the assessment can be conducted. If there is instability, then you should wait to do the assessment. Points of assessment for stable organizations are preplanning, start-up, pilot project, and growth and expansion.

How Are We Measuring? Anecdotal measures—one-off stories or anecdotes garnered from employees. Quantitative measures—statistical analyses of large data sets such as a survey questionnaire of 200 people. Qualitative measures—more in-depth interpretative approaches, such as interviewing 10 people several times to gather narrative data that is then thematically organized.

Topic129. KM Return on Investment and Metrics

Skandia Intellectual Capital Model. Financial focus, represented in monetary terms. Customer focus, a measure of the value of customer capital. Process focus, addressing the effective use of technology within the organization. Renewal and development focus, which attempts to capture the innovative capabilities of the organization.

KM Measurement Process. Define the business objective(s) addressed by the KM initiative or project. Define the stakeholders and determine what they need to know. Determine which measurement frameworks are best to align KM measures with the business objectives. Modify the framework based on what you need to measure. Decide on a data collection and analysis strategy. Get management to approve your measurement strategy. Implement measures and present the results in a form that is most appropriate for each stakeholder

Topic 130: Benchmarking Method

Search for industry-wide best practices that lead to superior performance. It usually consists of a study of similar companies to see how things are done best in order to adapt these methods for their own use. A Hindu proverb: "know the best to become the best." A form of competitive intelligence.

General Types of Benchmarking: Internal benchmarking, which involves comparisons against other units within the same organization or a comparison of a single unit over different time periods. External benchmarking, which involves a comparison with other companies.

Four Types of Benchmarking:

Industry group measurements.

Best practice studies.

Cooperative benchmarking.

Competitive benchmarking.

Industry Group Measurements: The measurement of various facets of your operation and comparing these to similar measurements. Often the measures have little to do with productivity, customer satisfaction, or best practice.

Best Practice Studies: The studies and lists of what works best. These are useful to benchmarking research, but they are not useful as metrics. What works best for an entity in its specific environment may not work the same way in another environment. These studies can be useful stimulators, but they are not benchmarks per se.

Cooperative Benchmarking: The measurement of key production functions of inputs, outputs, and outcomes with the aim of improving them. Cooperative Benchmarking is done with the assistance of the entity being studied (the benchmark

partner). The entity chosen as a benchmark is one that has best practices in the area of interest or has won a major national or international quality award.

Competitive Benchmarking: The study and measurement of a competitor without their cooperation for the purposes of process or product quality improvement. The latter is called reverse engineering. A version of competitive benchmarking is a commission granted a third party to study a group of competitors and share the results with all.

Topic 131:

Benefits of Benchmarking. Overall productivity of knowledge investments. Service quality. Customer satisfaction and the operational level of customer service. Time to market in relation to other competitors. Costs, profits, and margins. Distribution. Relationships and relationship management.

Process of Benchmarking. Determine what to benchmark: which knowledge processes, products, services? Why? With what scope? Form a benchmarking team. Select benchmarking short list—which companies will you be benchmarking against? Collect and analyze data. Determine what changes should be made as a result of the metrics obtained. Repeat when an appropriate amount of time has lapsed to measure progress.

Topic 132 Balanced Scorecard Method

Balanced Scorecard (BSC). A measurement system that enables organizations to clarify their vision and strategy and translate them into action. Provides feedback around both the internal business processes and external outcomes in order to continuously improve strategic performance and results. The BSC is a conceptual framework for translating an organization's vision into performance indicators.

Balance Between?

Long-term and short-term objectives.

Financial and nonfinancial measures.

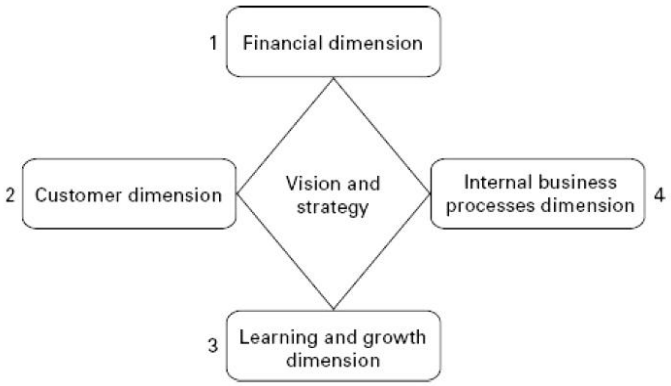
Internal and external perspectives.

Lagging and leading indicators

.Objective and subjective measures.

Performance results and drivers of future results.

High-Level Balanced Scorecard



Four Dimensions of BSC:

Financial dimension—operating income, return on capital employed, and economic value added.

Customer dimensions—customer satisfaction, retention, and market share in targeted segments.

Internal business process dimension— cost, throughput, and quality.

Learning and growth dimension— employee satisfaction, retention, and skill sets.

Topic 133: Implementation of Balanced Scorecard Metric

Steps in Applying BSC Metric. Translate the KM vision and strategy into measurable goals. Validate these through the establishment of a consensus on the concrete, short-term, specific goals. Communicate and link: measure as you go through the objectives and look at how well the reward system is linked to these objectives: are employees trained, motivated, and rewarded to use KM as part of their everyday work? Do a reality check—be sure that you are being detailed enough that you can measure something to assess how well these objectives are being met. Incorporate learning and feedback into your metrics—do a formative and a summative evaluation.

Components of Each BSC Dimension. Objectives—major goals to be achieved (e.g., profitable growth). Metrics—parameters that will be monitored in order to measure progress toward these stated goals (e.g., growth in net margin). Targets—specific thresholds to be met for each metric (e.g., 2 percent or greater growth in net margin). Initiatives—actions, projects, programs, and so on, to be put into place in order to be able to meet the stated goals.

Topic 134 House of Quality Method

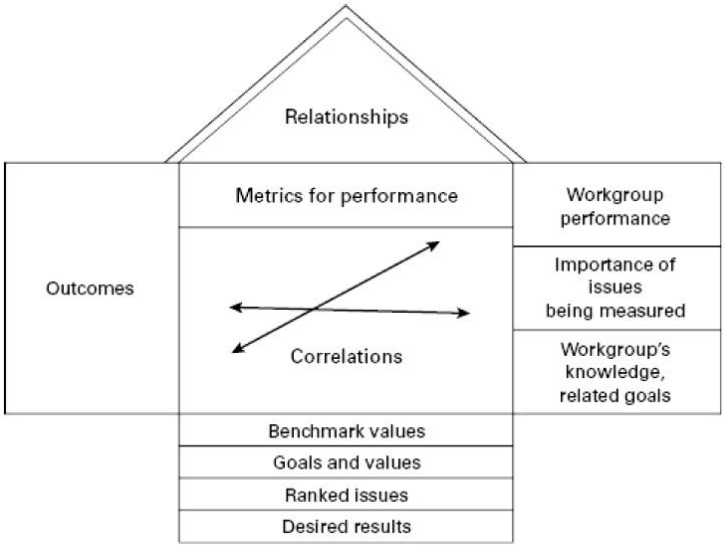
It was developed to show the connections between true quality, quality characteristics, and process characteristics.

This was done using the Fishbone Diagram, with true quality in the heads and quality and process characteristics in the bones.

Hauser and Clausing developed an evaluation matrix metric that measures how customer needs are linked to business processes and internal decisions of an organization.

This technique is also referred to as quality function deployment (QFD) as it links the needs of the customer with marketing, design, development, engineering, manufacturing, and service functions.

High-Level House of Quality Matrix



Key Elements of House of Quality: Desired outcomes. Priorities attached to these outcomes. Appropriate metrics for each outcome.

Focuses of House of Quality:

Maximizing customer satisfaction as measured by metrics, such as repeat business and market share.

Delivering value by seeking out both spoken and unspoken needs, translating these into design targets, and communicating this throughout the organization.

Customers can prioritize their requirements, tell us how we are doing compared to our competitors, and then direct us to optimize those features that will bring the greatest competitive advantage. Assessing Desired Outcomes:

The desired outcomes need to be specific enough—concrete, detailed, and therefore measurable.

For example, a desired outcome of "better collaboration" is difficult to assess.

A better desired outcome would be to "improve knowledge sharing to a level where at least 20 percent of an employee's work is based on existing knowledge provided by peers in the next three years."

Examples of Desired Outcomes: Increase the number of communities of practice by three. Decrease the number of customer complaints by 50 percent. Decrease the number of unsolved problems by 60 percent. Decrease the time to market for newly developed products and services by 40 percent.

Topic 135:Popular House of Quality Metrics.

The expense of reinventing solutions per year (or rework). The information/knowledge seeking time spent on average per employee. The number of ideas that were implemented from the suggestion box per year. Time spent on systematic capture and codification of know-how for future use when a project is completed (e.g., post mortems and AARs—After action reviews). The percentage of employees who are aware of what KM exists within their organization (e.g., a lessons learned database).

House of Quality Indicators.

Competence development expenses ($ per employee). Employee satisfaction. Time spent on systematic packaging of know-how for future reuse when a project has been completed. Training expenses per employee. Information gathering expenses per existing customer.

Total number of patents held. Employee attrition rate. Dollar figure value of loss per employee who leaves (and who leaves for a competing firm). Expense of reinventing solutions per year. Number of ideas implemented compared to those suggested (e.g., suggestion box).

Topic136. Results-Based Assessment Framework (RMAF)

It has become a framework for widely used general performance assessment. The terms "results map" or "results chain" are often used as shorter synonyms. There is a fairly easy adaptation that can be made to apply this metric to knowledge management. The advantage in doing so lies with the emphasis RMAF places on realistic results, monitoring of expected results, reporting, and describing measurable changes. In

addition, explicit linkages are used to show how each activity contributes to each expected outcome.

Attributes of a Results Chain. Results chain: Explores how resources and activities connect with changes (flow type). Activities: Actions to be undertaken within the scope of the project. Immediate outcomes (outputs): Short-term effects of the completed activity. Intermediate outcomes: Medium-term results, one step removed from activity. Final outcomes (impact): Long-term big-picture results, contribution toward ultimate goal (may not be visible during project). Indicators: Evidence of progress, metrics. Results: Aggregate at each level.

Topic137. Measuring the Success of Knowledge Network

Types of Value Created by CoPs. Structural value: The creation of connections in a network; the amount of time spent in interacting with others; the flow of knowledge among network members (typically measured using social network analysis [SNA] techniques). Relational value: The maintenance of connections; their longevity; the degree of reciprocity in network interactions (typically assessed through surveys and anecdotes). Cognitive value: The commonality or cohesiveness of the network (which can be assessed through SNA and interviewing techniques).

Sample Questions for Stories. What would have not happened without this CoP in place? Did you save time because you had access to the community resources, including other people? Did you find the answer to a question more quickly or did you solve a problem more rapidly? Has your decision-making confidence increased since you have become a member of this CoP?

Social Network Analysis (SNA). SNA maps out the patterns of network interactions (who interacts with whom? what knowledge products are exchanged? what is the frequency of interactions? are there interactions you would have expected to be present?). SNA also establishes a baseline measure for a given CoP and be used to track changes over time as well as to identify "hidden experts." Hidden Experts in an SNA Map: Hidden experts are visible in an SN map as they appear as a node at the center of dense connections—a traffic cop, who is instrumental in maintaining knowledge circulation in the community. These nodes tend to be the "go to" people in an organization—people who can quickly connect you to other people or to valuable content because they just know who knows what and where the useful knowledge resides.

Time-Use Studies. Time-use studies measure productivity and time saved by CoP members. A time-use study is done with a self-report survey instrument that asks people to report on the time they spend solving problems, making decisions, searching for information, processing information, coordinating, and interacting with others. Participants are asked to keep this tabular checklist on their desks and to jot down their answers every day for a period of time (a week minimum to a month maximum). Time use should be measured either before and after a community of practice has been implemented or, at regular intervals to track changes over time.

Ways to Evaluate a CoP. Health. Outcomes. Impact. Health: Number of participants, the frequency and quality of knowledge sharing between them, and the level of community activity in general. For example, the number of community meetings held would be one indicator of the health or activity level of the community. Outcomes: Outcomes measure the individual and group benefits derived from CoP membership, such as personal knowledge and learning, strength of relationships, and access to information of the other members. Impact: Impact measures the return on investment (ROI); the return on time (ROT) spent on community activities (or time saved by being a community member), increased innovation, and increased organizational capability. Impact is often not measured directly or mathematically although some formulae do exist to "operationalize" this metric.

Topic138. Benefits of a Community of Practice

Benefits to an Individual. Skills and know-how increased. Increased personal productivity. Increased job satisfaction. Enhanced personal reputation. Increased sense of belonging.

Benefits to a Group. Increased availability and access to knowledge, expertise, and resources. Easier to reach a consensus. Faster problem solving. Enhanced community reputation and legitimacy. Increased trust between members.

Benefits to an Organization. Improved operational efficiency. Increased cost savings. Increased avoidance of problems. Improved quality of service. Increased speed of service. Increased employee retention/ decreased turnover.

Topic139. Organizational Learning and Organizational Memory

Businesses continue to downsize. To outsource. To draw from a pool of increasingly mobile knowledge workers. The term of "corporate amnesia." Organizations need to capture this know how and transfer it to a stable, easily accessible, cumulative knowledge base—an organizational memory—to retain and make accessible valuable knowledge gained through the experiences of all knowledge in a continuous and uninterrupted manner. A proactive approach is needed for organizations to effectively manage their organizational memory in order to prevent the loss of essential knowledge, particularly knowledge that resides in the heads of their knowledge workers and less in documents, procedures, and other tangible forms. Example of NASA: NASA has publicly admitted that the knowledge of how to put a man on the moon has been lost. The lessons that were learned and the innovations that were sparked cannot be found in the collective organizational memory of NASA. This means that NASA's organizational memory cannot be used as a resource to plan a more effective mission to send another manned flight to the moon or to Mars.

Topic140. How Do Organizations Learn and Remember

Learning what worked and what did not work from the past and effectively transferring this experientially learned knowledge to present-day and future knowledge workers. Organizational Learning: A process through which an organization is said to improve over time—by making innovations available for reuse and by taking steps to ensure that mistakes do not occur again or that someone else begins from scratch, not realizing they are redoing work that has already been done. Technological Container: A documentation process of what has worked and what has not. Examples: SharePoint, a knowledge repository. Allows us to plug in to the collective experience of the organization, and the ability to obtain help in reusing or putting this collective knowledge to work—so each can better perform their job. Organizational Memory (OM): A centralized technological system (often an intranet) where we can find all the by-products of organizational learning: primarily the best practices and the lessons learned. An OM is largely made up of the accumulated and aggregated experience of all the knowledge workers of that organization.

Argote Model of Organizational Learning. Acquired knowledge must be preserved in a repository so that this knowledge can be "remembered"— found,

accessed, retrieved, and reused in the future. OL consists of changes in organizational knowledge due to experience. Experience and organizational context interact. A cycle through which task performance experience is transformed into learning. Knowledge flows both into and out of the organization, which changes context and affects future learning. As organizational tasks are completed, experience is accumulated. Tasks do not necessarily need to be successfully completed. In fact, it could be argued that more learning stems from unsuccessful attempts. Organizational learning takes place with a context defined as the organization and its environment (e.g., competitors, governments, educational institutions). Organizational context consists of culture, technology, governance, goals, incentives and disincentives, and strategy, as well as relationships with other organizations. Organizational learning occurs when people, tasks, and tools to perform these tasks interact with one another. Individual employees store knowledge but they also interact with other employees to transfer knowledge across the organization. Knowledge may also be embedded in specific products and services which can flow out to the environment. Knowledge is also embedded in the culture of the organization.

Topic141. Learning Organization

A type of organization, that has successfully implemented the processes of organizational learning. The underlying assumption is that organizations capable of learning will be more efficient, more effective, more competitive and more viable than those that cannot. Key Attributes of a Learning Organization: Mental models. Shared vision. Personal mastery. Team learning. Systems thinking. Learning Organization.

Mental Models: The coherent set of understandings or models that allow individuals to make sense of their world and to make decisions accordingly. A mental model can consist of experiential learning, perceptions, values, beliefs—all assembled in a personalized manner by each individual. Shared Vision: Rendering parts of the individual mental models visible so that they can be shared with others in the organization, understood by others, and perhaps even appropriated by others. The process of sharing leads to a modification of existing models so that the individuals involved can come closer together with respect to a shared mental model of their organization.

Personal Mastery: A set of values and attitudes such that individuals are committed to lifelong learning—which in turn enables the organization to engage in lifelong learning. The assumption behind this competency is that the individuals' mental

models are not so rigid as to prevent any new knowledge (i.e., learning) to be incorporated or added (which may trigger a change or updating of the original mental model).

Team Learning: The organizational values and attitudes that actively foster individual learning such as investment in training. An organization that supports individual learning is much more likely to be capable of organizational learning.

Systems Thinking: The perception or definition of an organization as a gestalt, an integral entity that cannot be reduced to a series of components. The organization must be seen, studied, and treated as a whole, where all the parts are seamlessly connected to one another. Organization as an intact system made up of processes, people, culture, technology, and so forth.

Topic142. Management of Organizational Memory

Knowledge is the key asset of the knowledge organization. Organizational memory extends and amplifies this asset by capturing, organizing, disseminating, and reusing the knowledge created by its employees.

Reasons to Create an Organizational Memory. Organizations routinely forget what they have done in the past and why they have done it. These organizations have an impaired capacity to learn, due to an inability to represent critical aspects of what they know. The term "organizational incompetence" is an antonym of "organizational intelligence." Organizational memory is not just a facility for accumulating and preserving but also for sharing knowledge. As knowledge is made explicit and managed, it augments the organizational intellect, becoming a basis for communication and learning.

Organizational memory contributes to the overall governance and compliance with regulatory guidelines. An organizational memory can also help increase the transparency of the organization as well as how knowledge workers perceive this transparency. Once valuable knowledge content has been entered into organizational memory, it can be shared among individuals working alone, by teams needing a project memory, and by the organization as a whole for "between-team" coordination and communication.

Preservation of Context. The usual approach to organizational memory—preserving documents—fails to preserve the context that gives the documents meaning,

the very thing that allows them to be useful in the future, when the context has changed. Saving project memory is the solution — facts, assumptions, constraints, decisions and their rationale, the meanings of key terms, and formal documents.

Problem of Informal Knowledge. Informal knowledge tends to lose its relevance, and thus its value, over time. Informal knowledge, being more contextual, is even more dynamic in this way. An organizational memory system should, like human memory, have the capacity to recall whatever is relevant and salient to the moment.

Size of Organizational Memory. Ever-increasing volumes of corporate knowledge accessible online. More difficulty to pinpoint those particular items that are relevant to users.

Topic143. Barriers to an Organizational Memory System

Cultural Barriers. A cultural emphasis on artifacts and results to the exclusion of process. Resistance to knowledge capture because of the effort required, the fear of litigation, and the fear of loss of job security. Resistance to knowledge reuse because of the effort required, and the low likelihood of finding relevant knowledge.

Technical Barriers. How to make the knowledge capture process easy or even transparent. How to make retrieval and reuse easy or even transparent. How to ensure relevance and intelligibility (i.e., through sufficient context) of retrieved knowledge.

Topic144. Organizational Learning

The key processes required to both populate an organizational memory and to retrieve valuable knowledge for reuse from the same memory consist of the same steps as in the KM processes. The knowledge content to be processed, however, is defined much more narrowly as the key successes and key failures that have a sufficient degree of generalization. If a particular innovation or failure is too specific, then this content will typically reside in the group memory— either a project database or a community of practice archive. Aggregated results from a diverse set of projects, on the other hand, can be analyzed thematically to identify recurring themes. An organizational lesson learned or best practice is one that has broader applicability—it is not limited to a particular context or particular event and offers reuse potential to an organization-wide audience.

Lessons Learned. Knowledge or understanding gained by experience. The experience may be positive, as in a successful test or mission, or negative, as in a mishap or failure. The Project Management Institute (PMI) Project Management Body of Knowledge (PMBOK) defines lessons learned as the learning gained from the process of performing the project. The Society for Effective Lessons Learned Sharing (SELLS) defined lessons learned as "the knowledge acquired from an innovation or an adverse experience that causes a worker or an organization to improve a process or activity to work safer, more efficiently, or with higher quality."

Key Attributes of Lessons Learned: They can be learned from both successful and unsuccessful events. They can be at the operational, tactical, and/or strategic levels. They need to be validated in some way. They need to be applied by people other than those involved in the original event. They must be significant enough to pass a cost–benefit analysis (in other words, the effort required to document them must be warranted as they will have a large enough impact on the organization).

Two Types of Learning:

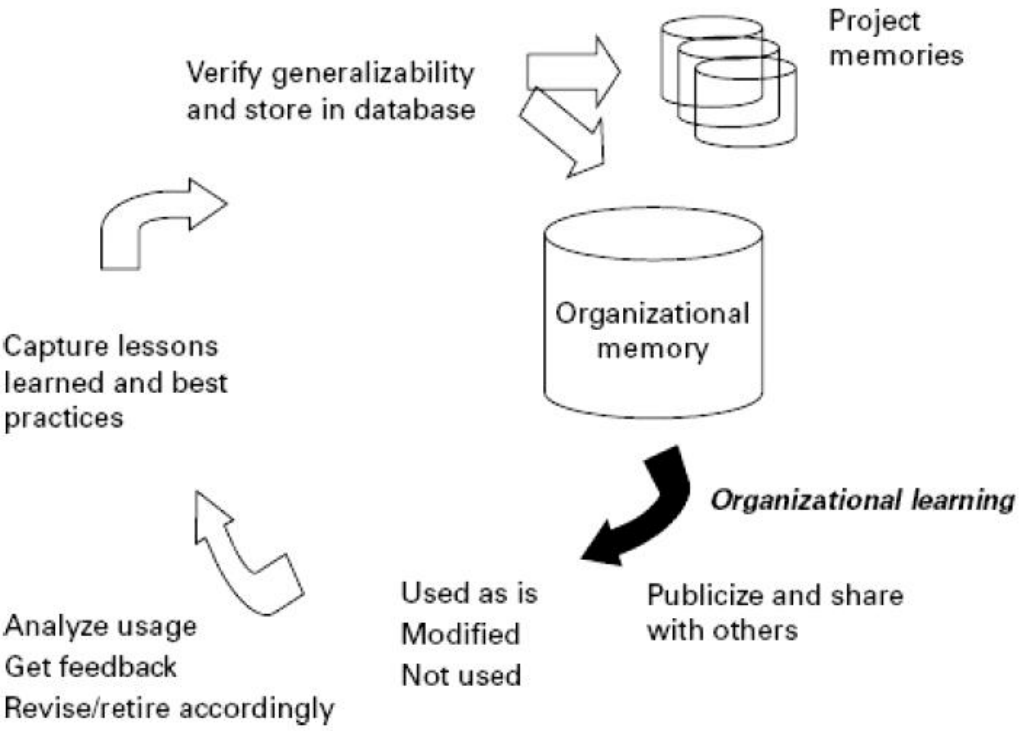
- Top-down learning is a strategic learning method whereby management, at any given level, decides that a certain piece of knowledge is vital to the organization and must be learned by its employees.
- Bottom-up learning happens in the actual "doing" of tasks; it is experiential learning and results from both positive and negative events

Topic 145

Lessons Learned Process by USGAO

USGAO Study. United States General Accounting Office. (2002). NASA: *Better mechanisms needed for sharing lessons learned.*

Lessons Learned Process



Collection: Capture of lessons through structured or unstructured processes, such as after-action or project reviews, meetings, training evaluations, etc. Capture may be done at all levels: individual, community, and organization. Verification: Lessons are verified before dissemination to ensure that they are valid and applicable. This process may involve subject-matter experts or additional research, and the lessons are typically verified to ensure that they meet or exceed a set of defined criteria outlined in established standards. Storage: Once approved, lessons are stored in an accessible database in a format that allows for easy search and retrieval of information. Some storage issues include categorization, indexing, formatting, and structure.

Dissemination: Active dissemination of lessons is essential for getting value out of a lessons learned program. Lessons are of little benefit unless they are accessed and reused. Dissemination can be active (lessons are pushed to potential users) or passive (users access a repository to retrieve lessons).

Topic 146

Lessons Learned Process by Milton. Reflect on the experience and discuss what happened as a team. Identify key learning themes (positive and negative). Analyze and try to ascertain root causes for any divergence in the actual event compared to what was originally planned. Generalize from this analysis (can it apply to other situations in the organization? Can the learning theme be abstracted a bit more?). Apply the lesson learned (change a procedure, a guideline, a decision).

Lessons Learned Process PMBOK. Identify lesson learned. At project's end, conduct lesson learned session. Document lesson learned and corrective action taken in central project repository. Disseminate lesson learned to other projects if appropriate. Incorporate project lessons learned into organization lessons learned. Archive project lessons learned along with historical project data.

US Army Lessons Learned Process. Collection. Repository. Transfer process. Implementation. Analysis and data mining.

Lessons Learned Process by King. Explain. Document. Cull. Clean. Index. Standardize. Organize. Distill. Integrate. Revise. Evaluate for appropriateness. Prune. Select for inclusion in memory.

Topic147. Managing Lessons Learned

Approaches to Complete Lessons Learned Process. After action reviews. Project postmortems. Reporting systems. After Action Reviews (AAR): It was the original means of identifying lessons learned in the US Army. AARs continue to be standard operating procedures and are typically initiated immediately after (or as soon as possible after) an important activity or mission. Project Postmortems (PPM): It has become a best practice in project management and an analysis of each project upon completion is now a required component of the Project Management Body of Knowledge (PMBOK). In a PPM an analysis is carried out whenever a project is completed. In some organizations, a group of projects is also analyzed to identify any common themes. Reporting Systems: Reporting systems are situated at the operational level and require participants to complete analytical reports after each activity they participated in. There is a field in this report that asks about anything having gone wrong, or almost having gone wrong, and asks the person to think about why what happened transpired the way it did.

Basic Questions for Lessons Learned. What was planned? What actually occurred? In cases where the two differed, did we do better or worse than expected? What are some possible reasons why? What would we do differently based on this experience? What should we keep doing? What should we avoid repeating in the future?

PMBOK Questions to Document a Project Lessons Learned. What was learned about the project in general? What was learned about project management? What was learned about communication? What was learned about budgeting? What was

learned about procurement? What was learned about working with sponsors? What was learned about working with customers? What was learned about what went well? What was learned about what did not go well? What was learned about what needs to change? How will/was this incorporated into the project?

Topic148. Lessons Learned Systems

A central repository where tacit experiences can be documented as lessons learned and be made available to all employees in a more deliberate and systematic manner. The goal of these systems is to preserve valuable knowledge that may be otherwise lost so that employees who encounter similar challenges will not have to start again from scratch. Technology for LLS: The basic technology is a database. Lessons learned, corporate memories, stories, best practices—these all are stored in some form of database. There is one entry (e.g., one lesson) per database entry in order to make it more easily searched. A study found that most systems were built as standalone databases and most used basic hierarchical taxonomies with keyword search functionalities. Few made use of push technologies, remaining passive repositories that depend on people to think of using them. Metadata for Lessons Learned: In general, the metadata (the description of the content) was not rich enough to permit easy finding, retrieving, and reusing of lessons. The more descriptive and extensive the metadata, the more likely someone will find what they are looking for. For example, a lesson may be tagged with information about the type of problem, the root cause, the type of business unit involved, the time period covered, the type of media (e.g., a video or text), and so on. Each one of these tags can then be used to search for lessons.

Topic149. Benefits of Lessons Learned

Benefit of Reflective Thinking. Most organizations are too busy doing to think about what they are doing. Reflective observation is an excellent practice to be able to evaluate the efficiency (how well are we doing this?) and effectiveness (should we be doing this or something else?) of all organizational activities, whether they be routine operational tasks or a five-year strategic planning exercise. Example of Hewlett-Packard: HP has always been conducting a more systematic lessons learned process. They gather root causes for project problems and then identify how they can avoid them in future

projects. Lessons learned are part of their company-wide project management process. They have also dedicated resources including meeting facilitators.

Benefits of LL by Williams. Project managers learn how to manage experientially as they learn to reflect on their projects and consult other projects' lessons learned that are relevant. Lessons learned can contribute to the feasibility and risk assessment of other projects and help managers plan them better. The project management process is improved. Management decision making is improved. Lessons learned can be used for benchmarking. Lessons learned can lead to innovations such as new products and services. The organization's strategic focus may be adjusted.

Topic150. Challenges to Lessons Learned

Capturing LL Is Difficult. Lack of culture of publicly admitting errors. Employees are fearful to share their mistakes. Capturing must be in a comfortable environment. Neutral facilitator with no hidden agenda. Prepare everyone for the session.

Non-Use of LL. A failure to institutionalize this valuable content and often organization lack the time or even the know-how to fully integrate lessons learned. For example, training materials and sessions may incorporate real-life lessons learned. Specific policies and procedures will need to modify.

Out of Date Content. Capturing lessons learned is a continuous process. Lessons learned database should be updated regularly.

Categories of Obstacles to LL. Psychological barriers. Team-based shortcomings. Epistemological constraints. Managerial problems. Psychological Barriers: Reluctance to look back into what happened in the past. Employees may not be motivated to talk about a project failure, especially if they were at all involved in the reason it failed. We tend not to remember everything and we tend to prefer remembering positive events rather than negative ones. Team-Based Shortcomings: How well the team worked together. Team members may not have necessarily gotten along well, they may have had incompatible working styles, communication may have been poor or roles not clearly defined. Teams were assigned so people could not choose who they wanted to work with. Lack of trust due to lack of familiarity with others' areas of expertise. Epistemological Constraints: Cognitive challenges such as difficulty in trying to abstract or generalize from a specific incident to a broader scope lesson to be learned. People often get lost in the technical details of what happened and have difficulty seeing how

anything from one project could possibly apply to another. The root causes may be very tacit and difficult to articulate. Managerial Problems: Lack of time to reflect. Lack of lessons learned guidelines. Failure to comply with guidelines. Lack of managerial support. Managers need to be good role models and participate in the process themselves. Managers need to make the time and space available.

Another List of Obstacles. Time pressure to complete the project and go on to new assignments. Unwillingness to learn from the mistakes of others. People may be overly modest and not talk about what they did well and/or fear reprisals when talking about what they did not do well. The process is not done well—the time needed is underestimated, there is little or no facilitation, and the session becomes unraveled and focused on assigning blame. Employees find it difficult to contribute lessons to the system due to unclear instructions. There is no censure if they don't contribute (no reward if they do).

Topic151. Recommendations for Lessons Learned

USGAO Survey of NASA. United States General Accounting Office surveyed managers at NASA regarding their use of the Lessons Learned Information System (LLIS). Managers shared the barriers in their use of LLIS. GAO report recommended measures to strengthen the use of LLIS.

Recommendations. Articulating the relationship between lessons learned and knowledge management through an implementation plan for knowledge management. Designating a lessons learned manager to lead and coordinate all agency lessons learning efforts. Establishing functional and technical linkages among the various center-level and program-level lessons learning systems. Developing ways to broaden and implement mentoring and storytelling as additional mechanisms for lessons learning. Identifying incentives to encourage more collection and sharing of lessons among employees and teams, such as links to performance evaluations and awards. Enhancing LLIS by coding information and developing an easier search capability to allow users to identify relevant lessons, including more positive lessons, providing a means to disseminate key lessons to users; and soliciting user input on an ongoing basis. Tracking and reporting on the effectiveness of the agency's lessons learning efforts using objective performance metrics.

Topic152. Organizational Learning and Organizational Memory Models

Stages in Knowledge Processing. Internalization, where knowledge is learned and understood by the knowledge sharers. Externalization, where knowledge is exchanged or reused and new knowledge can be derived from the shared knowledge. Objectification, where shared knowledge is accepted and institutionalized as organizational knowledge.

Valuable Knowledge Resources. Innovation (improved practice, policy). Post mortem to identify why a particular project failed (which is subsequently documented as a lesson learned). Library of reusable knowledge objects that others may easily incorporate into their work (such as a company profile, a tool to show which topics are most active in a discussion forum, or a starter kit to get you up and running on a new process or technique).

Knowledge Access. Ability to know about existing knowledge and to easily find it from collective organizational knowledge systems such as intranets (used to preserve and make available organizational knowledge to individuals).

Knowledge Use. Manner by which organizational members (e.g., policymakers, practitioners, and researchers) use policy, evidence, and experience as knowledge. Sub-concepts of Knowledge Use: Distribution of knowledge through different modalities such as newsletters, bulletins, policy briefs, and web-based resources to targeted audiences. Sharing of knowledge through interpersonal communications and dialogues via emails and discussion forums. Application of knowledge as new policies, guidelines, or practice routines.

Types of Knowledge Resource Reuse. Reuse of knowledge for routine tasks (e.g., use of templates, boilerplates, and existing solutions). Reuse that stimulates knowledge synthesis and innovation (e.g., searching a database to find new ideas to add to existing knowledge.

Wilson's Model. Information user experiences an information need, which may encompass cognitive and emotional needs, and will place demands on information systems and information sources. If the need is successfully fulfilled, information will be used to some extent and ultimately information transfer and/or information exchange will take place

Choo's Theory on Organizational Knowing. Organizational knowing is: Mediated (with rules, roles, and technology); Situated (located in time and space); Provisional (often tentative); Pragmatic (oriented toward goals); and Contested (sometimes affected by conflicts).

Crossan's 4I Framework of Organizational Learning. Four key processes: Intuiting. Interpreting. Integrating. Institutionalizing.

Topic153. Assessment Frameworks

A variety of frameworks can be used to assess organizational learning. These organizational learning frameworks serve to evaluate the organizational readiness or baseline state of a given organization with respect to organizational learning processes, organizational memory containers, and enablers of these, such as technology and culture.

Probst and Buchel's Framework. Knowledge—the number of organizational learning instruments. a. Number of techniques for facilitating learning, b. Number of techniques for breaking down barriers, c. Process-oriented use of techniques. Ability—the learning level. a. Ability to cooperate and participate, b. Ability to communicate and achieve transparency, c. Ability to analyze problems and solve complex issues, d. Ability to store knowledge. Intention—the willingness to learn. a. Creates a structure which imparts meaning, b. Builds on an ethical basis, c. Wants to create a shared value system.

Marquardt's Framework. Speed of learning: how quickly the organization is able to complete each learning cycle (planning, implementing, and reflecting). Depth of learning: degree of learning the organization achieves at the end of each cycle, which it achieves by questioning assumptions and improving its capacity to learn in the future. Breadth of learning: how extensively the organization is able to transfer the new insights and knowledge derived from the iteration of the learning cycle to other issues and parts of the organization.

Lessons Learned Maturity Model. Five levels: Initial, Repeatable, Defined, Managed, Optimized. Initial: Lesson learned are done in an ad hoc manner and their quality depends mostly on the skills and motivation of the individuals who conduct them. The process tends to be a reactive one, triggered when a major problem occurs rather than in a proactive or planned manner. Repeatable: Lessons learned process is more standardized and there are policies and procedures in place for conducting them. At this point, team or group learning begins to take place. Defined: Lessons learned process is

well documented, standardized, and fully integrated in project management practice. Training, maintenance, and supervision responsibilities are identified and assigned. At this level, we begin to see the benefits of lessons learned as they begin to contribute to organization improvement. Managed: The first level at which both a lessons learned process (including policies, procedures, and compliance) and a lessons learned system are implemented (i.e., a repository of lessons learned available to everyone in the organization). Lessons learned are company-wide and there has been a cultural change. Optimized: Lessons learned are organization-wide and they are conducted in a proactive and consistent manner. The organization has embraced a learning culture and there is plenty of time allocated for reflective activities. It is possible now to clearly trace the impact of lessons learned on quantitative and qualitative organizational improvements.

Topic154. Best Practices of Learning Organizations

Self Mastery. Positive reinforcement from role models/managers. Sharing experiences. More interaction time between supervisory levels. Emphasis on feedback. Balanced work/nonwork life.

Mental Models. Time for learning. Reflective openness. Habit of inquiry. Forgiveness of oneself. Flexibility/adaptability.

Shared Vision. Participative openness. Trust. Empathy toward others. Habit of dissemination. Emphasis on cooperation. A common language.

Team Learning. Participative openness. Consensus building. Top-down and bottom-up communication flows. Support over blame. Creative thinking.

Systems Thinking. Practicing self mastery. Possessing consistent mental models. Possessing a shared vision. Emphasis on team learning.

Topic155. Knowledge Continuity Management

A specific application of knowledge management with the goal of identifying valuable knowledge that is vulnerable and at risk of being lost due to the departure of one or more employees. Two Assets of Successful Organizations: People who work for them. Knowledge they possess. Human Capital: “Yet these valuable assets are not at all

like physical inventory—they leave every night and they are free to leave the organization when they wish."

Issues of Knowledge Loss. The retirement of a record 77 million baby boomers has the potential to result in huge losses of critical tacit knowledge, including organizational and technical knowledge related to key processes and competencies. The problems are not limited to retirement. Churn within organizations and new business models for offshoring work necessitate careful identification and transfer of knowledge. Organizations often have difficulty pinpointing when and where knowledge loss or knowledge needs may occur. Employees—especially new hires— are facing steeper, longer learning curves at the same time that employers are looking for faster revenue and higher productivity. Knowledge retention and transfer efforts are complicated by generational gaps that influence how people work and collaborate with one another. Knowledge loss and time-to-competency issues for new hires threaten to compromise organizations' growth strategies. Different Perspectives of Knowledge Loss: Human Resources (HR) tends to view knowledge loss as employee turnover, where the major types are resignations, retirements, and layoffs. Information Technology (IT) tends to view knowledge loss as system errors such as crashes and failure of backups. Organizational Learning (OL) views knowledge loss as ineffectiveness of organizational routines and organizational memory. KM views knowledge loss as not being able to share and preserve knowledge.

Knowledge Continuity Management. Specific transfer of critical knowledge from existing employees to those who will replace them. Two timelines for KCM: To ensure that present-day employees can continue to benefit from the knowledge of those leaving the organization. To ensure that existing employees can reuse this knowledge in the future and, in addition, newly hired employees will also be able to benefit from this cumulative knowledge base.

Topic156. Knowledge Continuity Management Process

KCM—A Top-Down Process. KCM begins with senior management deciding to implement a formal program. A clear communication plan to ensure that all employees are on the same page and understand what will be done, why, and how everyone will benefit. Management needs to ensure that adequate resources are assigned to KCM activities. A team is required. Management needs to make sure that time spent

on KCM activities is authorized and valued as "real work." In unionized environments, union representatives need to be involved in the dialogue to ensure workload and scheduling are done in an equitable manner. Management needs to ensure there is time and space to carry out KCM.

Three-Step KCM Process. Scoping—deciding what knowledge should be retained based on an analysis of the risk of knowledge loss. Documenting and transferring— determining how to transfer knowledge and prioritizing this. Integrating—specific details such as: will a document database be used? What taxonomy will be used to organize the knowledge? Scoping: Preparing a list of what knowledge is to be retained and what is not. Most managers will be able to readily identify who has what type of expertise. This identification may be more efficient than carrying out a full-blown knowledge audit, replete with questionnaires and interviews, to determine where critical knowledge is located.

Documenting and Transferring: Transferring knowledge from the retiring employee to other employees and to the organization. Documented knowledge needs to be stored in an easy to find, retrieve, and reuse manner. Undocumented (tacit) knowledge will need to be codified. Using standard templates to codify tacit knowledge. Integration: If knowledge is not successfully embedded into organizational processes, it will not be reused. Employees need to be made aware that this content is there, and that it is accessible and easy to use. Workshops, lectures, training sessions —all can be used to help embed the knowledge.

Topic157. Knowledge Continuity Management Cycle

Aggregated KCM Cycle. Identify knowledge at risk (e.g., possessed by very few employees, difficult to hire someone to do this, difficult or time-consuming to train someone to do this). Identify location or containers of this knowledge—what percentage is explicit and what percentage is tacit? Identify who the recipients of this knowledge will be (Are they known? If not, can we derive a general profile? What characteristics can we identify?). Select the best knowledge transfer mechanism or channel (e.g., high bandwidth channels such as video stories for tacit knowledge, procedural manual for some explicit knowledge). Design a knowledge transfer schedule. Develop metrics to assess how well knowledge was transferred. Brief participants (train team if needed). Conduct knowledge transfer. Validate knowledge elicited. Ensure recipients can apply knowledge (where

possible, as it will not always be feasible to have the successor meet with the person leaving the organization). Measure/assess effectiveness of knowledge transfer (e.g., increased project completion success, problems solved faster, fewer questions asked of experts, etc.). Preserve the elicited knowledge in organizational memory in such a way that it is easy to reuse in the future.

Topic158. Identifying Critical Knowledge

What is Critical Knowledge? Knowledge that is of strategic importance to the organization and it is at an elevated risk at being lost (usually because only one or a few individuals possess this knowledge). Types of Critical Knowledge: Subject matter expertise. Knowledge about business relationships and social networks. Organizational knowledge and institutional memory. Knowledge of business systems, processes, and value chains. Knowledge of governance. Knowledge Characteristics: How many people are able to apply this knowledge? How mission critical it is? How long it would take to train someone to do this?

Criteria to Assess Critical Knowledge. How specific is it to the organization? How localized is it? Sole source? How much has it already been documented? How complex is it? How often does the knowledge change? How hard is it to learn? How hard is it to hire such people? Is it possible to subcontract? What are the consequences of not being able to access and apply this knowledge?

Organizational Specificity. How specialized or contextual this expertise is? Can it be found throughout the industry or is it specific to this company? For example, legal expertise tends to be highly country-specific. The more specific the knowledge is, the harder it will be to replace, making the organization more vulnerable to permanent knowledge loss.

Localized Expertise. Number of people who can apply this type of expertise who work within the organization. The most extreme case of vulnerable knowledge is when there is a sole source of expertise (i.e., one person has the ability to apply this knowledge). The more people share the expertise, the less elevated the risk of the organization losing this knowledge

Identifying Critical Knowledge.

Documented Expertise. Ratio of tacit to explicit knowledge for each type of expertise. Manuals, job aids, FAQs, demos, how-to guides, or event training.

Procedural vs. Abstract Knowledge. Procedural knowledge makes up the expertise. Abstract knowledge—reasoning, judgment, analogical analysis, problem solving. The more procedural the know-how, the easier it is to document. The less procedural the expertise, the more vulnerable the organization is.

Complexity of Knowledge. Does it involve multiple interrelated steps? Does it require prerequisite knowledge? Does it depend on others to complete different steps in the process? The more complex the knowledge, the more it is at risk of being lost.

Useful Lifespan of Knowledge. How stable or enduring is the type of expertise? How dynamic or changeable is the demand for this know-how? Has it changed much in the past five years? Past decade? Past decades? The shorter the useful lifespan of knowledge, the more likely it is to be lost.

Consequences of Knowledge Loss. What are the consequences of not doing these tasks well? Is the knowledge mission-critical? Life-threatening? What if the tasks are done but not done well—suboptimal performance? What is the potential impact on reputation.

Topic159. Selecting the KCM Strategy

Once the critical knowledge has been identified, the next decision is which knowledge transfer and retention strategy should be used. The major consideration should be whether the knowledge is tacit or explicit and the amount of time you have to conduct the KCM activities.

Approaches for Tacit Knowledge Transfer. After action review, project post mortem, lessons learned workshops. Co-design, co-development groups. Communities of practice, knowledge networks. Exit interviews. Formal classroom training with experienced employee as trainer (critical incidents, case studies). Group problem solving (complex problems/cases. Job rotation. Legacy circles. Knowledge books. Knowledge mapping or knowledge codification. Mentoring, peer mentoring, coaching, job shadowing. Peer assists. Portal or organizational memory. Social network analysis. Special mandates (e.g., sent to work in other units, other teams). Storytelling, learning histories. Simulation. Structured expert–novice interviews. Targeted secondment. Yellow pages or expertise location system.

Techniques for Explicit Knowledge Transfer. Blogs. Classroom training. Competency profile. Documentation including AV documentation (e.g., podcasts). E-

learning. Employee orientation program, onboarding. Intranets and shared folders. Portals, knowledge repositories. Procedural manuals, checklists, job aids. Simulation. Tasks analysis and EPSS. Taxonomy building. Wikis. Yellow pages or Expertise Locator System.

Topic160. Handover Procedures

Handing over of relevant knowledge so that the new person can take up their new duties in an efficient and effective manner. The tool is often used is some form of checklist or structured notes. Handover procedures are particularly useful when employees frequently change jobs.

Outline of Handover Procedures. What strategically important processes are being dealt with at present? What time-sensitive processes will your successor need to address soon? What tips and advice can you offer about the most important aspects of your job? What are the major constraints you have to deal with and what can be done about them? What sources of information/reference are useful (people and content management systems)? Include useful contact information and point to specific resources you would recommend. Share your web browser bookmarks with them. How can you give your successor access to your informal knowledge network? (Note: during the knowledge elicitation phase, this often takes the form of a social network map). Can you introduce them or give them access? They should, whenever possible, be personally introduced to your most important contacts.

Topic161. Three-Tiered Approach to Knowledge Continuity

A KCM plan that addresses knowledge transfer at these three levels: individual, group, and organizational to ensure that tangible legacy materials are produced, shared, and fed into the corporate storehouse of intellectual capital in an ongoing and seamless manner. Three-Tiered Approach to Knowledge Continuity. KT at individual level: Individual structured interviews with experts. KT at group level: Facilitated workshops with community of practice members. KT at executive level: Storytelling workshops and individual interviews with key executives.

Types of Knowledge (Individual). Operational. Anecdotal. Lessons learned. Best practices. Where to find knowledge and experts. Tangible By-Products (Individual):

Map of key knowledge. Map of key contacts, memberships. Glossary of discipline. Interview templates. Interview transcripts. Key tasks and task support systems.

Types of Knowledge (Group). Tactical. Knowledge flow facilitators. Knowledge flow blocks. Identification of CoP. Tangible By-Products (Group): Workshop notes. Knowledge repository design and implementation. Map of social interactions within CoP and with external stakeholders.

Types of Knowledge (Executive). Strategic consensus regarding key intellectual assets. Criteria for evaluation of intellectual assets' business value. Tangible By-Products (Executive): Map of key intellectual assets of the organization. Organizational lexicon of key concepts. Springboard stories. Historical knowledge (organizational "saga").

Topic162. General Preferences of Four Generations

Generation. A cohort of people born during a specific period in time and sharing many traits so as to form a common identity. An identifiable group that shares birth years, age, location, and significant life events at critical developmental stages.

Four Generations. Matures (silent, traditionalist): 1925–1945. Baby boomers: 1945–1965. Generation X: 1966–1980. Millennials (Generation Y): 1981–.

Matures: Comfortable with hierarchy, direct authority, and rules; more individualistic. Most have already retired but some are still in the workforce. Matures tend to have extensive organizational memories and they therefore tend to make good mentors. They are usually good team members, are loyal, respect authority, and follow rules. They view their job as a duty and work well under directive supervision. Baby Boomers: Value working hard, being rewarded for seniority; less comfortable with new technologies (e.g., social media) and more resistant to change. These workers tend to see their work as a validation of their self-worth. They are also team oriented but at the same time they are sensitive to feedback and uncomfortable with conflict. They are optimistic and value personal growth opportunities. They may have difficulty with younger workers who are less strict about their work as their work ethics will differ (e.g., baby boomers value putting in more hours whereas younger generations value a good work/life balance). They also appear to acquire knowledge well through stories.

Generation X: Prefer more feedback on rewards on work done, need greater flexibility and autonomy in workplace. This group tends to be comfortable with

technology. They appear to change jobs much more frequently than the baby boomers did and value a good work-life balance. Millennials (Generation Y): Collective action and team oriented, take technologies such as social media for granted. They tend to question authority and prefer to make their own choices. They expect to be able to influence how they will do their job. They tend to prefer constant feedback and want maximum flexibility in their working conditions.

Topic163. Intergenerational Knowledge Transfer

Knowledge Sharing Between Generations. It is important to discern differences with respect to knowledge sharing preferences and levels of comfort with different techniques and technologies for doing so. The notion of a generational category or cohort can help with high-level decision making with respect to the best KCM approach to take.

From Baby Boomers to Generation X Workers. An author recommends the use of transparent leadership and technology infrastructures for optimal knowledge transfer from baby boomers to Generation X workers. However, more nuanced decisions need to be made to further adapt to individual differences, and differences due to organizational culture, location, national culture, status, age, and gender. An example would be the decision as to what type of management involvement and specific technological platforms to select to transfer knowledge from a specific individual or group of baby boomers to Generation X workers. e.g., a successful pairing of a manager to act as an active mentor and the use of YouTube videos.

Millennials. Millennials tend not to open any documents or attachments if they do not know in advance whether or not they will be useful. Always send a short summary of the contents to each important document that is part of the KCM knowledge transfer.

Topic164. Best Practices in Knowledge Continuity Management

APQC Best Practice Report. The American Productivity and Quality Center published, in 2013, a report on 'Transferring and applying critical knowledge.' It identified 19 best practices associated with identifying, capturing, transferring, and applying critical knowledge, categorized into six general themes. Themes of Best

Practices: Creating a strategy and process to protect critical knowledge. Identifying critical knowledge. Capturing and transferring critical knowledge. Managing access to critical knowledge. Managing change related to knowledge capture, transfer, and reuse. Ensuring critical knowledge is applied and used.

Creating Strategy and Process. Create a comprehensive knowledge capture and transfer strategy focused on business continuity. Let business leaders drive the strategy and process, with KM functioning as an enabler. Design the strategy and process with an understanding of the organizational culture and "appetite" in mind.

Identifying Critical Knowledge. Let business leaders and experts determine what knowledge is critical, but provide criteria to support their decision making. Leverage a combination of top-down and grassroots approaches to identify critical knowledge.

Capturing and Transferring. When deciding how to capture and transfer knowledge, consider the ratio of tacit to explicit knowledge, the intended audience, and the rate of change. Structure systematic knowledge elicitation as a time-bound event with clear goals, milestones, responsibilities, and outcomes. Provide multiple channels for informal knowledge capture, and make it easy. Develop a process to capture and transfer knowledge related to specific roles.

Managing Access. Make knowledge broadly accessible unless there is a specific reason to restrict it. Make access easy and part of employees' workflows. Offer self-service tools to navigate, filter, and customize the flow of knowledge—and provide a human support team as a last resort. Leverage communities to help socialize knowledge and connect people to the right content, information, and expertise.

Managing Change. Embed knowledge champions and change agents in the business. Make knowledge capture, transfer, and reuse measurable aspects of employee performance. Help employees understand the level at which they are participating and allow for friendly competition.

Ensuring Application and Use. Build elicited knowledge into documentation, training, and learning resources. Make stakeholders explicitly accountable for contributing and applying knowledge. Use measures and success stories to demonstrate the value of reuse.

Topic165. Success Factors for Knowledge Continuity Management

Strategies for Successful KCM. Building a knowledge sharing culture. Establishing mentoring programs. Initiating teamwork.

Knowledge Sharing Culture. Employees will be more likely to share knowledge willingly if they buy into the organization's mission and vision. If they see management is actively supporting KCM, they will feel they are contributing to something valuable and that their contributions are valued. The greater the level of trust, empathy, altruism, tolerance for errors, and collectivism, then the easier it will be to conduct KCM. It is important that everyone sees a personal, team, and organizational benefit to KCM. The more they clearly identify how they will benefit from the collective experience of their colleagues in the future, then the easier it will be to "sell" KCM.

Mentoring Programs. One of the most effective ways of transferring knowledge. Mentoring involves having the mentor and the protégé work together to develop the knowledge, skills, and abilities of the protégé. The mentor is a teacher, coach, and advisor who shares his or her experience, insights, and perspectives along with the more standard core knowledge. The major benefit of mentoring is that both explicit and the more elusive tacit knowledge can be transferred. Although effective, mentoring requires a great deal of time so it should not be left to the last minute (e.g., it should not start when an experienced employee has handed in their two weeks' notice). It is helpful to pair up newer employees as early as possible in their careers so that knowledge transfer can take the time it needs and occur over the course of their careers.

Teamwork. Teamwork ensures that valuable knowledge remains distributed throughout a knowledge network rather than concentrated in the heads of only a few or even just one employee. Wherever possible, these teams should be intergenerational in composition to seed KCM as early as possible and as broadly as possible throughout the organization. The more employees work together, the more likely they are to develop trust, share knowledge, make mistakes, learn from one another, improve their work practices, and even innovate.

KCM Measurement and Metrics. Accelerate the development of competency in new hires. The number of employees with this valuable knowledge has increased. Decision making is based on historical empirical evidence, which should result in fewer errors and faster decision making. KCM results in reusable documentation of the knowledge required in certain jobs or roles. Succession planning is more effective.

Topic166. Challenges for Knowledge Continuity Management

Level of difficulty, complexity, and time needed (could take up to two years to complete). Lack of sufficient absorptive capacity. Lack of trust, no preexisting relationship, lack of rapport, lack of motivation. Incompatible cultures, languages, work values, frames of reference. Not viewed as doing productive, valuable work. Little incentive, reward, or status boost. Knowledge to be transferred not valued or knowledge owner not perceived as credible or important. Difficulty tolerating mistakes, asking for help, admitting not knowing something. Inability to articulate knowledge to be transferred. Lack of methods, tools, and support to transfer the knowledge.

Topic167. TFPL Guide of KM Skills

Knowledge Management Team. Final component of an integrated KM cycle.

TFPL KM Skills and Competencies. TFPL is a recruitment, advisory, training, and research services company focusing on knowledge and information management. Since 1987, TFPL has worked with organizations to help them develop and implement knowledge and information strategies. TFPL has drafted a guide of KM skills and competencies.

KM Skills. Time management to use their time and energy effectively for acquiring knowledge. Use of different learning techniques to absorb key knowledge and learning quickly. Effective skills of advocacy and inquiry to present knowledge to, and gather knowledge from, others. Informal networking skills to build influence to gain access to people with knowledge. Resource investigation skills. Effective IT skills for recording and disseminating information. Skills of cooperative problem solving. Open dialogue skills. Flexibility and willingness to try new things and take educated risks. Active review of learning from mistakes, risks, opportunities, and successes.

TFPL KM Skills Map. Business Awareness/Experience: Business planning; Entrepreneurial; Forward thinking; Globalization issues; Industry/sector knowledge; Leadership; Organizational design; Organizational skills; Risk management; Strategic thinking; Strategic planning; Understanding value chain; Visioning. Management Skills: Change management; Coordination; Cost control; Financial management; Leadership; Measure performance impact, value; People management; Project management; Quality assurance; Team building; Time management; Training and development; Needs analysis.

Intellectual and Learning Skills: Ability to deal with ambiguity; Analytical; Bigger picture view; Conceptual thinking; Emotional intelligence; Self-awareness, self-motivation, persistence, read emotion in others; Innovation; Lateral thinking; Organizational skills; Original thinking; Perspective; Problem solving; Positive thinking.

Topic168. Seven Categories of KM Skills

Categories of KM Skills. Retrieving information. Evaluating/assessing information. Organizing information. Analyzing information. Presenting information. Securing information. Collaborating around information. Retrieving Information: Everything from the low-tech skills of asking questions and listening and following up to the more complex skills of searching for information using Internet search engines, electronic library databases, and relational databases. Concepts of widening and narrowing one's search, Boolean logic, and iterative search practices. Evaluating Information: Not only being able to judge the quality of information, but to determine its relevance to some question or problem at hand. Evaluation of online information.

Organizing Information: Using various tools to draw connections between items of information. In the manual environment, we use file folders, drawers, and other mechanism for organizing information. In more high-tech environments, we use electronic folders, relational databases, and web pages. Analyzing Information: The challenge of tweaking meaning out of data. Development and application of models, often quantitative, to deduce relationships out of the data. Tools such as electronic spreadsheets and statistical software. Presenting Information: Presenting information—whether through PowerPoint presentation, website, or text—to enable audiences to understand, remember, and connect. Securing Information: Developing and implementing practices that assure the confidentiality, quality, and actual existence of information. Password management, backup, archiving, and use of encryption. Collaborating Around Information: Information technology tools called groupware are being provided to support collaborative work. To use that technology effectively requires not just understanding how to use those tools, but understanding underlying principles of effective collaborative work. Use of email etiquette.

Topic169. Major Categories of KM Roles

Strategic roles—chief human capital officer, human capital retention manager. Senior and middle management roles —chief knowledge officer, knowledge manager. Knowledge leaders—responsible for promoting KM within the organization, also referred to as KM champions. Knowledge managers—responsible for the acquisition and management of internal and external knowledge. Knowledge navigators—responsible for knowing where knowledge can be located, also called knowledge brokers. Knowledge synthesizers—responsible for facilitating the recording of significant knowledge to organizational memory, also called knowledge stewards. Content editors—responsible for codifying and structuring content, also called content managers; roles involving capturing and documenting knowledge—researchers, writers, editors. Web developers, electronic publishers, intranet managers, content managers. Learning-oriented roles such as trainers, facilitators, mentors, coaches —including those with responsibility for developing information and knowledge skills.

Human resources roles with specific responsibility for developing programs and processes that encourage knowledge-oriented cultures and behaviors. Knowledge publishers—responsible for internal publishing functions, usually on an intranet, also called Webmasters, knowledge architects, or knowledge editors. Coaches and mentors—responsible for assisting individuals throughout the business unit or practice to develop and learn KM activities and disciplines. Help desk activities, including the delivery of KM and information related to training, also called KSO (knowledge support office).

Topic170. Senior Management Roles

Senior Management Roles in KM: Chief knowledge officer (CKO); or Chief learning officer (CLO). Responsibilities of a CKO or CLO: Knowledge management strategy. Knowledge management operations. Influencing change in the organization. Managing knowledge management staff. Contributions of CKOs: Maximize the returns on KM investment in knowledge—people, processes, and intellectual capital. Exploit intangible assets, for example, know-how, patents, customer relationships. Repeat successes and share best practices. Improve innovation and the commercialization of ideas. Avoid knowledge loss and leakage after organizational restructuring. KM Initiatives by CKOs: Promoting the importance of knowledge sharing. Creating a technical infrastructure to ease that sharing. Promoting a cultural climate that rewards

knowledge sharing behaviors. Measuring the value of knowledge and KM practices to the organization.

Responsibilities of a CLO: A strategic, lead player in today's business organization. Responsible for making sure that learning across an entire system is leveraged, not sacrificed. Accountable to the whole system and having broad discretionary power. Operating by using knowledge about how adults learn, how learning affects work, how value systems operate, and how social and technical systems in an enterprise or in their environment may either support or counteract each other. Initiatives by CLOs: Cultural transformation: Assisting with the development and communication of a new vision and strategy for the organization and tending to the cultural transformation to support the new corporate direction.

Culture maintenance: Designed to support the marketplace strategy and address deficiencies in skills essential to maintain the new culture developed. Contemporary initiatives: Related to business development, like developing a new marketing plan, account manager development, or promotional process redesign. These require the CLO's in-depth experience in the industry, comfort/ease in working across all functions of the organization, and a whole systems viewpoint/thinking.

Topic171. Sample Job Description

A sample job description for the position of 'Knowledge and Information Manager' is available at brint.com.

Knowledge and Information Manager. Responsibilities will include: The systematic recording and storing of health-related information and expertise. The "packaging" of organizational expertise, health information, knowledge, and learning for use by a variety of clients. Maximizing the usability and usefulness of health resources/ information products for different user groups. Promoting the meaning and purpose of information and knowledge resources/products to clients within and outside of the organization. Ensuring information/knowledge resources can be readily accessed and easily retrieved.

The Knowledge and Information Manager: Will provide leadership in the area of knowledge management as a technique for the management of the intellectual assets of the organization. Will assist with the development of knowledge and information as a core business function for all business units. Will provide the "hands-on" expertise

required to manage organizational expertise in the form of both knowledge and information resources/products.

Selection criteria: Tertiary qualifications preferably in relevant field, for example, Information Science, KM. In-depth appreciation of the capabilities and limitations of information technology. The ability to manage knowledge and information via online databases, collaborative technologies, and web-based services. Understanding of knowledge processes such as organizational learning and development. Understanding of the principles of knowledge management as a management technique to enable organizational development in the knowledge economy. Excellent computer skills preferably with experience with database and website management. Experience in systems development and implementation would be an advantage. Experience managing small teams and budgets. Leadership and planning skills. Superior communication and relationship-building skills. Strong project management skills.

Role responsibilities: Develop, implement, and achieve a knowledge management plan for the organization. Establish a Health Information Center for the knowledge and information resources/products of the organization. Develop and maintain a health Internet and intranet site. Train and develop staff in information literacy and knowledge awareness that is, in systematically identifying, collecting, reviewing, sharing, and retaining high-value knowledge. Ensure compliance with relevant legislation, for example, copyright and intellectual property. Oversee development and achievement of business and project plans for the unit. Monitor and report on relevant activity levels in operational and business plans. Establish and maintain links with relevant internal and external stakeholders.

Topic172. KM Roles Within Organizations

Designing information systems (designing, evaluating, or choosing information content, database structures, indexing and knowledge representation, interfaces, networking, and technology). Managing information systems (maintaining the integrity, quality, currency of the data, updating, modifying, improving the system, and operating the system). Information resources management (managing organizational information resources to support organizational missions and for competitive advantage). Training (coaching, mentoring, CoP start-up and lifecycle training support, and feeding back lessons learned and best practices into training content). Information agencies (acting as

information consultants or guides for clients: advising, training, guiding on information, information sources, information use; acting as an agent on behalf of the client: gathering, evaluating, analyzing, synthesizing, summarizing information for clients).

Competitive intelligence (gathering and analyzing intelligence to inform decision making). Customer relations for information systems/technology (acting as intermediaries between clients and information system designers, translating client needs into functional specifications and sales). Designing and producing information services and products publications (databases, information systems, multimedia products, and stories from storytelling workshops). Knowledge journalist (gathering organizational stories and coding tacit knowledge). Organizational information & KM policy analysts (designing access to corporate organizational information and KM policies, quality control, maintaining proprietary information and KM, and mapping corporate intellectual assets). Government KM policy analysts (formulating government policies at all levels regarding such issues as the KM infrastructure, access to and use of government information, intellectual property, privacy and public/private roles in knowledge creation, dissemination and use, government acquisition of information, and information technology).

Topic173. KM Job Titles

Knowledge harvester—a person who has the skills to elicit tacit knowledge from experts and to codify it into a form that is more readily shared. Knowledge analyst—a person who links the needs of users with that of knowledge provision; they translate user needs into knowledge requirements and interpret new knowledge into the business context. Knowledge editor—a person who refines explicit knowledge, converting it into language and formats that are user -oriented; they also synthesize the essence and nuggets from the vast amounts of unstructured information in emails, discussion forums, and other unstructured sources. Knowledge navigator—someone who knows their way around the various knowledge repositories within your organization, whether they are in databases or pockets of expertise.

Knowledge broker—someone who connects people who need knowledge with those who have it; they usually have a good network of knowledgeable contacts. Knowledge gatekeeper—a person who keeps tab on external sources of knowledge and directs it to where it might be useful; more proactive than the [knowledge] broker, who

handles specific user requests. Knowledge steward—a custodian of knowledge resources; they ensure that knowledge is properly managed and kept up to date. Knowledge facilitator—a person who is active in encouraging sharing of knowledge, whether it be through structured conversation, workshop sessions, or creating other mechanisms for people to interact.

Topic174. KM Profession

An emerging profession. Evolved from a consulting service to an internal business function, to become an academic discipline that is being taught in universities worldwide. A number of certification initiatives are underway that will help solidify KM's position as a bona fide field of professional practice.

Professional Education. University programs in KM are proliferating and new classes of KM graduates are entering the KM job market. In general, KM is found in the management, education, and library and information studies departments of universities. Standalone special interest courses have evolved into degree programs at the undergraduate and graduate levels. Quite a few doctoral students have also completed dissertations on KM topics. Many employers now require a degree or at least a specialization in KM. The field of KM still maintains its wide diversity as the titles of these degrees range from computer science, management or business, cognitive psychology, and library and information science degrees.

Professional Associations. KMPro, the Knowledge Management Professional Society. The Knowledge Management Benchmarking Association. The Information and Knowledge Management Society. The International Association of Knowledge Management. A number of professional associations have created KM chapters such as the Special Libraries Association.

Topic175. Where Does KM Belong In the Organization?

Where Are KM Teams? KM teams can be found in disparate business units including information technology, information management, human resources management, training, and strategy units.

Characteristics of Organizations with KM. There is more emphasis on informal human networking than formal reporting structures. Leadership is distributed—

thus a KM specialist in one business unit may lead on one aspect of KM, while responsibility for another aspect of KM resides elsewhere. A clear vision and set of plans/priorities provides a unifying factor across the network. Individual contributors are independent, yet interdependent. "Boundary busting" (i.e., overcoming organizational "silos") is achieved through conscious attention to bridging mechanisms. Communities of practice provide an effective way of knowledge networking across an organization. Virtual teams are often the organizational unit where the core work takes place.

Separate KM Business Unit. In some organizations, there is a separate KM business unit. In many cases, KM units are "spinoffs" of existing units such as the library, document management, or information technology units. Other KM units had employees from all key business units serving as members.

Modules-176-177. Ethics of KM

Ethics. Ethics establish a framework for making decisions based on values, a determination of what is right and wrong. Laws create public policy built on government's presumption of what is best for its citizens. Legal aspects frequently attempt to codify ethical responsibilities, but can often differ from an individual or organizational moral standard.

An Ethical Code. An ethical code for a profession is a system of standards to which those in the field agree to conform. Professionals in formal leadership roles have a responsibility to model the highest possible standards for those whom they manage.

Types of Ethics. Metaethics investigates where our ethical principles come from, and what they mean. Are they merely social inventions? Do they involve more than expressions of our individual emotions? Metaethical answers to these questions focus on the issues of universal truths, the will of God, the role of reason in ethical judgments, and the meaning of ethical terms themselves. Normative ethics takes on a more practical task, which is to arrive at moral standards that regulate right and wrong conduct. This may involve articulating the good habits that we should acquire, the duties that we should follow, or the consequences of our behavior on others. Applied ethics involves examining specific controversial issues, such as environmental concerns, how whistleblowers will be treated, and so on. By using the conceptual tools of metaethics and normative ethics, discussions in applied ethics try to resolve these controversial issues.

KM and Business Ethics. Knowledge management can help generate a greater sense of openness in managerial decision making. KM can promote ethics by enhancing transparency in management where transparency is defined as openness with respect to knowledge and knowledge processes. It becomes possible to identify dysfunctional knowledge processes and bad practices or ideas. KM deals explicitly with the manner in which organizational knowledge is produced and integrated into practice. Openness should contribute not only to more ethical business practices but also to innovation. Transparency Problem: The transparency problem in business is fundamentally a knowledge management problem, because bad practice is nothing more than bad knowledge in use, and bad knowledge in use is the product of dysfunctional knowledge processing. Openness is a prescription for enhancing both corporate responsibility and business innovation.

Ethical Boundaries. Boundaries can help employees of an organization stay on the correct side of organizational policy and can help clarify ethical issues. Some examples of boundaries are landmarks, fences, and DMZs (demilitarized zones). Landmarks: A landmark is a high-level ethical guideline often built upon the company's culture (e.g., values the demonstration of social responsibility among their employees, promotes recycling, donates to local charities, pays employees to work on community events) and these can often be conveyed through good stories. Fences: Fences are explicit boundaries that show exactly where an important ethical line lies (e.g., official company policies on ethics). These should be ubiquitous as policies define the fence and the procedures define operating within the limits of the ethical fence. DMZs: DMZs are concerned with active compliance monitoring (e.g., monitoring of software licenses). They define exactly where the ethical line is and prevent employees from crossing the ethical line in order to monitor and report any violations.

Managing Ethical Liabilities. Involves four major processes: Prevention, using codes of conduct, standard operating practices, and providing landmarks, fences, and DMZs. Detection, using automated systems to enforce and monitor ethical compliance and to verify appropriate use of company assets. Reporting, where employees are able to report unethical behaviors (whistleblowers) without suffering any retaliation. Investigations, which often require outside assistance in order to be thorough, fair, and neutral.

Sample Code of Ethics. Sample code of ethics from the Medical Library Association (MLA). Developed for health science librarians. Goals and Principles for

Ethical Conduct: The health sciences librarian believes that knowledge is the sine qua non of informed decisions in health care, education, and research, and the health sciences librarian serves society, clients, and the institution by working to ensure that informed decisions can be made. Society: The health sciences librarian promotes access to health information for all and creates and maintains conditions of freedom of inquiry, thought, and expression that facilitate informed health care decisions. Clients: The health sciences librarian works without prejudice to meet the client's information needs, respects the privacy of clients, and protects the confidentiality of the client relationship and ensures that the best available information is provided to the client.

Institution: The health sciences librarian provides leadership and expertise in the design, development, and ethical management of knowledge-based information systems that meet the information needs and obligations of the institution. Profession: The health sciences librarian advances and upholds the philosophy and ideals of the profession, advocates and advances the knowledge and standards of the profession, conducts all professional relationships with courtesy and respect, and maintains high standards of professional integrity.

Topic 178. Future Challenges for Knowledge Management

Major Challenges Facing KM

People or cultural issues. An overemphasis on technology. Conducting KM in isolation from business goals. Ignoring the dynamic aspects of content. Opting for quantity of content over quality.

People or Cultural Issues. Companies ignore the people and cultural issues. Individual's knowledge is valued and rewarded, establishing a culture that recognizes tacit knowledge and encourages employees to share it is critical. The need to sell the KM concept to employees should not be underestimated. Create an incentive program.

Overemphasis on Technology. KM is not a technology-based concept. While technology can support KM, it's not the starting point of a KM program. KM decisions should be based on who/whom (people), what (knowledge), and why (business objectives), and you should save the how (technology) for last.

Isolation from Business Goals. A KM program should never be divorced from a business goal. For example, while sharing best practices is a commendable idea, there

must be an underlying business reason to do so. Without a solid business case, KM is a futile exercise.

Dynamic Aspect of Content. Knowledge is not static. Content should be constantly updated, amended, and deleted. The relevance of knowledge at any given time changes, as do the skills of employees. There is no endpoint to a KM program. Like product development, marketing, and R&D, KM is a constantly evolving business practice.

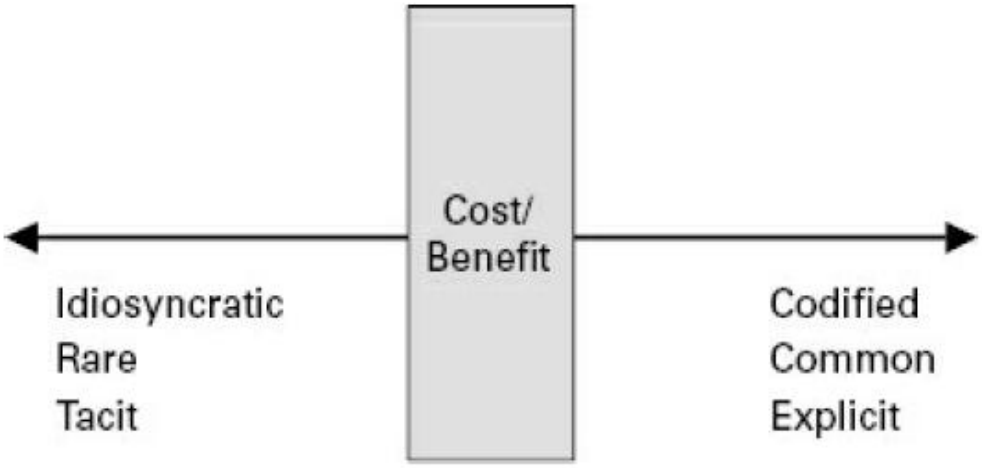
Quantity Over Quality. The point of a KM program is to identify and disseminate knowledge gems from a sea of information. While KM has always been defined as contributing to two major types of organizational goals—efficiency through reuse of knowledge and innovation through the creation of new knowledge—the latter does not appear to have evolved at the same rate as the former.

Value of Knowledge. The harder-to-manage-knowledge is often the higher-value knowledge. The easier it is to extract the knowledge, the less value it actually embodies. The more the knowledge is tacit, the greater its value.

The Paradox of Value: Knowledge assets are a source of competitive advantage for firms that possess them. Yet the way the possession of knowledge translates into a competitive advantage is not well understood. This does not happen automatically—a firm has to know how to extract value from knowledge assets.

This leads to another paradox of a knowledge asset: knowledge transfer does not require physical contiguity. It does require codification and abstraction. There is cost involved with this, therefore only select information with potential value and utility that will justify the time and effort required. Yet the more transferable we make knowledge, the less scarce it becomes. We therefore need reliable ways of measuring intangibles in valuing intellectual capital.

The Value of a Knowledge Asset



Topic 179:

Intellectual Property Issues.

Attribution: The discomfort over the possibility of a knowledge resource—a best practice, a template—may sever the link between the creator and the actual knowledge. If KM takes appropriate steps to ensure that attribution—or author credits—are always connected and therefore move with the knowledge, then most of the concerns have been allayed.

Unwanted Attribution: Authors are concerned that once the knowledge is out of their hands it will become modified, watered down, invalidated or otherwise modified, and still attributed to them. Authors and creators feel that they cannot control the changes and adaptations and therefore they can no longer attest to the validity and quality of the knowledge.

The Solution: To follow document management and version control best practices. Knowledge resources should be tracked with names associated for those knowledgeable about the resource (experienced users, subject matter experts), the author, and any subsequent authors of modified versions. This knowledge history can be captured in metadata.

Copyleft: Reaction against restraints imposed by copyright laws. Formally known as the "Creative Commons." Removal of all restrictions—for example, open source software or any publicly available content.

Permissions in Creative Common Licenses.

- Attribution requires users to attribute a work's original author.
- Authors can either not restrict modification or use share-alike, which is a copyleft requirement that requires that any derived works be licensed under the same license.

- No derivatives, which requires that the work not be modified.
- Noncommercial requires that the work not be used for commercial purposes.

Right to Redistribute:

All Creative Commons licenses allow the core right to redistribute a work for noncommercial purposes without modification.

Topic 180:

Incentives for Knowledge Sharing.

Incentive: A reward or some form of positive feedback given when a desired behavior is exhibited. Since human beings are purposeful creatures who would tend to continue behaviors associated with positive rewards and avoid those behaviors that lead to negative consequences, it seems reasonable to expect that incentives for knowledge sharing should lead to more sharing of knowledge.

Examples of Rewards: A public posting of a "knowledge sharer of the month" serves to motivate employees to share more knowledge. A plaque used by fast food companies to motivate their staff.

'Example of Buckman Labs: Employees polled and the top choice turned out to be a laptop computer to be conferred to the top KM citizens flown in to headquarters for a public remittance of the prize by the company president himself.

Categories of Incentives: Remunerative incentives. Moral incentives. Coercive incentives.

Remunerative Incentives: Financial incentives. An agent can expect some form of material reward—especially money— in exchange for acting in a particular way.

Moral Incentives: A choice is regarded as the right thing to do, or as particularly admirable, or where the failure to act in a certain way is condemned as indecent. A person acting on a moral incentive can expect a sense of self-esteem, and approval or even admiration from the community. A person acting against a moral incentive can expect a sense of guilt, and condemnation from the community.

Coercive Incentives: A person can expect that the failure to act in a particular way will result in physical force being used against him or her by others in the community—for example, by punishment, imprisonment, firing, or by confiscating or destroying their possessions.

Incentive Systems in Organizations: The value of knowledge sharing be reflected in the ongoing personnel evaluation and periodic merit review or pay bonuses

of the organization, so that managers and staff can see that knowledge sharing is one of the principal behaviors that the organization encourages and rewards.

Topic 181:

Other Challenges for KM. Some people predict no future for KM, citing a number of failures to deliver. Underestimating the people component of KM. Unrealistic expectation that human organizational behavior could be easily and rapidly changed. Behavioral change at the individual level and cultural change at the organizational level are very difficult and lengthy processes. Overemphasis on the role of technology in KM solutions. A KM strategy enables an organization to act proactively (acting before the problem occurs) rather than reactively (acting after a crisis has arisen).

Recommendations for Being Proactive.

- Improving access to information and knowledge—covering the availability, accessibility, and affordability of information (especially of scientific information in developing countries).
- Promoting knowledge sharing through learning circles and vertical/horizontal coalitions, peer-to-peer learning, knowledge networks, infomediaries, help desks, e-learning, and better interaction and mutual learning with target groups.
- Networking and international and regional cooperation—covering networking models, digital solidarity, collaboration tools like portals and common terminology (e.g., thesaurus), and network effectiveness, and strengthening existing structures and knowledge resource centers.
- Including the development of local content in local languages and dissemination channels besides Internet, capacity building, and quality control and standards.
- Avoiding weak incentives (A weak incentive is an incentive that does not encourage maximization of an objective, because it is ambiguous)

Topic182. KM and Innovation

Innovation. Creation of new knowledge and ideas to facilitate new business outcomes, aimed at improving internal business processes and structures and to create market driven products and services.

KM and Innovation. Capturing and sharing information provides raw material to help inspire people throughout an organization to figure out something different and better. KM should facilitate and motivate those leaps of thinking to enhance individual

creativity and organizational innovation capabilities. Speed of innovation is continually increasing due to technology evolution, shorter product lifecycles and higher rates of new product and service development. There has been, in parallel, a strong increase in the amount and complexity of knowledge being used by organizations. Organizations will rely more and more on their capability to innovate in order to maintain or gain a sustainable competitive advantage. KM role is not clear. Authors mentioned that there is little clarity in both the academic and practitioner literature on the role KM can or does play in innovation. This lack of clarity persists today.

KM does not solely or directly focus on innovation as an end result but rather that it helps create an environment that may be conducive for innovation to take place. Promoting collaboration. Managing the complexity created by the volume and richness of knowledge. Integrating knowledge in such a way that it is easily accessible to knowledge workers. KM can help employees share tacit knowledge, which in turn can trigger innovation. Tacit knowledge, being harder to articulate, also harder to duplicate—and is therefore more "protected" from competitors. A great deal of knowledge remains tacit in the development of new products and services. KM actively fosters a more collaborative work environment and provides platforms, tools, and processes to ensure that an organization-wide knowledge repository is available to all employees. The more people interact, the greater the likelihood of discovering new knowledge and new people with new expertise. Organizations can no longer rely on generating innovation solely from their internal knowledge base. What is needed is an integration of internally and externally generated knowledge with extensive collaboration and interaction between partners, customers, suppliers, research labs, universities, and many others.

Topic183. What's Next?

The future of KM will mirror the key trends in organizations, namely increased collaboration in all work processes, synergy between information and knowledge management, and increased focus on innovation as well as on risk management and ethics.

Information Overload. The future will likely hold an ever-increasing information overload. Organizations cannot be efficient or effective when they have so much content in so many different systems— and no way of preventing this content from proliferating. Inability to connect the dots and make sense of content that is widely

scattered over different locations will cripple organizations to such an extent that they will see the effects in the quality of their products and services (and revenues). Content was expected to increase by 800 percent from 2013 to 2018. Knowledge workers are quickly becoming unable to locate specific items needed for their work, let alone analyze this content for patterns and insights. Knowledge has never been so far removed from actions and decisions— which is what KM is all about.

Cultural Challenge. Cultural problems stem from the way we teach and train employees. Our "one size fits all" approach cannot deal with diversity or differences in experience, expertise, and preferences.

Technological Challenge. While there has been some movement on the standards front, there remains a dizzying proliferation of tools, technologies, and systems that continue to create data silos. Valuable knowledge is located in just too many places and it is simply not possible to search and find it all. KM—and IM—will need an environment where access is personalized, customized, and packaged so that users can make use of to get their jobs done. It is possible to continue to make tools smarter, so that they "know" who we are, what we are working on, and what we are trying to do—all, ideally, in real-time.

IM and KM. The future of KM will require a cohesive and comprehensive perspective, one that is inclusive (e.g., IM plus KM) rather than divisive (e.g., IM vs. KM). Information management and information technologies will continue to integrate big data and predictive analytics tools in order to create and manage knowledge.

Standardization of KM. There is more focus on standardization of KM processes, KM content, governance, and team development.

Other Issues. KM needs to continue to address issues of intellectual property (including the Creative Commons) and information privacy and security, as well as labor laws. The management and mitigation of risk factors need to be explicitly addressed in all KM projects, including risks to copyright as well as to employee rights. A KM code of ethics will emerge, similar to those found in other professions such as engineering, medicine, and law.

Topic184. Benefits of Knowledge Management in Education

It improves services to the students, staff, faculty members, alumni and internal and external constituents. It minimize turnaround time for the research activities. It

encourages the institute into interdisciplinary research activities. It enhances competitiveness and responsiveness for research proposals, funds, collaborations and new business opportunities. It concentrates on quality of research at institutional level which will cultivate future scientists. It enhances the competitiveness and responsiveness for research scholar. It minimizes time spent for research and reduces administrative cost. It facilitates interdisciplinary research. It enhances the quality in updating and revising the curriculum. KM develops the capabilities of human capital, customer capital (students), organizational capital, innovation capital & intellectual property, and financial capital.

Topic185. Benefits of Knowledge Management in Schools

KM supports teachers to collect information or make use of the organization's knowledge resource to carry out their teaching and tasks effectively. KM provides schools with adequate communication channels for teachers to discuss school issues with management. Teachers can reflect on and review feedback from others and develop further strategies and plans for improving school-based policy and teaching effectiveness. School policies can be adjusted in light of teacher feedback for maximizing student learning. KM retains the expertise of experienced teachers, increases their effectiveness in terms of teaching and learning performance, supports the development of a knowledge community in schools, and fosters the culture of learning. KM helps to capture and retain experienced teacher knowledge in the school and strengthen the novice teacher's knowledge through knowledge transfer in administrative work and teaching. KM can strengthen the knowledge-sharing culture and build collegiality into the school organization.

KM supports innovative teaching and effective learning. Through conducting data mining in student test scores, teachers can identify students' strengths and weaknesses for effective instructional design. A few communities of practice on lesson study can be cultivated by the KM system for capturing, sharing, storing and creating pedagogical knowledge and pedagogical content knowledge. As a result, teachers' professional development can be enhanced. With the building of a knowledge repository for student affairs services, KM provides a one-stop service to teachers and students to achieve information on student study advancement and career guidance, and teachers can be better equipped to provide student guidance and counselling.

Topic186. Challenges for Knowledge Management in Education

Due to rising public accountability pressures and strains on fiscal resources, many legislators have begun to demand information that can be directly linked to academic outcomes. As a result, these institutions are faced with requirements to provide accurate data and information. Information technology infrastructure at many higher-education institutions is problematic. Rather than having one robust and integrated system, educational institutions more often maintain several information systems that support various functions throughout the organization. There are inconsistent priorities around data collection, which can result in inaccessible or unreliable data. It translates into disparate data silos throughout the organization, redundant data gathering, and information hoarding, the cost of which is an impaired ability to sustain knowledge development, growth, and effective decision-making.

Cultural issues associated with information hoarding and overall disincentives for sharing and cross-functional cooperation can undermine KM implementation strategies in educational institutions. These problems include people's prevailing attitudes, beliefs around knowledge sharing, and systematic and structural disincentives to share and exchange. KM practices also require long-term strategies and commitments in order to fully realize their benefits.

Topic187. Opportunities for Knowledge Management in Education

Educational institutions demonstrate a great need for improved knowledge-based systems. There are many formal and informal administrative processes, information-sharing patterns, work incentives, information silos, and other work practices that have flourished over time. KM strategies and practices can begin to integrate these disjointed systems. The cyclical quality of KM encourages organizations to take an honest and reflexive stance on what is already going on in their organization. This process offers the opportunity for these institutions to integrate KM to promote sustainable learning within their organizations in order to meet the external demands as well as improve organization-wide effectiveness.

Higher-education institutions can identify groups of people who already maintain synergistic relationships of collaboration within the institution. Educational settings already demonstrate many information-sharing activities in effect, such as existing formal

or informal communities of practice. However, to sustain ongoing inquiry and continuous learning, they need to strategize as to how they will systemically embed these activities within the fabric of the organization. Taken individually, information-sharing activities can be used toward incremental improvement; however, when KM is adopted and executed as an organization-wide strategy, improved methods of data and information sharing can be used to continually promote the development of KM-based practices.

KM-based practices can help educational institutions become more informed in their decision-making as a whole. All of this helps to lay the foundation for a robust culture of inquiry and reflexivity, thus establishing the mechanisms for sustainable, long-term organizational learning. Student access and success are the most important likely benefactors of the KM practices. KM practices can promote organizational reflexivity in such a way that educational institutions better understand their own weaknesses and strengths, and can then allocate their resources to where they are most needed. KM practices align institutional capabilities and resources to better address students' needs and thus student success. Subsequently, educational institutions that engage in KM practices for continuous learning at the organizational level also engage in promoting continuous learning for their students.

Topic188. KM and Strategic Planning in Schools

Strategic Planning in Schools. Strategic planning helps schools to survive in a turbulent policy environment by coping with the changes generated by government policies and market forces. It plays an important role in providing a blueprint for school leaders and teachers to address curriculum reform and lifelong learning policy. Strategic planning can also facilitate the sustainable development of schools by scanning the organizational environment and reviewing internal strengths and weaknesses to prioritize action planning. Without effective planning, schools' targets cannot be achieved and the quality of education cannot be improved. This can lead to a high risk of failure for education reforms and, in turn, a waste of government resources.

Strategic Planning Process. Scanning or assessment of the internal and external environmental components of the school organization. Analyzing the information and data collected. Formulating a plan to tackle the impact generated by the external environment.

Benefits of Strategic Planning. School leaders and teachers can articulate institutional goals and priorities. School leaders can coordinate and reorganize different decisions within schools. They can deal with an increasingly turbulent environment and the challenges faced by the school.

An Effective Strategic Plan. An effective strategic plan should be comprehensive, wide-ranging and combine various school activities which would then be compiled into a document, ensuring that the actions in the plan are well-coordinated. Strategic planning is related to the school's vision. Staff and Strategic Planning: Effective strategic planning formulation depends on the collective wisdom of staff and the knowledge-sharing culture. Staff can contribute more to school development if they are familiar with the school situation through involvement in planning.

KM and Strategic Planning. Effective strategic planning can be streamlined by incorporating knowledge management strategies so as to leverage knowledge resources for gaining competitive advantage. Applying KM in schools may help them to improve their planning capabilities. Common reasons for the failure of strategic planning are inadequate staff participation in planning and whether access to reliable data and information is available. A possible solution would be to enhance teacher personal knowledge management (PKM) competency and to institutionalize the KM system for data mining and knowledge sharing.

Cheng's Study. Cheng (2013) surveyed 1000 teachers of 20 primary and secondary schools. Teachers agreed that applying KM in schools can improve strategic planning capacity, management, their teaching competencies, student support and assessment for learning. Knowledge management vision, sharing culture and IT support were identified as predictive factors for strategic planning capacity. Teachers agreed that applying KM can enhance the school's management efficacy, is useful for analyzing data of students' academic performance and performance in other areas and for the school's development as a whole.

Topic189. Normative Model for KM Implementation in Schools

A normative model that guides the design of KM initiatives and sustainable strategies for KM implementation in schools was proposed by Cheng. It recommends school leaders to consider knowledge leadership, KM vision, a knowledge-sharing culture,

KM in the school structure, and KM strategies as critical success factors in initiating KM implementation.

Knowledge Leadership. Leadership style has a very considerable effect on the attitudes and behaviors of staff towards innovation. School leaders can be vital in making policies meaningful or, conversely, virtually meaningless. Their attitude towards innovation should be positive, celebratory, encouraging and radical. They should have ideas for, and experiences of, innovation; as well as knowledge of theories of innovation. For effective institutionalization of a KM system and implementation of KM processes in schools, the support of the principal and engagement of middle management are essential.

Building KM Vision. School leaders must have a personal vision regarding how KM practices can sustain school development. It is to create an ongoing process that aims to inculcate a sense of commitment in the whole school, and a desire to apply KM. The KM vision must be created by means of a comprehensive interaction among teachers in the school and through challenging and ongoing dialogue.

Knowledge-Sharing Culture. School culture is important in shaping the way in which, and the extent to which, a school is able to utilize knowledge and deliver innovation with regard to teaching and learning. School leaders should promote trust in their schools by first fostering trust between themselves and their teachers.

A Normative Model for Guiding KM Strategies. A normative model is necessary to guide the implementation of a sustainable strategy for KM. The SECI model may be useful. Questions to be Considered: School leaders are called to answer two fundamental questions on what to manage and how to manage before KM implementation. What domains of knowledge will be required to support the school development? How to manage such domains of knowledge so that school leaders and teachers know how to support the school development?

Topic190. Framework for a KM Platform in Higher Education Institutions

KM Platform. A framework for a knowledge management system (portal) in a higher education institution proposed by Sinha (2012). A portal with eight sub-portals.

K2Doc. A document warehouse. Various sections related to general and technical information accessible to employees (faculty/staff) comprising of accreditation

standards, proposed courses in pipeline, fee structure, expenditure, budget plan etc. Access is restricted.

K2Learn. A database of documents for both faculty and students. Sections for presentations, notes, old question papers, online quiz, discussion forums, research papers etc.

Framework for a KM Platform in Higher Education Institutions.

K2Research. Repository of the in-house developed expertise like developed case studies, ongoing research, working papers, ongoing student projects, tools and methodologies, ready to use templates like resume format, important questions for viva, simulations, recorded videos of student viva, placement information etc.

K2DataBank. Archived student projects. Useful for students to make them learn from experiences of their seniors. Best practices, techniques adopted, and success mantras.

K2Expert. A directory of people who are experts in their respective domains. Links to connect to academic experts, career counselors, consultants from various industries etc. It would help mainly students to draw a roadmap for their career path by learning from individual experiences and counseling.

K2Explore. For future reference. The queries for which answers are posted are closed and archived in K2Explore whereas those which remain unanswered are posted as a message to the entire fraternity.

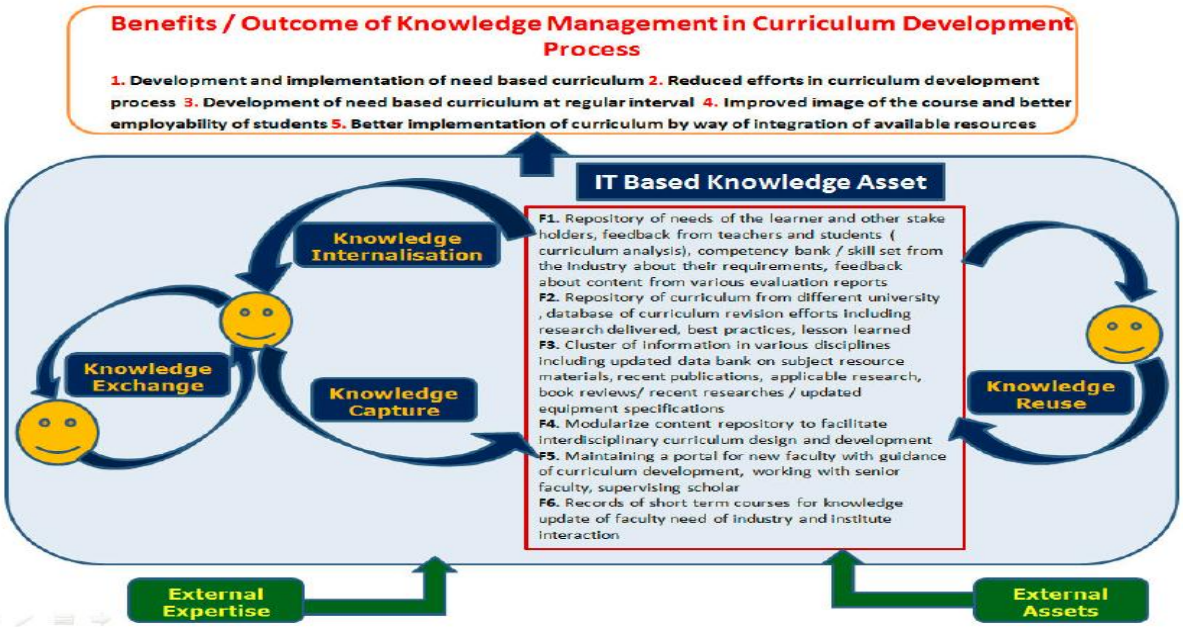
K2Konnect. Online discussion forums designed to enable student/staff/management to discuss and exchange information on a particular topic of interest to them.

K2TestTime. A virtual exam center where student can appear for both objective and subjective mock tests/exams. It will score the results and keep a track record of an individual's performance with comparative result with those that have appeared in the past or the expert score.

Topic 191 KM Framework for Curriculum Development

KM Framework. Knowledge Management Framework for Improving Curriculum Development Processes in Technical Education was proposed by Agrawal et al. (2008).

KM Framework for Curriculum Development Process



Benefits of KM.

- Development and implementation of need-based curriculum.
- Reduced efforts in curriculum development process.
- Development of need-based curriculum at regular interval.
- Improved image of the course and better employability of students.
- Better implementation of curriculum by integration of available resources.

IT-Based Knowledge Asset.

F1. Repository of needs of the learner and other stake holders, feedback from teachers and students (curriculum analysis), competency bank/skill set from the industry about their requirements, feedback about content from various evaluation reports.

F2. Repository of curriculum from different universities, database of curriculum revision efforts including research delivered, best practices, lessons learned.

F3. Cluster of information in various disciplines including updated data bank on subject resource materials, recent publications, applicable research, book reviews/ recent researches/ updated equipment specifications.

F4. Modularize content repository to facilitate interdisciplinary curriculum design and development.

F5. Maintaining a portal for new faculty with guidance of curriculum development, working with senior faculty, supervising scholar.

F6. Records of short-term courses for knowledge update of faculty need of industry and institute interaction.

Topic 192:

Expected Knowledge Activities in KM Framework for Curriculum Development.

The framework provides a list of expected knowledge activities that are identified and may take place while creating knowledge through the knowledge internalization, knowledge exchange, knowledge capture and knowledge reuse functions under each identified asset for improving the curriculum development process.

Four Ways of Knowledge Creation.

- Knowledge internalization or what we term as Explicit to Tacit.
- Knowledge exchange or Tacit to Tacit.
- Knowledge capture or Tacit to Explicit.
- Knowledge reuse or Explicit to Explicit.

Expected Knowledge Activities in KM Framework.

Asset F1.

Knowledge Internalization: Studying feedback on existing curriculum by the faculty involved, gap analysis.

Analyzing problems and feedback by students with the existing curriculum. Analyzing search conference reports.

Assimilating skill set required for each discipline as per the industry need. Analyzing curriculum evaluation report.

Asset F1. Knowledge Exchange: Sharing experiences/ problems in content while classroom teaching.

Comparing feedback on pre-requisite for subject content.

Sharing experiences regarding student entry level with course content. Sharing experiences with industry about course/ subject.

Asset F1.

Knowledge Capture: Identifying needs of learner and other stake holder.

Exploring problems and gaps in the subject(s) from the subject faculty.

Capturing feedback from student regarding contents.

Capturing skill set as per the need of industry according to job profile.

Asset F1. Knowledge Reuse: Analyzing search conference report. Analyzing curriculum analysis reports. Commenting on existing curriculum.

Asset F2. Knowledge Internalization:

Evaluating curriculums of other universities with respect to level of difficulty in implementation, job profile, student entry level, need of industry.

Analyzing feedback from the industry, faculty and student on the various curriculum of other universities.

Internalizing lesson learned in the process of other curriculum revision efforts.

Asset F2. Knowledge Exchange:

- Sharing experiences regarding different subject offered in the various curriculums.
- Discussing sequence of pre-requisite subjects.
- Summarizing recent innovation in the content areas.
- Sharing best practices by the curriculum developers of other universities.

Asset F2. Knowledge Capture:

- Enlisting best practices used in the curriculum development and implementation. Drafting various points of other curriculum vs. existing curriculum.
- Capturing feedback from industry-regarding others curriculum with pass-out.
- Capturing feedback from students and faculty- difficulties in teaching, learning.

Asset F2. Knowledge Reuse:

- Reviewing records of revision efforts with their frequency and time.
- Updating information about curriculum of various universities.
- Evaluating best practices used in development of curriculums.
- Consolidating various search conference and curriculum analysis reports.

Asset F3. Knowledge Internalization:

- Identifying new equipment specifications used for skill development.
- Studying book reviews for better text/ reference book selection.
- Interpreting recent researches in various areas.
- Assimilating learning resources and other material which will be useful for curriculum development.

Asset F3. Knowledge Exchange:

Explaining use of new equipment in the specific subject.

Exchanging information on learning resources.

Communicating subject specific research and their uses.

Sharing lab experiments in various subjects. Clarifying Knowledge need to be developed through each subject.

Asset F3. Knowledge Capture:

- Enlisting subject specific books – their reviews.
- Incorporating detail specifications of equipment.
- Developing subject specific experiments list with equipment specifications.
- Advising research in various areas.

Asset F3. Knowledge Reuse:

- Reviewing subject wise book list and experiment list.
- Reconciling experiment wise equipment and their specifications.
- Referring and updating research results.

Asset F4. Knowledge Internalization:

- Exploring need for interdisciplinary curriculum development.
- Referring pre-requisite contents for interdisciplinary curriculum.
- Assimilating industry needs for interdisciplinary course.

Asset F4. Knowledge Exchange:

- Discussing problems in pre-requisite.
- Sharing industry experiences for need of inter-disciplinary study. S
- haring experiences on modularize content for interdisciplinary course.

Asset F4. Knowledge Capture:

- Providing case studies and best practices for interdisciplinary courses development.
- Commenting on modular content repository.
- Providing feedback on prerequisite of interdisciplinary course.
- Incorporating industrial need and experiences for interdisciplinary course.

Asset F4. Knowledge Reuse:

Updating learning resources for interdisciplinary course development.

Asset F5. Knowledge Internalization:

- Interpreting experience provided by senior faculty members.
- Assimilate best practices applied in curriculum development process. S
- tudying/ analyzing curriculum development models – comparative study.
- Referring guidance for effective curriculum development.
- Exploring available resources for curriculum development.

Asset F5. Knowledge Exchange:

Sharing experience with peers, industry in the process.

Discussing seniors/ experienced faculty involved in curriculum development.

Ensuring /monitoring availability of time in development process.

Asset F5. Knowledge Capture:

Enlisting case studies of previous curriculum development process.

Facilitating curriculum development model and best practices used in the field.

Developing/ consolidating industry participant list – in previous development.

Developing resource material and resource persons list.

Asset F5. Knowledge Reuse: Revising resource person list – industry persons and faculty members. Updating curriculum – various versions

Asset F6. Knowledge Internalization:

- Analyzing need of short-term courses for industry and institute interaction. Analyzing impact of previous courses.
- Observing industry training schedule, time-table. Studying best practices used in the industries.

Asset F6. Knowledge Exchange:

Sharing experience of industrial training/visits.

Understanding industrial needs of pass -outs.

Refining researches required in the specific area.

Exploring areas of learning in collaboration with industries.

Asset F6. Knowledge Capture:

Providing case studies/ industrial training reports, list of faculty members attended.

Explaining industrial processes.

Exploring competencies/ skill set required to develop.

Asset F6. Knowledge Reuse:

Updating records of industries and the training schedules.

Revising records of content updation and industrial training need.

Topic 193 Knowledge Management for Academic Libraries

Traditional Roles of Librarians.

- General library work. Information or user services.
- Research. Information literacy instruction.
- Records management. Data and document control management.
- Website, intranet, and content management.

Roles of Librarians in Knowledge Economy.

- Fostering knowledge-sharing culture and practices, including use of communities of practice.
- IM, including content management, information and records management, information retrieval, analysis and critique of information sources, and information auditing.
- Education and training. Information systems and technology management, including information systems support, provision of infrastructure, harnessing of new technologies to enable knowledge sharing, and intranet and website management.
- Provision of information services, including the collection, organization, analysis, and dissemination of business information.
- Management of an organization's "intellectual capital." Research support, including the provision of a research evidence base for decision-making.

Role of Librarians in KM.

Academic librarians can benefit their institutions, their libraries, and themselves by undertaking a campus-wide role in managing organizational knowledge. They can use KM as a way to expand the library's role in areas such as administration or support services, where libraries have had little impact in the past. They can develop cross-functional teams with units in areas such as computing, instructional technology, institutional planning, and personnel to create collaborative organizations that have major institutional missions and responsibilities. Academic libraries are also considered as learning organizations; if KM occurs within libraries, this can be of great value for creating and maintaining a learning culture.

KM Objective in Libraries. To promote knowledge innovation, Closer relationships in and between libraries, and between a library and its users, To strengthen knowledge internetworking, and To quicken knowledge flow.

Topic 194:

Reasons for Libraries to Adopt KM.

- Improving the future prospects of the library.
- Improving library operation and services.
- Better decision-making capabilities.
- Reducing processing time by avoiding duplication of work.

- Enhancing collaboration within different units of the library.
- Enabling and encouraging innovation.
- Facilitating information sharing among employees and preventing them from having to reinvent the wheel every time.
- Capturing and recording the knowledge of employees before they leave the library, ensuring that valuable expertise does not leave when an employee leaves.

Reasons to Adopt KM

- Increasing an organization's awareness of the gaps in its knowledge.
- Helping libraries to survive by increasing their awareness of strategies, information products and services, and best practices of their competitors.
- Improving user services.